

STATE OF NORTH CAROLINA

COUNTY OF WAKE

NORTH CAROLINA LEAGUE OF
CONSERVATION VOTERS, et al.,

REBECCA HARPER, et al.,

Plaintiffs,

vs.

REPRESENTATIVE DESTIN HALL, in his
official capacity as Chair of the House
Standing Committee on Redistricting, et al.,

Defendants.

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
21 CVS 015426

Consolidated with
21 CVS 500085

**MOTION TO STRIKE PORTIONS OF
DR. MOON DUCHIN'S REBUTTAL REPORT**

Pursuant to North Carolina Rules of Civil Procedure 26(b)(4)(f) and 37, North Carolina General Statute, Section 8C-1, Rules 702, 703, and 705, Legislative Defendants move to strike portions of the rebuttal expert report submitted by Dr. Moon Duchin on December 28, 2021 on behalf of NCLCV Plaintiffs that are not valid rebuttal evidence and are, therefore, untimely pursuant to the Case Management Order ("CMO").

INTRODUCTION

On December 28, 2021, Dr. Duchin served a rebuttal report (the "Rebuttal Report," attached as Exhibit A) that purported to solely rebut the expert report of Legislative Defendants' expert, Dr. Michael Barber. Included within Dr. Duchin's rebuttal report, however, is an entirely new analysis she performed of the enacted congressional plan and the NCLCV "Optimized" congressional plan. But, as Dr. Duchin candidly admits in her own rebuttal report, Dr. Barber did

not study the congressional plan (or NCLCV’s “optimized” congressional plan) and did not offer any opinions in his December 23, 2021 report concerning those plans.

Accordingly, Dr. Duchin’s new analysis of the enacted and NCLCV “optimized” congressional plans are not rebuttal under any conceivable definition: they present entirely new analysis of the enacted Congressional plan, which Dr. Barber did not evaluate at all. And Dr. Duchin’s tardy analysis is severely prejudicial to Legislative Defendants, who have no opportunity to respond to this entirely new analysis before trial. Accordingly, this Court should enforce its case management order and strike the portions of Dr. Duchin’s rebuttal report that address the enacted and NCLCV “optimized” congressional plan.

FACTUAL BACKGROUND

A. The Case Management Orders

This case is proceeding under this Court’s CMO, entered on December 13, 2021, and pursuant to the North Carolina Supreme Court’s edict that a merits decision be rendered by January 11, 2022. The CMO requires opening expert reports to be exchanged on December 23, 2021 and rebuttal expert reports—and only *rebuttal* reports—to be exchanged by December 28, 2021. Trial is to begin next week, on January 3, 2022. Opening reports and rebuttal reports were served by the appropriate deadlines. As of December 28, 2021, Legislative Defendants’ opportunity for expert opinion was complete, with trial looming six days later. The Court also set the deadline to conduct expert discovery depositions on December 31, 2021.

B. The Expert Reports

Dr. Duchin and Dr. Barber proffered their expert reports on December 23, 2021. Dr. Duchin’s opening report compared the enacted Congressional and State Senate and House plans to NCLCV’s so-called “optimized” plans created by its attorney, Sam Hirsch. Dr. Barber, on behalf

of the Legislative Defendants, conducted a simulations analysis of the State Senate and House Plans as well as the corresponding NCLCV “optimized plans” for the State House and State Senate—but he performed no analysis of the enacted congressional Plan or NCLCV’s “optimized” congressional plan—and offered no opinions concerning that plan.

Nevertheless, and inexplicably, Dr. Duchin took the source code and input data included with Dr. Barber’s report, configured the code to generate congressional plans instead of state legislative plans, and then ran that code to generate 20,000 simulated congressional plans (Duchin Rebuttal Rep. 6 & n.7). Dr. Duchin then included, in her rebuttal report, a brand new, detailed analysis of the enacted and NCLCV congressional plans using the 20,000 simulated maps she created. And she did so after acknowledging that “Dr. Barber omits an ensemble comparison for the enacted Congressional plan.” Duchin Rebuttal Rep. 3; *see also id.* at 7. Dr. Barber, naturally unable to anticipate that Dr. Duchin would conduct fresh analysis on a topic he did not previously address, did not address the congressional map in his rebuttal report.

In her deposition, Dr. Duchin conceded all these points. She admitted Dr. Barber did not run simulations (“ensembles” in Duchin’s nomenclature) of the congressional plans in this case. 12/30/21 Deposition of Moon Duchin, excerpts attached as Exhibit B, at 131:11-132:4.¹ In a further exchange, she conceded:

Q. So you would agree with me that ... all of the analysis you perform in your rebuttal report on the Congressional plan is not based on any ... analysis that Dr. Barber performed in his December 23rd, 2021 report, correct?

¹ At the time of filing of this motion, only a “rough” transcript of Dr. Duchin’s deposition was available.

A. Right. I took that to be a conspicuous omission and so undertook to fill in that gap.

Id. at 132:20-133:1.

ARGUMENT

The Court should exclude the portions of Dr. Duchin’s rebuttal report that presents fresh analysis of maps never evaluated by Legislative Defendant’s expert, Dr. Barber. Dr. Duchin’s analysis and discussion of the congressional plan (and NCLCV’s “optimized” congressional plan) is not properly rebuttal material and violates the CMO deadlines for disclosing new expert opinion.

A. Analysis of the Congressional Maps Exceeds the Scope of Rebuttal

In setting deadlines for opening expert reports and rebuttal reports, the CMO adopted an “established a system for exchanging expert reports that placed a full up-front disclosure duty upon the party with the burden of proof on a given issue.” *Oracle Am., Inc. v. Google Inc.*, 2011 WL 5572835, at *3 (N.D. Cal. Nov. 15, 2011). “This system contemplated a narrowing of issues through the service of opening, then opposition, then reply reports (if at all), similar to the order of proof at trial or the examination of a particular witness at trial.” *Id.* This well-known system “was designed to forestall ‘sandbagging’ by a party with the burden of proof who wishes to save its best points for reply, when it will have the last word, a common litigation tactic.” *Id.*; *see also Boles v. United States*, 2015 WL 1508857, at *3–9 (M.D.N.C. Apr. 1, 2015) (striking four reports as exceeding the scope of rebuttal reports); *Insight Health Corp. v. Marquis Diagnostic Imaging of N. Carolina, LLC*, 2017 WL 806432, at *16 (N.C. Super. Feb. 24, 2017) (quoting *Boles* for the well-known limit on rebuttal reports).

In presenting fresh analysis of the congressional plans, Dr. Duchin’s rebuttal reports violate the established rule that such reports “may not advance new arguments or new evidence outside the scope of the opposing expert’s testimony.” *Bentley v. Highlands Hosp. Corp.*, 2016 WL

5867496, at *5 (E.D. Ky. Oct. 6, 2016) (quotations omitted, collecting cases). Plaintiffs introduced new expert analysis of plans never addressed by Legislative Defendants when they prepared and served their reports. Because “the deadline for such disclosures” of new expert analysis has passed, “the report[s] [are] untimely.” *Id.* at *5. Legislative Defendants currently have no way to adequately respond to this surprise given that trial begins in a mere several days. And they could not conceivably have anticipated entirely new opinions regarding plans its expert never analyzed.

But there is no plausible case that Dr. Duchin’s new analysis of the enacted and NCLCV “optimized” congressional plans are fair rebuttal to Dr. Barber’s report, which did not analyze either plan. “[S]ubstance triumphs over form,” and the Court should “look past the party’s label and construe” this portion of the report for what it is: an entirely new expert report. *Bentley*, 2016 WL 5867496, at *5; *Vu v. McNeil–PPC, Inc.*, 2010 WL 2179882 (C.D. Cal. May 7, 2010) (finding that such a broad meaning would all but nullify the distinction between an initial “affirmative expert” and a “rebuttal expert”). Thus, even though other aspects of Dr. Duchin’s rebuttal report purports to respond to points Dr. Barber made in his report about the State House and State Senate plans, it was beyond the scope of rebuttal testimony to respond with an entirely new analysis of the congressional plan.

This is violation of the CMO, and that alone justifies precluding Plaintiffs’ rebuttal reports—and any testimony in reliance on them—from evidence. *See Allen Smith Inv. Properties, LLC v. Barberry Properties, LLC*, 2013 WL 57048, at *11 (N.C. Super. Jan. 3, 2013) (striking evidence that was untimely under a case management order). But, even if the Court believes an inquiry into prejudice or justification is appropriate, *see Calvert v. Ellis*, 2014 WL 3897949, at *4

(D. Nev. Aug. 8, 2014), this is an egregious case of abuse and prejudice.² This was a self-evident tactic to sneak flawed opinion by experts into the record and to circumvent the adversarial process that would expose those flaws.

Given the extreme, compressed schedule parties and the Court are operating on, Legislative Defendants have no opportunity to remedy Plaintiffs' violation by means less severe means than exclusion of the portions of Dr. Duchin's rebuttal report addressing the congressional plan. These are complex expert analyses involving calculations requiring expert review; attorney arguments about how Dr. Duchin may have twisted Dr. Barber's methodology are insufficient. And with expert depositions ongoing and trial set to begin next Monday, January 3, 2022, there is simply no time for Dr. Barber to prepare appropriate rebuttal.

Any prejudice Plaintiffs believe the exclusion prejudices is a problem of their own making. Plaintiffs demanded lightning-speed resolution of this case, and the North Carolina Supreme Court obliged. The only option for the Court to admit this improper rebuttal evidence would be to extend case deadlines to allow full adversarial review of the new material. This includes the trial date. But this is an impossibility at this point. Therefore, the offending portions of Dr. Duchin's rebuttal must be excluded to prevent undue prejudice to Legislative Defendants.

² Federal Rule of Civil Procedure 37(c)(1) allows a party violating a discovery order to show lack of prejudice or justification. North Carolina Rule of Civil Procedure 37 contains no such escape hatch.

Respectfully submitted, this the 3rd day of January, 2022.

/s/ Phillip J. Strach

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CERTIFICATE OF SERVICE

It is hereby certified that on this the 3rd day of January, 2022, the foregoing was served on the individuals below by email:

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Exhibit A

STATE OF NORTH CAROLINA

COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE

SUPERIOR COURT DIVISION

21 CVS 015426, 21 CVS 500085

NORTH CAROLINA LEAGUE OF
CONSERVATION VOTERS, INC.;
HENRY M. MICHAUX, JR., et al.,

Plaintiffs,

REBECCA HARPER, et al.,

Plaintiffs,

v.

REPRESENTATIVE DESTIN HALL, in
his official capacity as Chair of the House
Standing Committee on Redistricting, et al.,

Defendants.

**AFFIDAVIT OF PROFESSOR
MOON DUCHIN**

I, Dr. Moon Duchin, having been duly sworn by an officer authorized to administer oaths, depose and state as follows:

1. I am over 18 years of age, legally competent to give this Affidavit, and have personal knowledge of the facts set forth in this Affidavit.
2. All of the quantitative work described in this Affidavit was performed by myself with the support of research assistants working under my direct supervision.

Background and qualifications

3. I hold a Ph.D. and an M.S in Mathematics from the University of Chicago as well as an A.B. in Mathematics and Women's Studies from Harvard University.
4. I am a Professor of Mathematics and a Senior Fellow in the Jonathan M. Tisch College of Civic Life at Tufts University.
5. My general research areas are geometry, topology, dynamics, and applications of mathematics and computing to the study of elections and voting. My redistricting-related work has been published in venues such as the Election Law Journal, Political Analysis, Foundations of Data Science, the Notices of the American Mathematical Society, Statistics and Public Policy, the Virginia Policy Review, the Harvard Data Science Review, Foundations of Responsible Computing, and the Yale Law Journal Forum.
6. My research has had continuous grant support from the National Science Foundation since 2009, including a CAREER grant from 2013–2018. I am currently on the editorial board of the journals Advances in Mathematics and the Harvard Data Science Review. I was elected a Fellow of the American Mathematical Society in 2017 and was named a Radcliffe Fellow and a Guggenheim Fellow in 2018.
7. A current copy of my full CV is attached to this report.
8. I am compensated at the rate of \$400 per hour.

Rebuttal Report

Moon Duchin
Professor of Mathematics, Tufts University
Senior Fellow, Tisch College of Civic Life

December 28, 2021

1 Background and Introduction

I have previously submitted expert reports in NCLCV vs. Hall. I have been asked by counsel to respond to the report of Dr. Michael Barber, examining his study design and his conclusions.

1.1 Summary of Barber report

In Dr. Barber's report, he uses a new statistical sampling method called Sequential Monte Carlo (SMC) to produce a large collection (called an *ensemble*) of alternative districting plans for both bodies of the North Carolina state legislature—state Senate and state House. SMC is a method based on ideas developed in my research group,¹ but which has not been supported by any peer-reviewed publications.

Dr. Barber proceeds to build ensembles of districting plans for the purposes of comparison, but primarily does so individually on small pieces of the state: groups of counties (often called "county clusters") that correspond to groupings in the Senate and House plans recently enacted in North Carolina (SL-173 and SL-175).

- For legislative redistricting, the Barber report discusses the clusters only on an individual basis, neglecting to assemble them into the big picture for the whole state.
- Dr. Barber omits an ensemble comparison for the enacted Congressional plan, SL-174.

1.2 Summary of findings

- When assembling the statistics from Dr. Barber's own ensembles—completely granting him all methodological choices for algorithm selection and specifications—the enacted House plan is shown to be a major partisan outlier, while the NCLCV alternative plans are not (Figure 6).
- In exactly the same way, the enacted Senate plan is likewise shown to be a major partisan outlier, while the NCLCV alternative plans are not (Figure 5).
- Finally, I was able to run Barber's code to create a Congressional ensemble in the same fashion as his legislative ensembles. Here, too, the enacted plan is a significant outlier in a direction of partisan advantage that is not justified by any good-government goal (Figure 3).

¹The McCartan-Imai article introducing SMC [5] acknowledges Deford-Duchin-Solomon [3] for "pioneer[ing] the spanning tree-based proposal used in the merge-split algorithm."

2 Ensembles and outliers

Today, the dominant method in computational redistricting analysis is to employ Markov chains to generate ensembles of thousands or millions of alternative valid redistricting plans against which to compare a given proposed plan. When a quantity of interest is measured over the ensemble, it frequently forms a "bell curve" of values, and we can then examine whether the proposed plan falls in the thick of the observed values or whether it is an extreme outlier, falling in one of the tails. If this exercise is carried out with respect to each party's representation, a telltale sign of a partisan gerrymander is when the seat share for a proposed plan falls (a) far from the corresponding vote share, and (b) far to the side of advantage for the party that controlled the line-drawing process. This is particularly problematic in a politically competitive "purple" state like North Carolina.

It is important to note that outlier status is a flag of intentionality, but not necessarily a smoking gun of wrongdoing. Being in a tails of a distribution that was created around certain design principles can often provide persuasive evidence that other principles or agendas were in play. For example, a map might be an outlier as the most compact, or the map that gives minority groups the greatest chance to elect their candidates of choice—these kinds of outlier status would not be marks of a bad plan. But being an outlier can indeed be a sign of problems, as when a plan systematically converts close voting to lopsided seat shares for the party that controls the process.

2.1 Barber methods

The creation and use of districting ensembles in the Barber report can be summarized as follows.

Step 1 *Fix a set of clusters.* Barber focuses on the county clustering found in the enacted plan, not exhaustively considering the dozens of other possibilities.

Step 2 *Partition each cluster.* Split each multi-district cluster into the corresponding number of districts using Sequential Monte Carlo sampling. Create 50,000 partitions (i.e., districting plans) for each cluster.

Step 3 *Winnow.* Selectively discard some of the partitions. Barber uses two statistics from the enacted plan (average Polsby-Popper score and county traversals) as the cutoff for inclusion.

Step 4 *Create an election index.* Barber blends the 11 up-ballot elections since 2014 into a single vote index rather than considering them one at a time. In particular, he sums the votes over all elections before taking shares, which does not control for turnout differences across elections.

Step 5 *Plot histograms and declare outliers.* Barber forms histograms counting "Democratic-leaning districts" for individual clusters, and does not present an overall compilation. His non-standard definition of "outlier" includes a full 50% of the ensemble.

In my opinion, better and more reliable results would have been obtained if several of the choices required in this study design were executed differently.

One glaring omission from Barber's methods is any consideration of the State's obligations under the Voting Rights Act of 1965, which could impact the partisan bottom line.² A non-exhaustive list of other potential flaws in Dr. Barber's methods includes the following.

- *Failure to consider all alternative clusterings.*
North Carolina law dictates that districts be drawn within groupings or clusters of counties from which several districts will be formed. Sometimes, however, the General Assembly has a choice and can pick multiple groupings consistent with North Carolina law. Dr. Barber only gives cursory attention to alternative clusterings.
- *Use of sampling methodology not vetted by peer review.*
Even when an idea is promising, peer review is an essential component of vetting. A method may appear promising in concept, but not work in practice. A method may work at small tasks—like the 34-map dataset used for testing in [5]—but not scale well to the enormous sizes needed for realistic problems. Peer review helps surface those issues, which is why the scientific community regards peer review as a mark of reliability.
- *Use of bright-line thresholds for compactness and traversals.*
Dr. Barber's code already samples with a preference for compactness, and is fully capable of handling traversals in a similar manner.³ Imposing sharp cutoffs for these at the level of the enacted plan creates highly misleading results.⁴
- *Use of election data in a blended rather than serial fashion.*
If Barber records a Democratic share of 49% in his outputs, that is likely to reflect a Democratic win in some of the 11 elections and a Republican win in others—this is obscured when the results are blended to a single number. By the same token, a Democratic share of 45% in the blended election index might downplay a map that favors Republicans 11 out of 11 times, which entrenches an advantage.⁵
- *Employing a highly unconventional use of the "outlier" label.*
As Dr. Barber himself puts it, "I consider a plan to be a partisan outlier if the number of Democratic districts generated by the plan falls outside the middle 50% of simulation results [sic]. This is a conservative definition of an outlier. In the social sciences, medicine, and other disciplines it is traditional to consider something an outlier if it falls outside the middle 95% or 90% of the comparison distribution." As I will show below in my whole-state comparisons, the enacted plans are outliers at any of these levels of significance, while the NCLCV alternative plans are not.

I will discuss the thresholding question further in §2.3. For the remainder of the report, I will set aside the other concerns and will simply assess Dr. Barber's outputs within his own methodological framework.

²Robust VRA consideration is fully compatible with computational redistricting, as is shown in [1].

³A preference for compactness is coded in the `smc_redist` parameterization in `house_clusters.R`, lines 354–356 and `senate_clusters.R`, lines 349–351.

⁴The imposition of cutoffs, which Dr. Barber calls "culling," occurs in two stages. Stage 1 (country traversals) is found in `house_clusters.R`, lines 531–536 and `senate_clusters.R`, lines 539–544. Stage 2 (average Polsby-Popper) is found in `house_clusters.R`, line 543–564 and `senate_clusters.R`, lines 552–573. An ad hoc adjustment in the Duplin and Wayne House County Grouping is found in lines 566–568 of the House code.

⁵The 49% Democratic lean occurs, for instance, in the NCLCV alternative maps in the Onslow/Pender House cluster. Vote averaging is found in the Barber replication materials in `house_clusters.R` lines 18–28 and `senate_clusters.R` lines 18–29.

2.2 Analysis methods

Reading Dr. Barber's report, it is striking that he only reported that the enacted plan often performed within the middle 50% of each small comparison while never evaluating how the individual choices aggregate at the level of the map as a whole. After all, if moderate partisan advantage is secured over and over again, it may well accrue to extreme advantage overall. In the context of a state legislature, the overall results are crucial: they determine who controls the chamber. Pursuing this in the Barber materials, I found that this is exactly what happens.

First, I was able to extract Dr. Barber's raw statistical outputs for legislative runs from his materials obtained by counsel.⁶ With those, I was able to assemble his ensembles for individual clusters into a compiled ensemble for the entire state. The histogram of Senate outcomes can be found in Figure 6 and the histogram of House outcomes can be found in Figure 5. Second, I was able to run Dr. Barber's code to create an ensemble of alternative Congressional plans with exactly the algorithm and with similar specifications to those he used for his legislative demonstrations.⁷ A corresponding plot of Congressional outcomes can be found in Figure 3. For all phases of analysis, Dr. Barber pulled electoral data from a free webapp called Dave's Redistricting App (davesredistricting.org). In replicating his analysis, I used the same data source in the same manner.

2.3 Filtered and unfiltered results

As I described above, Dr. Barber took his raw districting plan samples (50,000 maps created for each of 12 Senate cluster ensembles and 26 House cluster ensembles) and aggressively filtered them, applying a cutoff that sometimes left under ten maps out of the original set of 50,000. In fact, when Dr. Barber's filtering rule was applied in the Duplin and Wayne House County Grouping (§6.6 on p.58 of Barber Report), zero maps were left, because none of the randomly constructed maps had an average compactness score to match the enacted plan in that cluster. Since this is blatantly unworkable for comparison purposes, Dr. Barber made the ad hoc decision to loosen the rule to retain 2704 maps. Other cluster ensembles were filtered down to leave only 4, 6, or 2 out of 50,000 alternatives and did not receive an adjustment. The "outlier" label was then applied to these tiny sets.

To illustrate why this is methodologically unreasonable, consider JaVale McGee, a basketball center who recently signed with the Phoenix Suns of the NBA on a one-year, \$5 million contract. If McGee wanted to argue that he is not unusually wealthy, he could choose to restrict the universe of comparison to Americans at least as tall as he is. Since he is 7 feet tall, this would greatly restrict the comparison pool to a relatively tiny group that also includes Mo Bamba (Orlando Magic), Joel Embiid (Philadelphia 76ers), and Brook Lopez (Milwaukee Bucks), all of whom make more money than he does. Not satisfied with this comparison, he could keep increasing the requirements by insisting on comparing to people who don't speak any more languages than he does, are no older than he is, and have lived in at least as many different cities. Eventually he will narrow the pool enough that he doesn't look like an outlier anymore.

Dr. Barber's filtering skews his sample in a similar way, because he effectively insists that maps have a statistic matching or exceeding the enacted map in every cluster—and then uses that pool to compare the enacted map. Overall, this reduces the number of plans under consideration by a factor of over 500 trillion. And it excludes options that may be better than the enacted plan overall but are less compact or have more traversals in a particular cluster.

Generally, if you are trying to argue that you look typical of a range of alternatives, it is obviously unreasonable to first require the alternatives to look like you in dozens of independent ways (i.e., in each cluster individually).

⁶His materials include the numerical outputs from his runs, but as far as I can determine he does not seem to have saved the district assignments for the individual plans in the ensemble.

⁷To be precise, the ensemble was generated at the state level for Congress, since the concept of county clusters is not applicable, and without the compactness and traversal thresholds. I ran the code exactly as Dr. Barber did, except tightening the allowed population deviation to 1% from ideal instead of 5% as in legislative maps. All other choices are identical. My congressional ensemble includes 20,000 maps rather than 50,000 just because of time limitations.

3 Findings

In this section, I will present the full histograms (or "bell curves") of all the results from Dr. Barber's methodology, compiled to the state level and shown without filtering. (Filtered ensembles can be seen in Appendix A, for comparison purposes.)

By Dr. Barber's own constructs, all three levels of districting show that **the enacted plans are partisan outliers and the NCLCV alternative plans are not.**

In the House, the enacted map is in the most extreme 0.00133 fraction of the Barber ensemble—well under 1 percent of sampled House plans are as extreme as SL-175. By contrast, the NCLCV alternative plan is in the upper .2516 share of the ensemble, not an outlier even by the Barber standard.

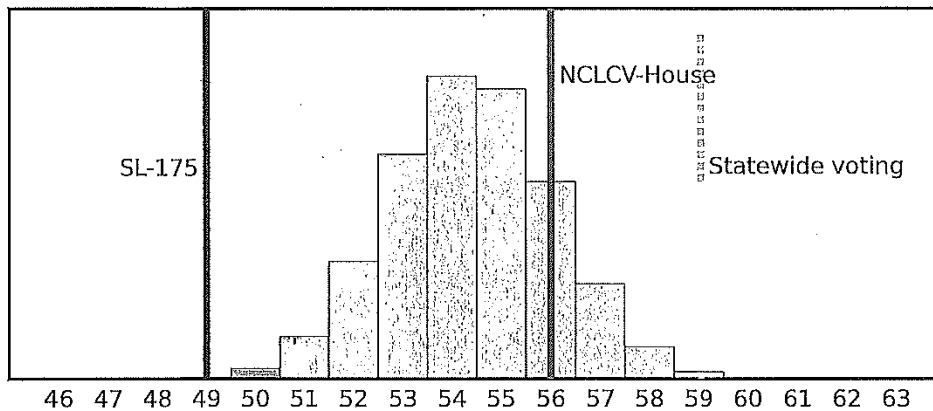


Figure 1: "Democratic-leaning seats" in Dr. Barber's House district ensemble.

At the Senate level, the enacted map is in the most extreme .007 fraction of the Barber ensemble—again, less than 1 percent of sampled plans are as extreme as SL-173. By contrast, the NCLCV alternative map is in the upper .2787 share of ensemble, not an outlier even by the Barber standard.

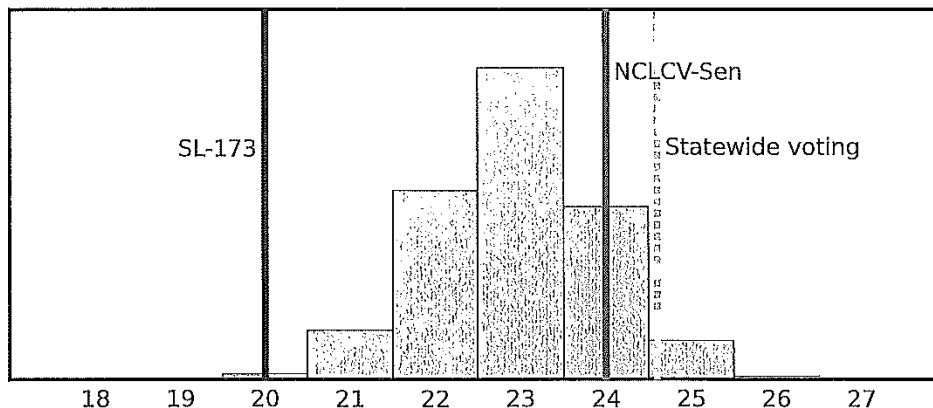


Figure 2: "Democratic-leaning seats" in Dr. Barber's Senate district ensemble.

The Congressional picture, omitted from the Barber report, is likewise crystal clear. The enacted plan is in the most extreme 0.0056 fraction of this Barber-style ensemble, while the NCLCV alternative map is very near the ensemble center—0.5620 share of the ensemble (more than half of randomly constructed maps) has an equal or greater Democratic lean.

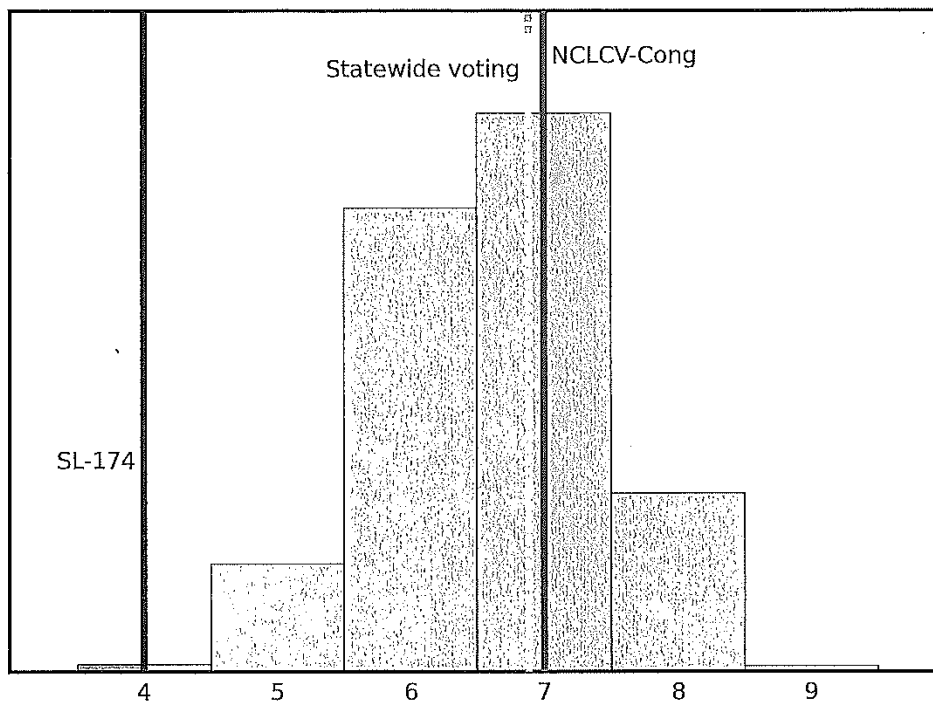


Figure 3: "Democratic-leaning seats" in a Congressional ensemble created with Dr. Barber's code, following his specifications.

4 Conclusion

Granting Dr. Barber all of his methodological choices, the enacted maps are extreme partisan outliers at all three levels, while the NCLCV alternative maps are not.

References


- [1] Amariah Becker, Moon Duchin, Dara Gold, and Sam Hirsch, *Computational redistricting and the Voting Rights Act*. Election Law Journal. Available online.
- [2] Christopher Cooper, Blake Esselstyn, Gregory Herschlag, Jonathan Mattingly, and Rebecca Tippet, *NC General Assembly County Clusterings from the 2020 Census*. sites.duke.edu/quantifyinggerrymandering/files/2021/08/countyClusters2020.pdf
- [3] Daryl DeFord, Moon Duchin, and Justin Solomon, *Recombination: A Family of Markov Chains for Redistricting*, Harvard Data Science Review. Issue 3.1, Winter 2021. Available online.
- [4] Moon Duchin, Taissa Gladkova, Eugene Henninger-Voss, Heather Newman, and Hannah Wheelen, *Locating the Representational Baseline: Republicans in Massachusetts*. Election Law Journal, Volume 18, Number 4, 2019, 388–401. Available online.
- [5] Cory McCartan and Kosuke Imai, *Sequential Monte Carlo for Sampling Balanced and Compact Redistricting Plans*, preprint. Available at arxiv.org/abs/2008.06131.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 28 day of December, 2021.


Professor Moon Duchin

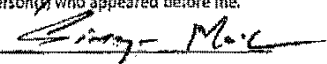
Sworn and subscribed before me
this the 28 of December, 2021

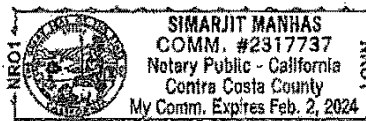

Notary Public

Name: Simarjit Manhas

My commission expires: 02/02/2024

"A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document."

State of California, County of Alameda
Subscribed and sworn to (or affirmed) before me
on this 28 day of December, 2021,
by Moon Duchin,
proved to me on the basis of satisfactory evidence
to be the person who appeared before me.
Signature: 



Appendix A: Filtering comparison

To illustrate the skewing effects of the thresholds applied by Dr. Barber, consider a single example: the Pitt House County Cluster, where the number of Democratic-leaning seats in the sample is either 1 or 2. By thresholding compactness and traversals at the level of the enacted map, Dr. Barber is able to drop the frequency of the 2-seats outcome from roughly 25% of the sample to just 9%.

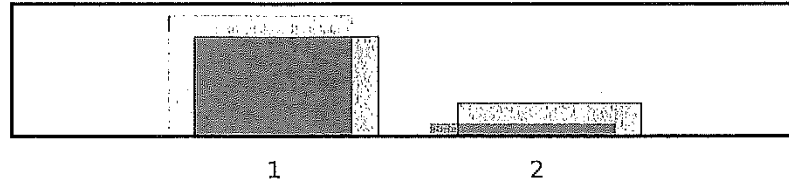


Figure 4: Just focusing on the Pitt House County Cluster (Barber report, p.42), we see that the filtering changes the outcome of 2 "Democratic-leaning seats" from occurring in roughly 25% of the full set of sampled maps (gray) to only occurring in 9% of the reduced sample (blue).

The effects of this cluster-by-cluster restriction do not wash out when aggregated to the full state, but instead add up to a noticeable shift toward the enacted plan, as demonstrated in the House and Senate figures below.

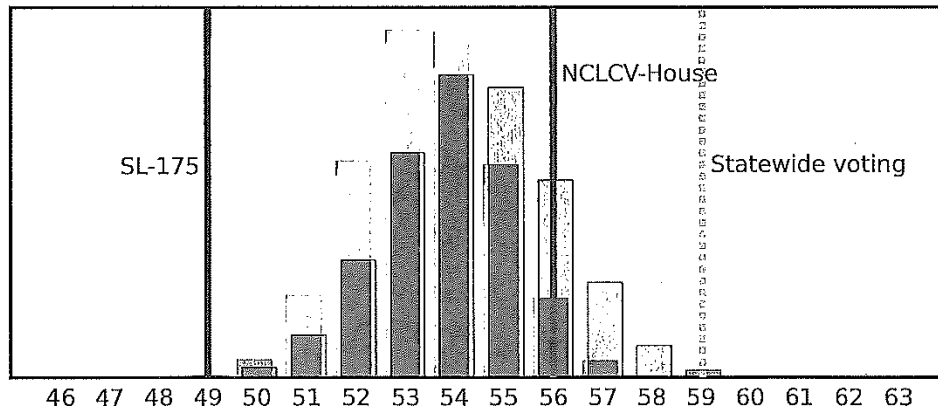


Figure 5: "Democratic-leaning seats" in Dr. Barber's House district ensemble. The unfiltered ensemble (gray) includes $50,000^{26} \approx 1.5 \cdot 10^{122}$ maps; the filtered ensemble (blue) is smaller by a factor of octillions.

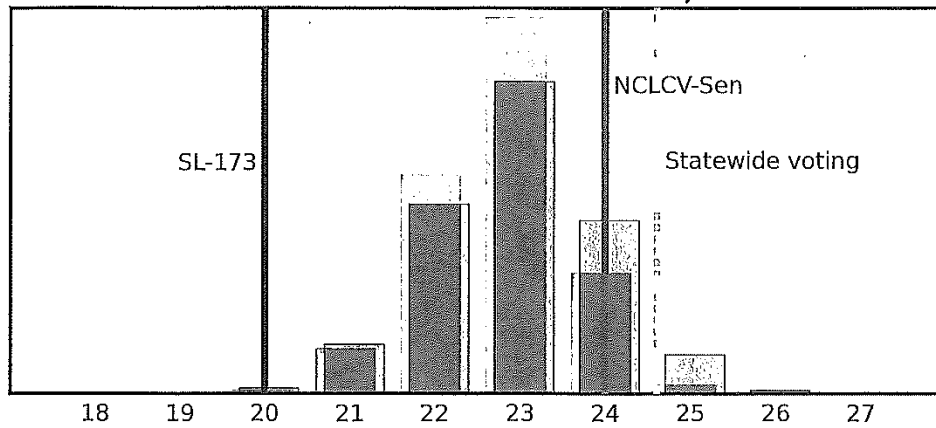


Figure 6: "Democratic-leaning seats" in Dr. Barber's Senate district ensemble. The unfiltered ensemble (gray) includes $50,000^{12} \approx 2.4 \cdot 10^{56}$ maps; the filtered ensemble (blue) is smaller by a factor of trillions.

Significantly, even the subsets of alternative plans that have been heavily limited by the cluster-by-cluster thresholds—that is, the blue bell curves instead of the gray—still show the enacted plans to be extreme outliers, while the NCLCV alternative plans are both far less extreme and comport with statewide voting.

Moon Duchin

moon.duchin@tufts.edu - mduchin.math.tufts.edu
Mathematics · STS · Tisch College of Civic Life | Tufts University

Education

University of Chicago	MS 1999, PhD 2005
Mathematics	
Advisor: Alex Eskin	Dissertation: <i>Geodesics track random walks in Teichmüller space</i>
Harvard University	BA 1998
Mathematics and Women's Studies	

Appointments

Tufts University	
Professor of Mathematics	2021—
Assistant Professor, Associate Professor	2011–2021
<i>Director</i> Program in Science, Technology, & Society (on leave 2018–2019)	2015–2021
<i>Principal Investigator</i> MGGG Redistricting Lab	2017—
<i>Senior Fellow</i> Tisch College of Civic Life	2017—
University of Michigan	
Assistant Professor (postdoctoral)	2008–2011
University of California, Davis	
NSF VIGRE Postdoctoral Fellow	2005–2008

Research Interests

Data science for civil rights, computation and governance, elections, geometry and redistricting.
Science, technology, and society, science policy, technology and law.
Random walks and Markov chains, random groups, random constructions in geometry.
Large-scale geometry, metric geometry, isoperimetric inequalities.
Geometric group theory, growth of groups, nilpotent groups, dynamics of group actions.
Geometric topology, hyperbolicity, Teichmüller theory.

Awards & Distinctions

Research Professor - MSRI Program in Analysis and Geometry of Random Spaces	Spring 2022
Guggenheim Fellow	2018
Radcliffe Fellow - Evelyn Green Davis Fellowship	2018–2019
Fellow of the American Mathematical Society	elected 2017
NSF C-ACCEL (PI) - Harnessing the Data Revolution: Network science of Census data	2019–2020
NSF grants (PI) - CAREER grant and three standard Topology grants	2009–2022
Professor of the Year , Tufts Math Society	2012–2013
AAUW Dissertation Fellowship	2004–2005
NSF Graduate Fellowship	1998–2002
Lawrence and Josephine Graves Prize for Excellence in Teaching (U Chicago)	2002
Robert Fletcher Rogers Prize (Harvard Mathematics)	1995–1996

Mathematics Publications & Preprints

The (homological) persistence of gerrymandering

Foundations of Data Science, online first. (with Thomas Needham and Thomas Weighill)

You can hear the shape of a billiard table: Symbolic dynamics and rigidity for flat surfaces

Commentarii Mathematici Helvetici, to appear. arXiv:1804.05690

(with Viveka Erlandsson, Christopher Leininger, and Chandrika Sadanand)

Conjugation curvature for Cayley graphs

Journal of Topology and Analysis, online first. (with Assaf Bar-Natan and Robert Kropholler)

A reversible recombination chain for graph partitions

Preprint. (with Sarah Cannon, Dana Randall, and Parker Rule)

Recombination: A family of Markov chains for redistricting

Harvard Data Science Review. Issue 3.1, Winter 2021. online. (with Daryl DeFord and Justin Solomon)

Census TopDown: The impact of differential privacy on redistricting

2nd Symposium on Foundations of Responsible Computing (FORC 2021), 5:1–5:22. online.

(with Aloni Cohen, JN Matthews, and Bhushan Suwal)

Stars at infinity in Teichmüller space

Geometriae Dedicata, Volume 213, 531–545 (2021). (with Nate Fisher) arXiv:2004.04321

Random walks and redistricting: New applications of Markov chain Monte Carlo

(with Daryl DeFord) For edited volume, Political Geometry. Under contract with Birkhäuser.

Mathematics of nested districts: The case of Alaska

Statistics and Public Policy. Vol 7, No 1 (2020), 39–51. (w/ Sophia Caldera, Daryl DeFord, Sam Gutekunst, & Cara Nix)

A computational approach to measuring vote elasticity and competitiveness

Statistics and Public Policy. Vol 7, No 1 (2020), 69–86. (with Daryl DeFord and Justin Solomon)

The Heisenberg group is pan-rational

Advances in Mathematics **346** (2019), 219–263. (with Michael Shapiro)

Random nilpotent groups I

IMRN, Vol 2018, Issue 7 (2018), 1921–1953. (with Matthew Cordes, Yen Duong, Meng-Che Ho, and Ayla Sánchez)

Hyperbolic groups

chapter in *Office Hours with a Geometric Group Theorist*, eds. M. Clay, D. Margalit, Princeton U Press (2017), 177–203.

Counting in groups: Fine asymptotic geometry

Notices of the American Mathematical Society **63**, No. 8 (2016), 871–874.

A sharper threshold for random groups at density one-half

Groups, Geometry, and Dynamics **10**, No. 3 (2016), 985–1005.

(with Katarzyna Jankiewicz, Shelby Kilmer, Samuel Lelièvre, John M. Mackay, and Ayla Sánchez)

Equations in nilpotent groups

Proceedings of the American Mathematical Society **143** (2015), 4723–4731. (with Hao Liang and Michael Shapiro)

Statistical hyperbolicity in Teichmüller space

Geometric and Functional Analysis, Volume 24, Issue 3 (2014), 748–795. (with Howard Masur and Spencer Dowdall)

Fine asymptotic geometry of the Heisenberg group

Indiana University Mathematics Journal **63** No. 3 (2014), 885–916. (with Christopher Mooney)

Pushing fillings in right-angled Artin groups

Journal of the LMS, Vol 87, Issue 3 (2013), 663–688. (with Aaron Abrams, Noel Brady, Pallavi Dani, and Robert Young)

Spheres in the curve complex

In the Tradition of Ahlfors and Bers VI, Contemp. Math. **590** (2013), 1–8. (with Howard Masur and Spencer Dowdall)

The sprawl conjecture for convex bodies

Experimental Mathematics, Volume 22, Issue 2 (2013), 113–122. (with Samuel Lelièvre and Christopher Mooney)

Filling loops at infinity in the mapping class group

Michigan Math. J., Vol 61, Issue 4 (2012), 867–874. (with Aaron Abrams, Noel Brady, Pallavi Dani, and Robert Young)

The geometry of spheres in free abelian groups

Geometriae Dedicata, Volume 161, Issue 1 (2012), 169–187. (with Samuel Lelièvre and Christopher Mooney)

Statistical hyperbolicity in groups

Algebraic and Geometric Topology **12** (2012) 1–18. (with Samuel Lelièvre and Christopher Mooney)

Length spectra and degeneration of flat metrics

Inventiones Mathematicae, Volume 182, Issue 2 (2010), 231–277. (with Christopher Leininger and Kasra Rafi)

Divergence of geodesics in Teichmüller space and the mapping class group

Geometric and Functional Analysis, Volume 19, Issue 3 (2009), 722–742. (with Kasra Rafi)

Curvature, stretchiness, and dynamics

In the Tradition of Ahlfors and Bers IV, Contemp. Math. **432** (2007), 19–30.

Geodesics track random walks in Teichmüller space

PhD Dissertation, University of Chicago 2005.

Science, Technology, Law, and Policy Publications & Preprints

Models, Race, and the Law

Yale Law Journal Forum, Vol. 130 (March 2021). Available online. (with Doug Spencer)

Computational Redistricting and the Voting Rights Act

Election Law Journal, Available online. (with Amariah Becker, Dara Gold, and Sam Hirsch)

Discrete geometry for electoral geography

Preprint. (with Bridget Eileen Tenner) arXiv:1808.05860

Implementing partisan symmetry: Problems and paradoxes

Political Analysis, to appear. (with Daryl DeFord, Natasha Dhamankar, Mackenzie McPike, Gabe Schoenbach, and Ki-Wan Sim) arXiv:2008:06930

Clustering propensity: A mathematical framework for measuring segregation

Preprint. (with Emilia Alvarez, Everett Meike, and Marshall Mueller; appendix by Tyler Piazza)

Locating the representational baseline: Republicans in Massachusetts

Election Law Journal, Volume 18, Number 4, 2019, 388–401.

(with Taissa Gladkova, Eugene Henninger-Voss, Ben Klingensmith, Heather Newman, and Hannah Wheelen)

Redistricting reform in Virginia: Districting criteria in context

Virginia Policy Review, Volume XII, Issue II, Spring 2019, 120–146. (with Daryl DeFord)

Geometry v. Gerrymandering

The Best Writing on Mathematics 2019, ed. Mircea Pitici. Princeton University Press.

reprinted from Scientific American, November 2018, 48–53.

Gerrymandering metrics: How to measure? What's the baseline?

Bulletin of the American Academy for Arts and Sciences, Vol. LXII, No. 2 (Winter 2018), 54–58.

Rebooting the mathematics of gerrymandering: How can geometry track with our political values?

The Conversation (online magazine), October 2017. (with Peter Levine)

A formula goes to court: Partisan gerrymandering and the efficiency gap

Notices of the American Mathematical Society **64** No. 9 (2017), 1020–1024. (with Mira Bernstein)

International mobility and U.S. mathematics

Notices of the American Mathematical Society **64**, No. 7 (2017), 682–683.

Graduate Advising in Mathematics

Nate Fisher (PhD 2021), Sunrose Shrestha (PhD 2020), Ayla Sánchez (PhD 2017),
Kevin Buckles (PhD 2015), Mai Mansouri (MS 2014)

Outside committee member for Chris Coscia (PhD 2020), Dartmouth College

Postdoctoral Advising in Mathematics

Principal supervisor Thomas Weighill (2019–2020)

Co-supervisor Daryl DeFord (MIT 2018–2020), Rob Kropholler (2017–2020), Hao Liang (2013–2016)

Teaching

Courses Developed or Customized

Mathematics of Social Choice | sites.tufts.edu/socialchoice

Voting theory, impossibility theorems, redistricting, theory of representative democracy, metrics of fairness.

History of Mathematics | sites.tufts.edu/histmath

Social history of mathematics, organized around episodes from antiquity to present. Themes include materials and technologies of creation and dissemination, axioms, authority, credibility, and professionalization. In-depth treatment of mathematical content from numeration to cardinal arithmetic to Galois theory.

Reading Lab: Mathematical Models in Social Context | sites.tufts.edu/models

One hr/wk discussion seminar of short but close reading on topics in mathematical modeling, including history of psychometrics; algorithmic bias; philosophy of statistics; problems of model explanation and interpretation.

Geometric Literacy

Module-based graduate topics course. Modules have included: p -adic numbers, hyperbolic geometry, nilpotent geometry, Lie groups, convex geometry and analysis, the complex of curves, ergodic theory, the Gauss circle problem.

Markov Chains (graduate topics course)

Teichmüller Theory (graduate topics course)

Fuchsian Groups (graduate topics course)

Continued Fractions and Geometric Coding (undergraduate topics course)

Mathematics for Elementary School Teachers

Standard Courses

Discrete Mathematics, Calculus I-II-III, Intro to Proofs, Linear Algebra, Complex Analysis, Differential Geometry, Abstract Algebra, Graduate Real Analysis, Mathematical Modeling and Computation

Weekly Seminars Organized

- Geometric Group Theory and Topology
- Science, Technology, and Society Lunch Seminar

Selected Talks and Lectures

Distinguished Plenary Lecture 75th Anniversary Meeting of Canadian Mathematical Society, Ottawa, Ontario	June 2021 <i>online (COVID)</i>
BMC/BAMC Public Lecture Joint British Mathematics/Applied Mathematics Colloquium, Glasgow, Scotland	April 2021 <i>online (COVID)</i>
AMS Einstein Public Lecture in Mathematics Southeastern Sectional Meeting of the AMS, Charlottesville, VA	[March 2020] <i>postponed</i>
Gerald and Judith Porter Public Lecture AMS-MAA-SIAM, Joint Mathematics Meetings, San Diego, CA	January 2018
Mathematical Association of America Distinguished Lecture MAA Carriage House, Washington, DC	October 2016
American Mathematical Society Invited Address AMS Eastern Sectional Meeting, Brunswick, ME	September 2016

Named University Lectures

- Parsons Lecture UNC Asheville	October 2020
- Loeb Lectures in Mathematics Washington University in St. Louis	[March 2020]
- Math, Stats, CS, and Society Macalester College	October 2019
- MRC Public Lecture Stanford University	May 2019
- Freedman Memorial Colloquium Boston University	March 2019
- Julian Clancy Frazier Colloquium Lecture U.S. Naval Academy	January 2019
- Barnett Lecture University of Cincinnati	October 2018
- School of Science Colloquium Series The College of New Jersey	March 2018
- Kieval Lecture Cornell University	February 2018
- G. Milton Wing Lectures University of Rochester	October 2017
- Norman Johnson Lecture Wheaton College	September 2017
- Dan E. Christie Lecture Bowdoin College	September 2017

Math/Computer Science Department Colloquia

- Reed College	Dec 2020	- Université de Neuchâtel	Jun 2016
- Georgetown (CS)	Sept 2020	- Brandeis University	Mar 2016
- Santa Fe Institute	July 2020	- Swarthmore College	Oct 2015
- UC Berkeley	Sept 2018	- Bowling Green	May 2015
- Brandeis-Harvard-MIT-NEU	Mar 2018	- City College of New York	Feb 2015
- Northwestern University	Oct 2017	- Indiana University	Nov 2014
- University of Illinois	Sept 2017	- the Technion	Oct 2014
- University of Utah	Aug 2017	- Wisconsin-Madison	Sept 2014
- Wesleyan	Dec 2016	- Stony Brook	March 2013
- Worcester Polytechnic Inst.	Dec 2016		

Minicourses

- Integer programming and combinatorial optimization (two talks) | Georgia Tech May 2021
- Workshop in geometric topology (main speaker, three talks) | Provo, UT June 2017
- Growth in groups (two talks) | MSRI, Berkeley, CA August 2016
- Hyperbolicity in Teichmüller space (three talks) | Université de Grenoble May 2016
- Counting and growth (four talks) | IAS Women's Program, Princeton May 2016
- Nilpotent groups (three talks) | Seoul National University October 2014
- Sub-Finsler geometry of nilpotent groups (five talks) | Galatasaray Univ., Istanbul April 2014

Science, Technology, and Society

- The Mathematics of Accountability | Sawyer Seminar, Anthropology, Johns Hopkins February 2020
- STS Circle | Harvard Kennedy School of Government September 2019
- Data, Classification, and Everyday Life Symposium | Rutgers Center for Cultural Analysis January 2019
- Science Studies Colloquium | UC San Diego January 2019
- Arthur Miller Lecture on Science and Ethics | MIT Program in Science, Tech, and Society November 2018

Data Science, Computer Science, Quantitative Social Science

- Data Science for Social Good Workshop (DS4SG) | Georgia Tech (virtual) November 2020
- Privacy Tools Project Retreat | Harvard (virtual) May 2020
- Women in Data Science Conference | Microsoft Research New England March 2020
- Quantitative Research Methods Workshop | Yale Center for the Study of American Politics February 2020
- Societal Concerns in Algorithms and Data Analysis | Weizmann Institute December 2018
- Quantitative Collaborative | University of Virginia March 2018
- Quantitative Social Science | Dartmouth College September 2017
- Data for Black Lives Conference | MIT November 2017

Political Science, Geography, Law, Democracy, Fairness

- The Long 19th Amendment: Women, Voting, and American Democracy | Radcliffe Institute Nov–Dec 2020
- "The New Math" for Civil Rights | Social Justice Speaker Series, Davidson College November 2020
- Math, Law, and Racial Fairness | Justice Speaker Series, University of South Carolina November 2020
- Voting Rights Conference | Northeastern Public Interest Law Program September 2020
- Political Analysis Workshop | Indiana University November 2019
- Program in Public Law Panel | Duke Law School October 2019
- Redistricting 2021 Seminar | University of Chicago Institute of Politics May 2019
- Geography of Redistricting Conference Keynote | Harvard Center for Geographic Analysis May 2019
- Political Analytics Conference | Harvard University November 2018
- Cyber Security, Law, and Society Alliance | Boston University September 2018
- Clough Center for the Study of Constitutional Democracy | Boston College November 2017
- Tech/Law Colloquium Series | Cornell Tech November 2017
- Constitution Day Lecture | Rockefeller Center for Public Policy, Dartmouth College September 2017

Editorial Boards

Harvard Data Science Review

Associate Editor since 2019

Advances in Mathematics

Member, Editorial Board since 2018

Selected Professional and Public Service

Amicus Brief of Mathematicians, Law Professors, and Students <i>principal co-authors: Guy-Uriel Charles and Moon Duchin</i> Supreme Court of the United States, in <i>Rucho v. Common Cause</i> – cited in dissent	2019
Committee on Science Policy American Mathematical Society	2020–2023
Program Committee Symposium on Foundations of Responsible Computing	2020–2021
Presenter on Public Mapping, Statistical Modeling National Conference of State Legislatures	2019, 2020
Committee on the Human Rights of Mathematicians American Mathematical Society	2016–2019
Committee on The Future of Voting: Accessible, Reliable, Verifiable Technology National Academies of Science, Engineering, and Medicine	2017–2018

Visiting Positions and Residential Fellowships

Visiting Professor Department of Mathematics Boston College Chestnut Hill, MA	Fall 2021
Fellow Radcliffe Institute for Advanced Study Harvard University Cambridge, MA	2018–19
Member Center of Mathematical Sciences and Applications Harvard University Cambridge, MA	2018–19
Visitor Microsoft Research Lab MSR New England Cambridge, MA	2018–19
Research Member Geometric Group Theory program Mathematical Sciences Research Institute Berkeley, CA	Fall 2016
Research Member Random Walks and Asymptotic Geometry of Groups program Institut Henri Poincaré Paris, France	Spring 2014
Research Member Low-dimensional Topology, Geometry, and Dynamics program Institute for Computational and Experimental Research in Mathematics Providence, RI	Fall 2013
Research Member Geometric and Analytic Aspects of Group Theory program Institut Mittag-Leffler Stockholm, Sweden	May 2012
Research Member Quantitative Geometry program Mathematical Sciences Research Institute Berkeley, CA	Fall 2011
Postdoctoral Fellow Teichmüller "project blanc" Agence Nationale de la Recherche (Collège de France) Paris, France	Spring 2009

Exhibit B

1

1 ROUGH ASCII -- NOT CERTIFIED

2

3 N O T I C E

4 This transcript is an UNCERTIFIED ROUGH DRAFT TRANSCRIPT.

5 It contains raw output from the court reporter's

6 stenotype machine translated into English by the court

7 reporter's computer, without the benefit of proofreading.

8 It will contain untranslated steno outlines,

9 mistranslations (wrong words), and misspellings. These

10 and any other errors will be corrected in the final

11 transcript. Since this rough draft transcript has not

12 been proofread, the court reporter cannot assume

13 responsibility for any errors therein.

14 This rough draft transcript is intended to assist

15 attorneys in their case preparation and is not to be

16 construed as the final transcript. It is not to be read

17 by the witness or quoted in any pleading or for any other

18 purpose and may not be filed with any court.

19

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21

22

23

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25

2

1 Moon Duchin,
2 having been administered an oath, was examined and
3 testified as follows:

4

5 EXAMINATION

6 BY MR. LEWIS:

7 Q Good afternoon, Dr. Duchin. My name is
8 Patrick Lewis. I will be representing the legislative
9 defendants in this case and taking your deposition
10 today. Nice to see you again.

11 Could we start by just having you identify
12 your full name and institution affiliation for the
13 record.

14 MR. BRADFORD: Patrick, before the witness
15 does that, I would just like to identify myself for the
16 record. David Bradford, Jenner & Block, representing
17 the witness.

18 Mr. Hirsch is with me here, and I just want
19 to put on the record it was our intention to have
20 Mr. Hirsch defend this deposition, but because of
21 pending motion practice, I've stepped in. I don't have
22 the working knowledge of the case that Mr. Hirsch
23 enjoys. And in the unlikely event we have any
24 questions at the completion of your examination, we'll
25 reserve the right to have Mr. Hirsch ask those

1 ask you some questions about your rebuttal report.

2 MR. LEWIS: So I would like to put up Tab C,
3 which is Exhibit Duchin 3.

4 All right. And if we could turn to page 3,
5 please.

6 Okay.

7 BY MR. LEWIS:

8 Q So, Dr. Duchin, is it fair to say that the
9 sole focus of your rebuttal report was to rebut the
10 report issued by Dr. Michael Barber on December 23rd,
11 2021?

12 A It's correct. That's the focus.

13 Q Okay. And you would agree with me that
14 Dr. Barber did not study the Congressional -- the
15 enacted Congressional plan in this case; is that
16 correct?

17 A I'm confident that he presents no ensemble
18 evidence for the Congressional plan. And I can't quite
19 remember how much he actually discusses it in his
20 report.

21 Q Okay. And, in fact, he offered no opinions
22 at all about the Congressional plan, did he?

23 A I don't remember -- I don't remember any
24 opinions about the Congressional plan.

25 Q Okay. And is it fair to say as well that

1 Dr. Barber does not analyze the NCLCV alternative
2 Congressional plan in his report?

3 A That's right. I have no memory of that
4 having been discussed or presented.

5 Q Okay. And so, in fact, in order for you to
6 provide the analysis of the Congressional plan, both
7 the enacted and the LCV plan that you provide in your
8 rebuttal report, you actually had to run Dr. Barber's
9 code and create an entirely new set of ensembles; is
10 that correct?

11 A Yes. An entirely new ensemble or set of
12 plans.

13 Q Okay. And, in fact, you had to configure his
14 code in order to be able to run on a Congressional
15 plan; is that correct?

16 A Well, code always needs specifications. And
17 as I detailed in my rebuttal report, I tried to follow
18 his specifications, making changes, where necessary,
19 for context.

20 Q So you would agree with me that your -- all
21 of the analysis you perform in your rebuttal report on
22 the Congressional plan is not based on any -- any
23 analysis that Dr. Barber performed in his
24 December 23rd, 2021 report, correct?

25 A Right. I took that to be a conspicuous

1 omission and so undertook to fill in the gap.

2 MR. LEWIS: Okay. So I'd like now to turn to
3 the body of your rebuttal report. And, specifically, I
4 would like to turn to page 4 and Section 2.

5 THE WITNESS: Uh-huh.

6 BY MR. LEWIS:

7 Q And so you talk about -- you provide, in
8 these two paragraphs, a brief description of the
9 ensemble sort of method.

10 My question is: You talk about -- the first
11 sentence of your report -- of this paragraph, where you
12 say, quote [reading]:

13 It is important to note that
14 outlier status is a flag of
15 intentionality, but not necessarily
16 a smoking gun of wrongdoing.

17 That's what you wrote, right?

18 A I am looking for that sentence.

19 Q First sentence of the second paragraph.

20 A Second paragraph. I agree, it does say that,
21 yes.

22 Q Okay. Okay.

23 So -- and you even mention, you know, certain
24 examples of, if you're an outlier.

25 But that's an outlier with respect to a -- an

STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
No. 21 CVS 015426
No. 21 CVS 500085

NORTH CAROLINA LEAGUE OF CONSERVATION
VOTERS, INC., *et al.*,

Plaintiffs,

v.

REPRESENTATIVE DESTIN HALL, IN HIS OFFICIAL
CAPACITY AS SENIOR CHAIR OF THE HOUSE
STANDING COMMITTEE ON REDISTRICTING, *et al.*,

Defendants.

REBECCA HARPER, *et al.*,

Plaintiffs,

v.

REPRESENTATIVE DESTIN HALL, IN HIS OFFICIAL
CAPACITY AS SENIOR CHAIR OF THE HOUSE
STANDING COMMITTEE ON REDISTRICTING, *et al.*,

Defendants.

COMMON CAUSE,

Plaintiff,

v.

REPRESENTATIVE DESTIN HALL, IN HIS OFFICIAL
CAPACITY AS SENIOR CHAIR OF THE HOUSE
STANDING COMMITTEE ON REDISTRICTING, *et al.*,

Defendants.

**EXPERT REPORT OF DR.
JOWEI CHEN**

I, Dr. Jowei Chen, upon my oath, declare and say as follows:

1. I am over the age of eighteen (18) and competent to testify as to the matters set forth herein.
2. I am an Associate Professor in the Department of Political Science at the University of Michigan, Ann Arbor. I am also a Research Associate Professor at the Center for Political Studies of the Institute for Social Research at the University of Michigan and a Research Associate at the Spatial Social Science Laboratory at Stanford University. In 2007, I received a M.S. in Statistics from Stanford University, and in 2009, I received a Ph.D. in Political Science from Stanford University.
3. I have published academic papers on legislative districting and political geography in several political science journals, including *The American Journal of Political Science* and *The American Political Science Review*, and *Election Law Journal*. My academic areas of expertise include legislative elections, spatial statistics, geographic information systems (GIS) data, redistricting, racial politics, legislatures, and political geography. I have expertise in the use of computer simulations of legislative districting and in analyzing political geography, elections, and redistricting.
4. I have authored expert reports in the following redistricting court cases: *The League of Women Voters of Florida v. Detzner* (Fla. 2d Judicial Cir. Leon Cnty. 2012); *Romo v. Detzner* (Fla. 2d Judicial Cir. Leon Cnty. 2013); *Missouri National Association for the Advancement of Colored People v. Ferguson-Florissant School District & St. Louis County Board of Election Commissioners* (E.D. Mo. 2014); *Raleigh Wake Citizens Association v. Wake County Board of Elections* (E.D.N.C. 2015); *Brown v. Detzner* (N.D. Fla. 2015); *City of Greensboro v. Guilford County Board of Elections* (M.D.N.C. 2015); *Common Cause v. Rucho*

(M.D.N.C 2016); *The League of Women Voters of Pennsylvania v. Commonwealth of Pennsylvania* (No. 261 M.D. 2017); *Georgia State Conference of the NAACP v. The State of Georgia* (N.D. Ga. 2017); *The League of Women Voters of Michigan v. Johnson* (E.D. Mich. 2017); *Whitford v. Gill* (W.D. Wis. 2018); *Common Cause v. Lewis* (N.C. Super. 2018); *Harper v. Lewis* (N.C. Super. 2019); *Baroody v. City of Quincy, Florida* (N.D. Fla. 2020); *McConchie v. Illinois State Board of Elections* (N.D. Ill. 2021). I have testified either at deposition or at trial in the following cases: *Romo v. Detzner* (Fla. 2d Judicial Cir. Leon Cnty. 2013); *Missouri National Association for the Advancement of Colored People v. Ferguson-Florissant School District & St. Louis County Board of Election Commissioners* (E.D. Mo. 2014); *Raleigh Wake Citizens Association v. Wake County Board of Elections* (E.D.N.C. 2015); *City of Greensboro v. Guilford County Board of Elections* (M.D.N.C. 2015); *Common Cause v. Rucho* (M.D.N.C. 2016); *The League of Women Voters of Pennsylvania v. Commonwealth of Pennsylvania* (No. 261 M.D. 2017); *Georgia State Conference of the NAACP v. The State of Georgia* (N.D. Ga. 2017); *The League of Women Voters of Michigan v. Johnson* (E.D. Mich. 2017); *Whitford v. Gill* (W.D. Wis. 2018); *Common Cause v. Lewis* (N.C. Super. 2018); *Baroody v. City of Quincy, Florida* (N.D. Fla. 2020); *McConchie v. Illinois State Board of Elections* (N.D. Ill. 2021).

5. I have been retained by Plaintiffs in the above-captioned matter. I am being compensated \$550 per hour for my work in this case.

6. Plaintiffs’ counsel asked me to analyze the SB 740 districting plan for North Carolina’s congressional districts (the “Enacted Plan”), as passed on November 4, 2021. Plaintiffs’ counsel asked me to produce a set of computer-simulated plans for North Carolina’s congressional districts by following the criteria adopted by the North Carolina General Assembly’s Joint Redistricting Committee on August 12, 2021 (the “Adopted Criteria”).

Plaintiffs’ counsel asked me to compare the district-level partisan attributes of the Enacted Plan to those of the computer-simulated plans and to identify any districts in the Enacted Plan that are partisan outliers. Plaintiffs’ counsel also asked me to compare the partisan composition of the individual Plaintiffs’ congressional districts under the Enacted Plan to the partisan composition of Plaintiffs’ districts under the computer-simulated plans and to identify any Plaintiffs whose Enacted Plan districts are partisan outliers.

7. The Use of Computer-Simulated Districting Plans: In conducting my academic research on legislative districting, partisan and racial gerrymandering, and electoral bias, I have developed various computer simulation programming techniques that allow me to produce a large number of nonpartisan districting plans that adhere to traditional districting criteria using US Census geographies as building blocks. This simulation process ignores all partisan and racial considerations when drawing districts. Instead, the computer simulations are programmed to draw districting plans following various traditional districting goals, such as equalizing population, avoiding county and Voting Tabulation District (VTD) splits, and pursuing geographic compactness. By randomly generating a large number of districting plans that closely adhere to these traditional districting criteria, I am able to assess an enacted plan drawn by a state legislature and determine whether partisan goals motivated the legislature to deviate from these traditional districting criteria. More specifically, by holding constant the application of nonpartisan, traditional districting criteria through the simulations, I am able to determine whether the enacted plan could have been the product of something other than partisan considerations. With respect to North Carolina’s 2021 Congressional Enacted Plan, I determined that it could not.

8. I produced a set of 1,000 valid computer-simulated plans for North Carolina’s congressional districts using a computer algorithm programmed to strictly follow the required districting criteria enumerated in the August 12, 2021 Adopted Criteria of the General Assembly’s Joint Redistricting Committee. In following these Adopted Criteria, the computer algorithm uses the same general approach that I employed in creating the simulated state House and state Senate plans that I analyzed in *Common Cause v. Lewis* (2019) and the simulated congressional plans that I used in *Harper v. Lewis* (2019).

9. By randomly drawing districting plans with a process designed to strictly follow nonpartisan districting criteria, the computer simulation process gives us an indication of the range of districting plans that plausibly and likely emerge when map-drawers are not motivated primarily by partisan goals. By comparing the Enacted Plan against the distribution of simulated plans with respect to partisan measurements, I am able to determine the extent to which a map-drawer’s subordination of nonpartisan districting criteria, such as geographic compactness and preserving precinct boundaries, was motivated by partisan goals.

10. These computer simulation methods are widely used by academic scholars to analyze districting maps. For over a decade, political scientists have used such computer-simulated districting techniques to analyze the racial and partisan intent of legislative map-drawers.¹ In recent years, several courts have also relied upon computer simulations to assess partisan bias in enacted districting plans.²

¹ *E.g.*, Carmen Cirincione, Thomas A. Darling, Timothy G. O’Rourke, “Assessing South Carolina’s 1990s Congressional Districting,” *Political Geography* 19 (2000) 189–211; Jowei Chen, “The Impact of Political Geography on Wisconsin Redistricting: An Analysis of Wisconsin’s Act 43 Assembly Districting Plan,” *Election Law Journal*.

² *See, e.g.*, *League of Women Voters of Pa. v. Commonwealth*, 178 A. 3d 737, 818-21 (Pa. 2018); *Raleigh Wake Citizens Association v. Wake County Board of Elections*, 827 F.3d 333, 344-45 (4th Cir. 2016); *City of Greensboro v. Guilford County Board of Elections*, No. 1:15-CV-599, 2017 WL 1229736 (M.D.N.C. Apr 3, 2017); *Common Cause v. Rucho*, No. 1:16-CV-1164 (M.D.N.C. Jan 11, 2018); *The League of Women Voters of Michigan v. Johnson* (E.D. Mich. 2017); *Common Cause v. David Lewis* (N.C. Super. 2018).

11. Redistricting Criteria: I programmed the computer algorithm to create 1,000 independent simulated plans adhering to the following seven districting criteria, as specified in the Adopted Criteria³:

a) Population Equality⁴: Because North Carolina’s 2020 Census population was 10,439,388, districts in every 14-member congressional plan have an ideal population of 745,670.6. Accordingly, the computer simulation algorithm populated each districting plan such that precisely six districts have a population of 745,670, while the remaining eight districts have a population of 745,671.

b) Contiguity⁵: The simulation algorithm required districts to be geographically contiguous. Water contiguity is permissible. I also programmed the simulation algorithm to avoid double-traversals within a single county. In other words, for every simulated district, the portion of that district within any given county will be geographically contiguous.

c) Minimizing County Splits⁶: The simulation algorithm avoided splitting any of North Carolina’s 100 counties, except when doing so is necessary to avoid violating one of the aforementioned criteria. When a county is divided into two districts, the county is considered to have one split. A county divided into three districts is considered to have two splits. A county divided into four districts is considered to have

³ Since my November 30 report, I made the following changes to the computer simulation algorithm. First, I added additional code at the conclusion of the algorithm that checks for the occurrence of double traversals. The computer is instructed to automatically reject any simulated plan that contains a double traversal. Second, the algorithm now contains several steps that further increase the preservation of municipal boundaries, discussed further below.

⁴ The Adopted Criteria state: “The number of persons in each congressional district shall be as nearly as equal as practicable, as determined under the most recent federal decennial census.”

⁵ The Adopted Criteria state: “No point contiguity shall be permitted in any 2021 Congressional, House, and Senate plan. Congressional, House, and Senate districts shall be comprised of contiguous territory. Contiguity by water is sufficient.”

⁶ The Adopted Criteria state: “Division of counties in the 2021 Congressional plan shall only be made for reasons of equalizing population and consideration of double bunking.”

three splits, and so on. For the purpose of creating equally populated districts, each newly drawn congressional district requires only one county split. But the fourteenth and final district drawn in North Carolina does need not create an additional county split, since this final district should simply be the remaining area unassigned to the first thirteen districts. Therefore, an entire plan of 14 congressional districts requires only 13 county splits. Accordingly, I require that every simulated plan contain only 13 county splits. The 2021 Adopted Criteria do not prohibit splitting a county more than once, so I allow some of these 13 county splits to occur within the same county. As a result, the total number of counties containing one or more splits may be fewer than 13. The algorithm also follows the Adopted Criteria in that it draws a congressional district wholly within Mecklenburg and Wake counties, which each have sufficient population size to contain an entire congressional district within their boundaries.

d) Minimizing VTD Splits⁷: North Carolina is divided into 2,666 VTDs. The computer simulation algorithm attempted to keep these VTDs intact and not split them into multiple districts, except when doing so is necessary for creating equally populated districts. For the purpose of creating equally populated districts, each newly drawn congressional district requires one VTD split. But the fourteenth and final district drawn in North Carolina does need not create an additional VTD split, since this final district should simply be the remaining area unassigned to the first thirteen districts. Therefore, an entire plan of 14 congressional districts requires only 13 VTD splits. I therefore require that every simulated plan split only 13 VTDs in total.

⁷ The Adopted Criteria state: “Voting districts (‘VTDs’) should be split only when necessary.”

e) Geographic Compactness⁸: The simulation algorithm prioritized the drawing of geographically compact districts whenever doing so does not violate any of the aforementioned criteria.

f) Avoiding Incumbent Pairings: North Carolina’s current congressional delegation includes two incumbents, Representatives Ted Budd and David Price, who announced before the Enacted Plan was adopted that they will not run for reelection in 2022. For the remaining eleven congressional incumbents, the simulation algorithm intentionally avoids pairing multiple incumbents in the same district. Hence, in every computer-simulated plan, each district contains no more than one incumbent’s residence.

g) Municipal Boundaries⁹: The simulation algorithm generally favors not splitting municipalities. The algorithm contains several steps that favor the preservation of municipal boundaries, so long as other considerations required by the Adopted Criteria are not subordinated. To the extent that the algorithm avoids unnecessary splitting of counties, the municipalities within non-split counties are of course preserved. When the algorithm splits up a county by assigning the county’s various VTDs to two different districts, the algorithm only allows one municipality to be split in this process of assigning the county’s VTDs to different districts. Finally, as explained earlier, VTDs are only split when doing so is necessary for equalizing district populations. When a single VTD is split for this population equalization purpose, the algorithm attempts to split the VTD in such a way that minimizes the number of municipalities split within the VTD. In

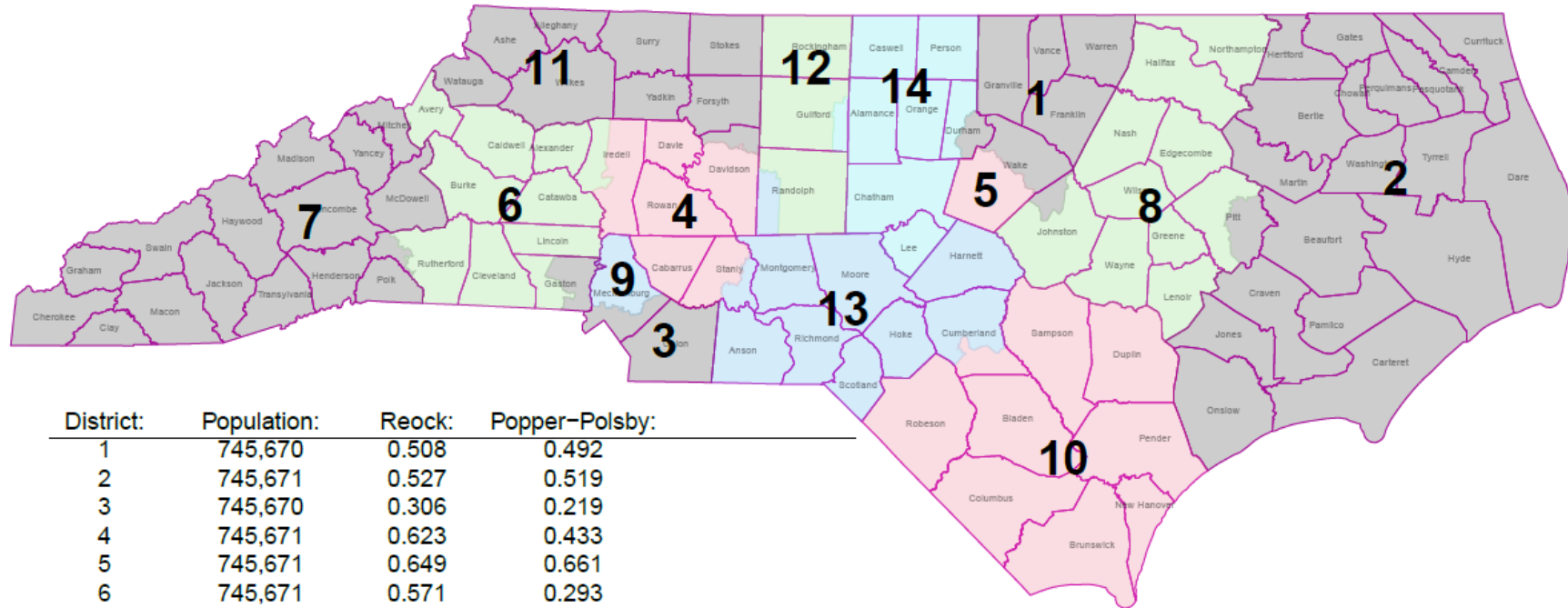
⁸ The Adopted Criteria state: “The Committees shall make reasonable efforts to draw legislative districts in the 2021 Congressional, House and Senate plans that are compact.”

⁹ The Adopted Criteria state: “The Committees may consider municipal boundaries when drawing districts in the 2021 Congressional, House, and Senate plans.”

other words, the algorithm attempts to draw the district border within the VTD without crossing municipal boundaries.

12. On the following page of this report, Map 1 displays an example of one of the computer-simulated plans produced by the computer algorithm. The lower half of this Map also reports the population of each district, the compactness scores for each district, and the county splits and VTD splits created by the plan. As with every simulated plan, this plan contains exactly 13 VTD splits and 13 county splits, with 11 counties split into two or more districts.

**Map 1:
Example of a Computer-Simulated Congressional Plan Protecting all 11 Incumbents**



District:	Population:	Reock:	Popper-Polsby:
1	745,670	0.508	0.492
2	745,671	0.527	0.519
3	745,670	0.306	0.219
4	745,671	0.623	0.433
5	745,671	0.649	0.661
6	745,671	0.571	0.293
7	745,671	0.354	0.303
8	745,670	0.468	0.352
9	745,670	0.576	0.405
10	745,671	0.649	0.534
11	745,670	0.377	0.424
12	745,671	0.4	0.48
13	745,671	0.46	0.301
14	745,670	0.457	0.519
Plan Average:	745,670.6	0.495	0.424

13 Split Counties:
 Alamance (Districts 12, 13)
 Burke (Districts 10, 3)
 Davie (Districts 2, 8)
 Granville (Districts 1, 14)
 Hoke (Districts 13, 6)
 Mecklenburg (Districts 5, 9)
 Nash (Districts 1, 11)
 Orange (Districts 1, 13)
 Pitt (Districts 11, 7)
 Rockingham (Districts 12, 2)
 Rowan (Districts 10, 8)
 Rutherford (Districts 3, 9)
 Wake (Districts 14, 4)

13 Split VTD's:
 VTD 00008N in Alamance County (Districts 12 and 13)
 VTD 000053 in Burke County (Districts 10 and 3)
 VTD 000011 in Davie County (Districts 2 and 8)
 VTD 00TYHO in Granville County (Districts 1 and 14)
 VTD 000063 in Hoke County (Districts 13 and 6)
 VTD 000018 in Mecklenburg County (Districts 5 and 9)
 VTD 00P09A in Nash County (Districts 1 and 11)
 VTD 0000CX in Orange County (Districts 1 and 13)
 VTD 001301 in Pitt County (Districts 11 and 7)
 VTD 0000LI in Rockingham County (Districts 12 and 2)
 VTD 000033 in Rowan County (Districts 10 and 8)
 VTD 000018 in Rutherford County (Districts 3 and 9)
 VTD 008-03 in Wake County (Districts 14 and 4)

The Enacted Plan’s Compliance with the Adopted Criteria

13. Although all seven of the criteria listed above are part of the General Assembly’s Adopted Criteria, five of these criteria are ones that the Joint Redistricting Committee “shall” or “should” follow in the process of drawing its Congressional districting plan. These five mandated criteria are equal population, contiguity, minimizing county splits, minimizing VTD splits, and geographic compactness.¹⁰

14. I assessed whether the 2021 Enacted Plan complies with these five mandated criteria, and I describe my findings in this section. I found that the Enacted Plan does not violate the equal population requirement, nor do any of its districts violate contiguity.

15. However, by comparing the Enacted Plan to the 1,000 computer-simulated plans, I found that the Enacted Plan fails to minimize county splits, fails to minimize VTD splits, and is significantly less geographically compact than is reasonably possible. I describe these findings below in detail.

16. ***Minimizing County Splits:*** In comparing the total number of county splits in the Enacted Plan and in the computer-simulated plans, I counted the total number of times a county is split into more than one district. Specifically, a county fully contained within a single district counts as zero splits. A county split into two full or partial districts counts as one split. And a county split into three full or partial districts counts as two splits. And so on.

17. Using this standard method of accounting for total county splits, I found that the Enacted Plan contains 14 total county splits, which are detailed in Table 1. These 14 total county splits are spread across 11 counties. Eight of these 11 counties are split only once, but Guilford,

¹⁰ In listing these five mandated criteria, I am not including the Adopted Criteria’s prohibitions on the use of racial data, partisan considerations, and election results data. I did not assess whether the Enacted Plan complies with the prohibition on racial considerations.

Mecklenburg, and Wake Counties are each split into three districts, thus accounting for two splits each. Thus, the Enacted Plan has 14 total county splits, as listed in Table 1.

Table 1: Total Number of County Splits in the 2021 Enacted Plan

	County:	Congressional Districts:	Total County Splits:
1	Davidson	7 and 10	1
2	Guilford	7, 10, and 11	2
3	Harnett	4 and 7	1
4	Iredell	10 and 12	1
5	Mecklenburg	8, 9, and 13	2
6	Onslow	1 and 3	1
7	Pitt	1 and 2	1
8	Robeson	3 and 8	1
9	Wake	5, 6, and 7	2
10	Watauga	11 and 14	1
11	Wayne	2 and 4	1
Total County Splits:			14

As explained in the previous section, a congressional plan in North Carolina needs to contain only 13 county splits if the map-drawer is attempting to minimize the splitting of counties. The Enacted Plan’s 14 county splits is therefore one more split than is necessary. This “extra” split is specifically found at the border between District 7 and District 10. In general, the border between any two congressional districts in North Carolina needs to split only one county, at most. But in the Enacted Plan, the border between Districts 7 and 10 creates two county splits: One split of Davidson County and one split of Guilford County. Creating two county splits of Davidson and Guilford Counties was not necessary for equalizing district populations. Nor was it necessary for protecting incumbents, as no incumbents reside in the portions of Davidson and Guilford Counties within District 7 and District 10. Hence, the “extra” county split in Davidson and Guilford Counties does not appear to be consistent with the 2021 Adopted Criteria, which

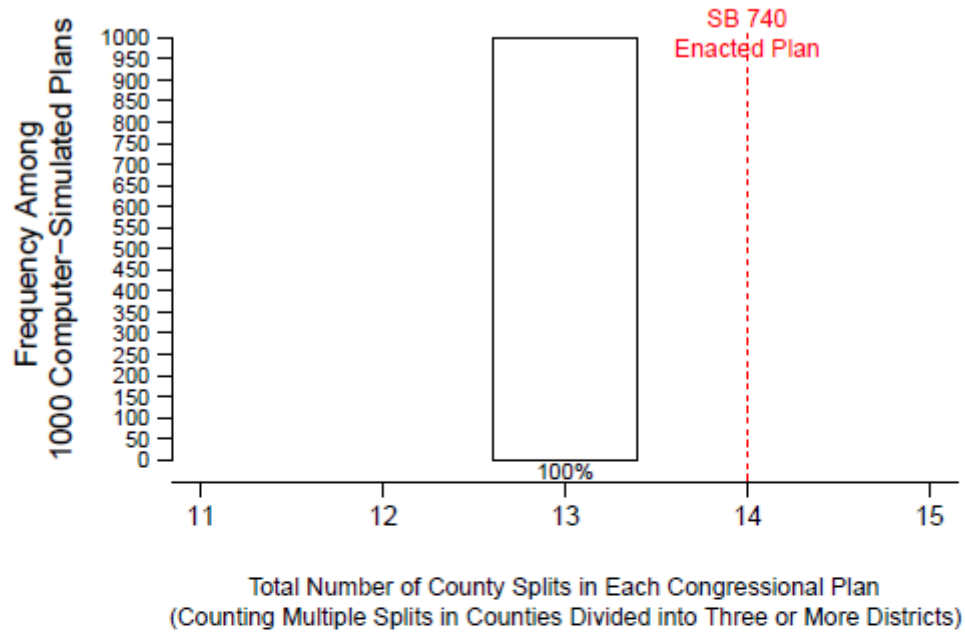
mandate that “Division of counties in the 2021 Congressional plan shall only be made for reasons of equalizing population and consideration of double bunking.”

18. Indeed, I found that the computer simulation algorithm was always able to draw districts complying with the Adopted Criteria without using an “extra” 14th county split. As the upper half of Figure 1 illustrates, all 1,000 computer-simulated plans contain exactly 13 county splits. The Enacted Plan clearly contains more county splits than one would expect from a map-drawing process complying with the Adopted Criteria. Therefore, I conclude that the Enacted Plan does not comply with the Adopted Criteria’s rule against unnecessary division of counties.

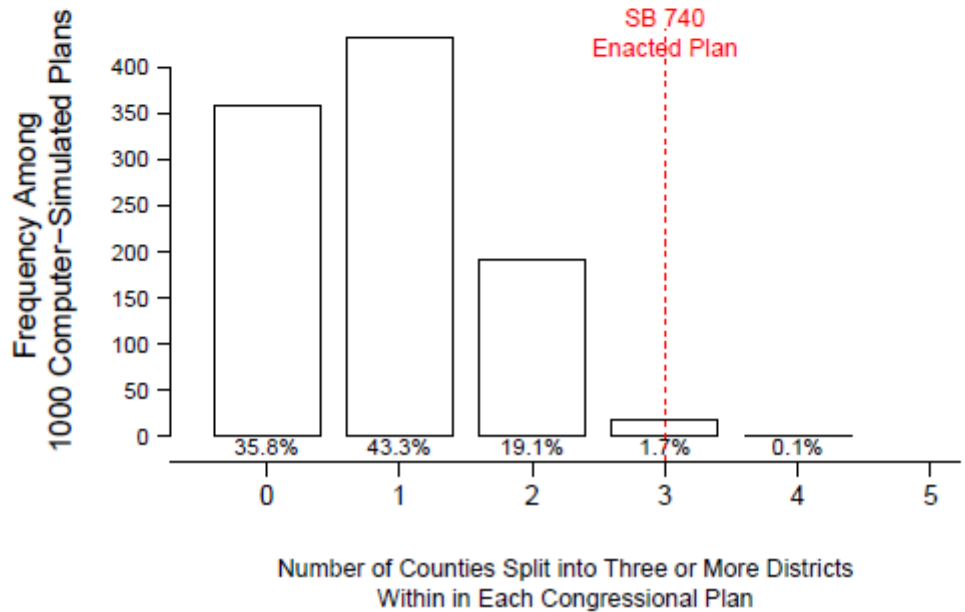
19. The Adopted Criteria do not explicitly limit the number of county splits within any single county. Nevertheless, it is notable that under the Enacted Plan, three different counties (Guilford, Mecklenburg, and Wake) are split multiple times. These three counties are each split into three districts under the Enacted Plan. This is an outcome that rarely occurs under the computer-simulated plans. As the lower half of Figure 1 illustrates, only 1.8% of the computer-simulated plans similarly split three or more counties multiple times. Thus, it is clear that the Enacted Plan’s level of concentrating multiple county splits within a single county is an outcome that generally does not occur in a vast majority of the simulated plans drawn according to the Adopted Criteria. Additionally, not once in the small number of simulated plans that split at least three counties three ways are Guilford, Mecklenburg, and Wake Counties all split multiple times.

Figure 1:

Comparison of Total County Splits in Enacted SB 740 Plan and 1,000 Computer-Simulated Plans



**Number of Counties Split Multiple Times
in Enacted SB 740 Plan and 1,000 Computer-Simulated Plans**



21. **Minimizing VTD Splits:** The Adopted Criteria mandates that “Voting districts (‘VTDs’) should be split only when necessary.” As explained earlier in this report, each newly drawn congressional district needs to create only one VTD split for the purpose of equalizing the district’s population. But the fourteenth and final district drawn in North Carolina does need not create an additional VTD split, since this final district should simply be the remaining area unassigned to the first 13 districts. Therefore, an entire plan of 14 congressional districts needs to create only 13 VTD splits.

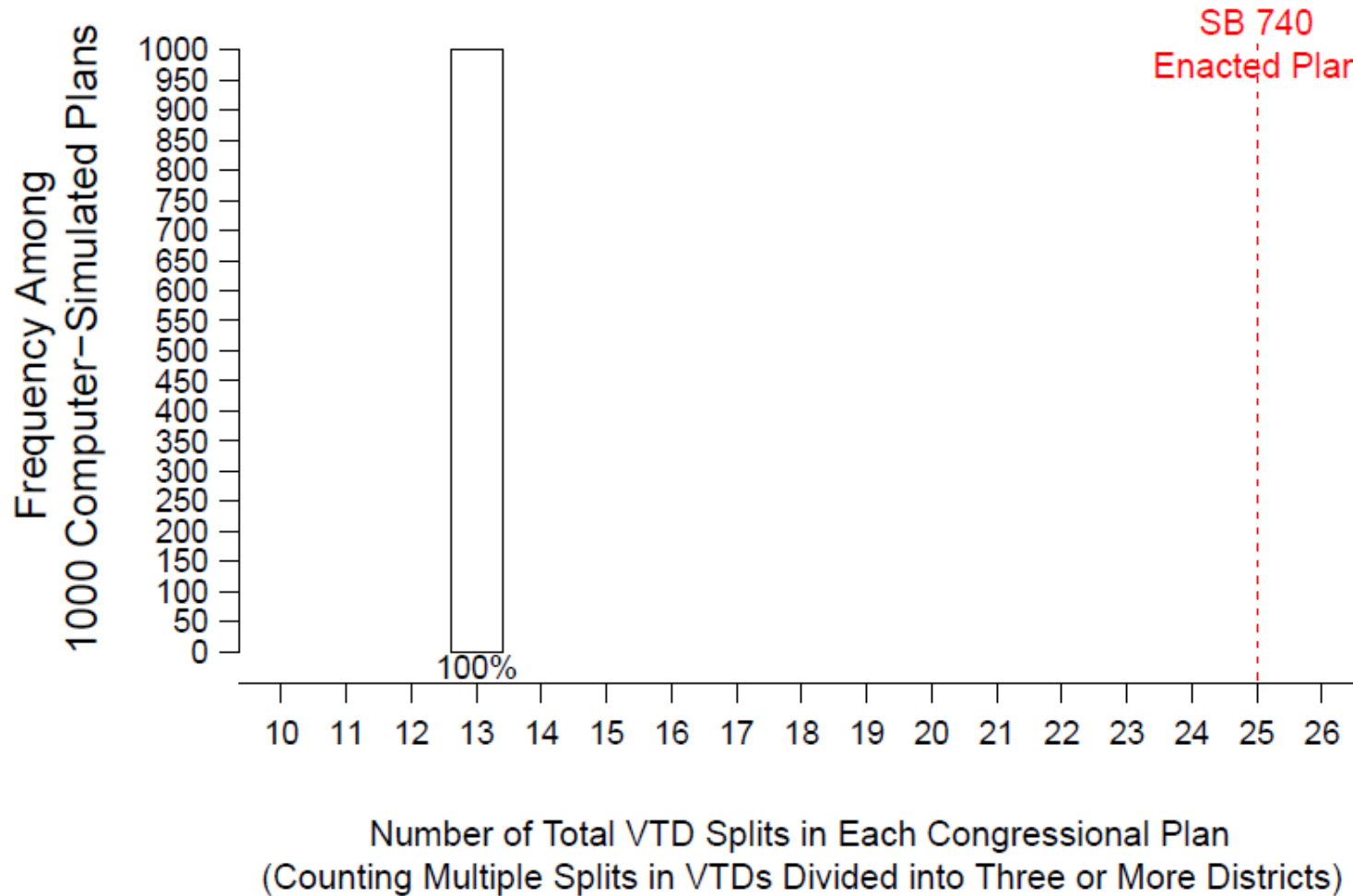
22. However, the Enacted Plan creates far more VTD splits than is necessary. As the General Assembly’s “StatPack” Report¹¹ for the Enacted SB 740 Plan details, the Enacted Plan splits 24 VTDs into multiple districts. Among these 24 split VTDs, 23 VTDs are split into two districts, while one VTD (Wake County VTD 18-02) is split into three districts. Thus, using the same method of accounting for splits described earlier, the Enacted Plan contains 25 total VTD splits, and 24 VTDs are split into two or more districts.

23. The Enacted Plan’s 25 total VTD splits is far more than is necessary to comply with the Adopted Criteria’s equal population requirement. As explained earlier, only 13 VTD splits are necessary in order to produce an equally populated congressional plan in North Carolina. Thus, as Figure 2 illustrates, every one of the 1,000 computer-simulated plans contains exactly 13 VTD splits, and the Enacted Plan’s 25 total VTD splits is clearly not consistent with the Adopted Criteria’s requirement that “Voting districts (‘VTDs’) should be split only when necessary.”

¹¹ Available at:
<https://webservices.ncleg.gov/ViewBillDocument/2021/53447/0/SL%202021-174%20-%20StatPack%20Report>.

Figure 2:

Comparison of Total VTD Splits in Enacted SB 740 Plan and 1,000 Computer-Simulated Plans



24. *Measuring Geographic Compactness*: The August 12, 2021 Adopted Criteria mandates that the Joint Redistricting Committee “shall” attempt to draw geographically compact congressional districts. The Adopted Criteria also specify two commonly used measures of district compactness: the Reock score and the Polsby-Popper score.

25. In evaluating whether the Enacted Plan follows the compactness requirement of the Adopted Criteria, it is useful to compare the compactness of the Enacted Plan and the 1,000 computer-simulated plans. The computer-simulated plans were produced by a computer algorithm adhering strictly to the traditional districting criteria mandated by the Adopted Criteria and ignoring any partisan or racial considerations. Thus, the compactness scores of these computer-simulated plans illustrate the statistical range of compactness scores that could be reasonably expected to emerge from a districting process that solely seeks to follow the Adopted Criteria while ignoring partisan and racial considerations. I therefore compare the compactness of the simulated plans and the Enacted Plan using the two measures of compactness specified by the 2021 Adopted Criteria.

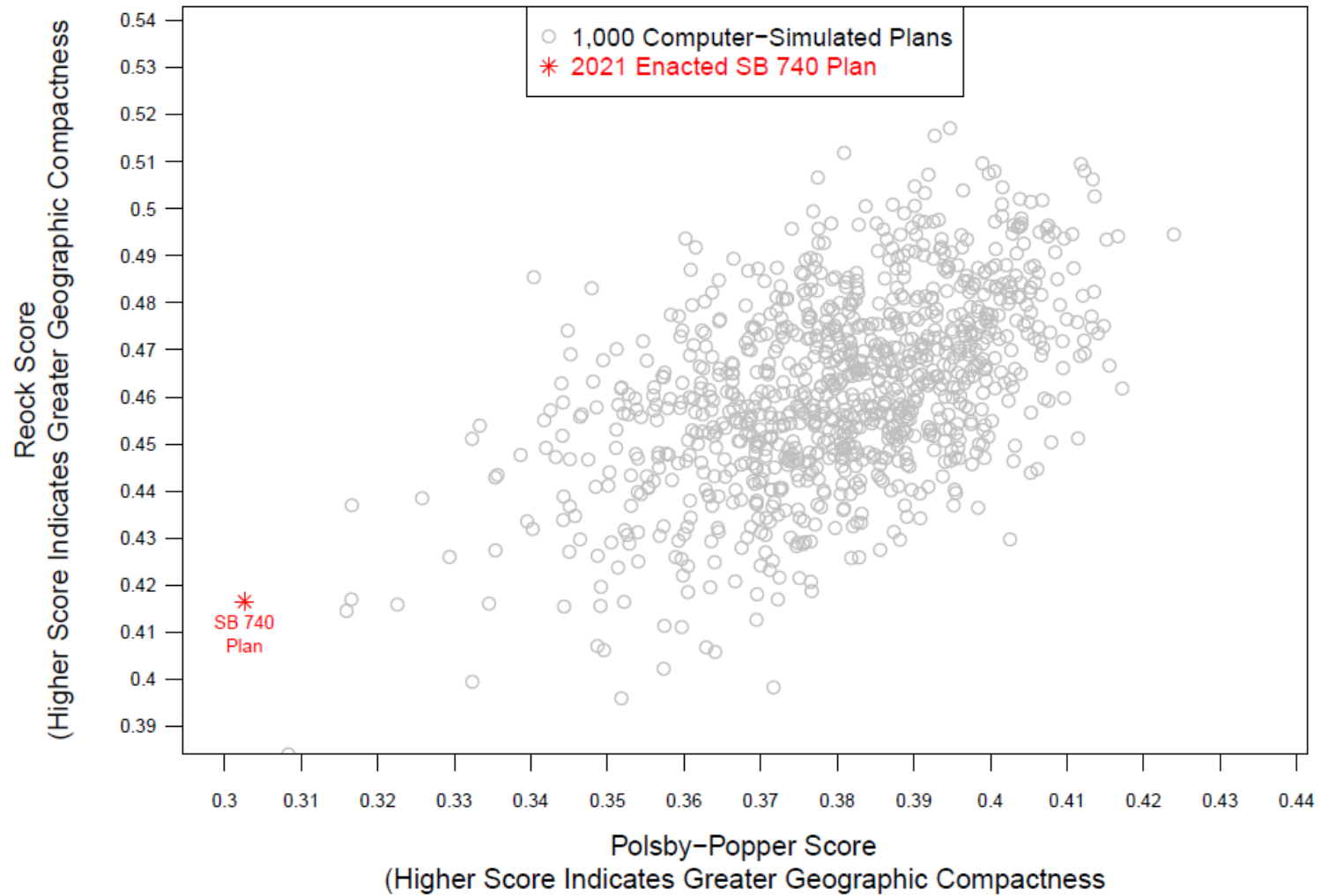
26. First, I calculate the average Polsby-Popper score of each plan’s districts. The Polsby-Popper score for each individual district is calculated as the ratio of the district’s area to the area of a hypothetical circle whose circumference is identical to the length of the district’s perimeter; thus, higher Polsby-Popper scores indicate greater district compactness. The 2021 Enacted Plan has an average Polsby-Popper score of 0.3026 across its 14 congressional districts. As illustrated in Figure 3, every single one of the 1,000 computer-simulated House plans in this report exhibits a higher Polsby-Popper score than the Enacted Plan. In fact, the middle 50% of these 1,000 computer-simulated plans have an average Polsby-Popper score ranging from 0.37 to 0.39, and the most compact computer-simulated plan has a Polsby-Popper score of 0.42. Hence,

it is clear that the Enacted Plan is significantly less compact, as measured by its Polsby-Popper score, than what could reasonably have been expected from a districting process adhering to the Adopted Criteria.

27. Second, I calculate the average Reock score of the districts within each plan. The Reock score for each individual district is calculated as the ratio of the district's area to the area of the smallest bounding circle that can be drawn to completely contain the district; thus, higher Reock scores indicate more geographically compact districts. The 2021 Enacted Plan has an average Reock score of 0.4165 across its 14 congressional districts. As illustrated in Figure 3, 98.2% of the 1,000 computer-simulated plans exhibit a higher Reock score than the Enacted Plan. In fact, the middle 50% of these 1,000 computer-simulated plans have an average Reock score ranging from 0.45 to 0.46, and the most compact computer-simulated plan has an average Reock score of 0.52. Hence, it is clear that the Enacted Plan is significantly less compact, as measured by its Reock score, than what could reasonably have been expected from a districting process adhering to the Adopted Criteria.

Figure 3:

**Comparisons of Enacted SB 740 Plan to 1,000 Computer-Simulated Plans
on Polsby-Popper and Reock Compactness Scores**



Measuring the Partisanship of Districting Plans

28. In general, I use actual election results from recent, statewide election races in North Carolina to assess the partisan performance of the Enacted Plan and the computer-simulated plans analyzed in this report. Overlaying these past election results onto a districting plan enables me to calculate the Republican (or Democratic) share of the votes cast from within each district in the Enacted Plan and in each simulated plan. I am also able to count the total number of Republican and Democratic-leaning districts within each simulated plan and within the Enacted Plan. All of these calculations thus allow me to directly compare the partisanship of the Enacted Plan and the simulated plans. These partisan comparisons allow me to determine whether or not the partisanship of individual districts and the partisan distribution of seats in the Enacted Plan could reasonably have arisen from a districting process adhering to the Adopted Criteria and its explicit prohibition on partisan considerations. Past voting history in federal and statewide elections is a strong predictor of future voting history. Mapmakers thus can and do use past voting history to identify the class of voters, at a precinct-by-precinct level, who are likely to vote for Republican or Democratic congressional candidates.

29. In the 2011, 2016, and 2017 rounds of state legislative and congressional redistricting last decade, the North Carolina General Assembly publicly disclosed that it was relying solely on recent statewide elections in measuring the partisanship of the districting plans being created. I therefore follow the General Assembly’s past practice from last decade by using results from a similar set of recent statewide elections in order to measure the partisanship of districts in the Enacted Plan and in the computer-simulated plans.

30. ***The 2016-2020 Statewide Election Composite:*** During the General Assembly’s 2017 legislative redistricting process, Representative David Lewis announced at the Joint Redistricting Committee’s August 10, 2017 meeting that the General Assembly would measure

the partisanship of legislative districts using the results from some of the most recent elections held in North Carolina for the following five offices: US President, US Senator, Governor, Lieutenant Governor, and Attorney General.

31. To measure the partisanship of all districts in the computer-simulated plans and the 2021 Enacted Plan, I used the two most-recent election contests held in North Carolina for these same five offices during 2016-2020. In other words, I used the results of the following ten elections: 2016 US President, 2016 US Senator, 2016 Governor, 2016 Lieutenant Governor, 2016 Attorney General, 2020 US President, 2020 US Senator, 2020 Governor, 2020 Lieutenant Governor, and 2020 Attorney General. I use these election results because these are the same state and federal offices whose election results were used by the General Assembly during its 2017 legislative redistricting process, and the 2017 redistricting process was the most recent one in which the leadership of the General Assembly’s redistricting committees publicly announced how the General Assembly would evaluate the partisanship of its own districting plans.

32. I obtained precinct-level results for these ten elections, and I disaggregated these election results down to the census block level. I then aggregated these block-level election results to the district level within each computer-simulated plan and the Enacted Plan, and I calculated the number of districts within each plan that cast more votes for Republican than Democratic candidates. I use these calculations to measure the partisan performance of each simulated plan analyzed in this report and of the Enacted Plan. In other words, I look at the census blocks that would comprise a particular district in a given simulation and, using the actual election results from those census blocks, I calculate whether voters in that simulated district collectively cast more votes for Republican or Democratic candidates in the 2016-2020 statewide election contests. I performed such calculations for each district under each simulated plan to

measure the number of districts Democrats or Republicans would win under that particular simulated districting map.

33. I refer to the aggregated election results from these ten statewide elections as the “2016-2020 Statewide Election Composite.” For the Enacted Plan districts and for all districts in each of the 1,000 computer-simulated plans, I calculate the percentage of total two-party votes across these ten elections that were cast in favor of Republican candidates in order to measure the average Republican vote share of the district. In the following section, I present district-level comparisons of the Enacted Plan and simulated plan districts in order to identify whether any individual districts in the Enacted Plan are partisan outliers. I also present plan-wide comparisons of the Enacted Plan and the simulated plans in order to identify the extent to which the Enacted Plan is a statistical outlier in terms of common measures of districting plan partisanship.

District-Level and Plan-Wide Partisan Comparisons of the Enacted Plan and Simulated Plans

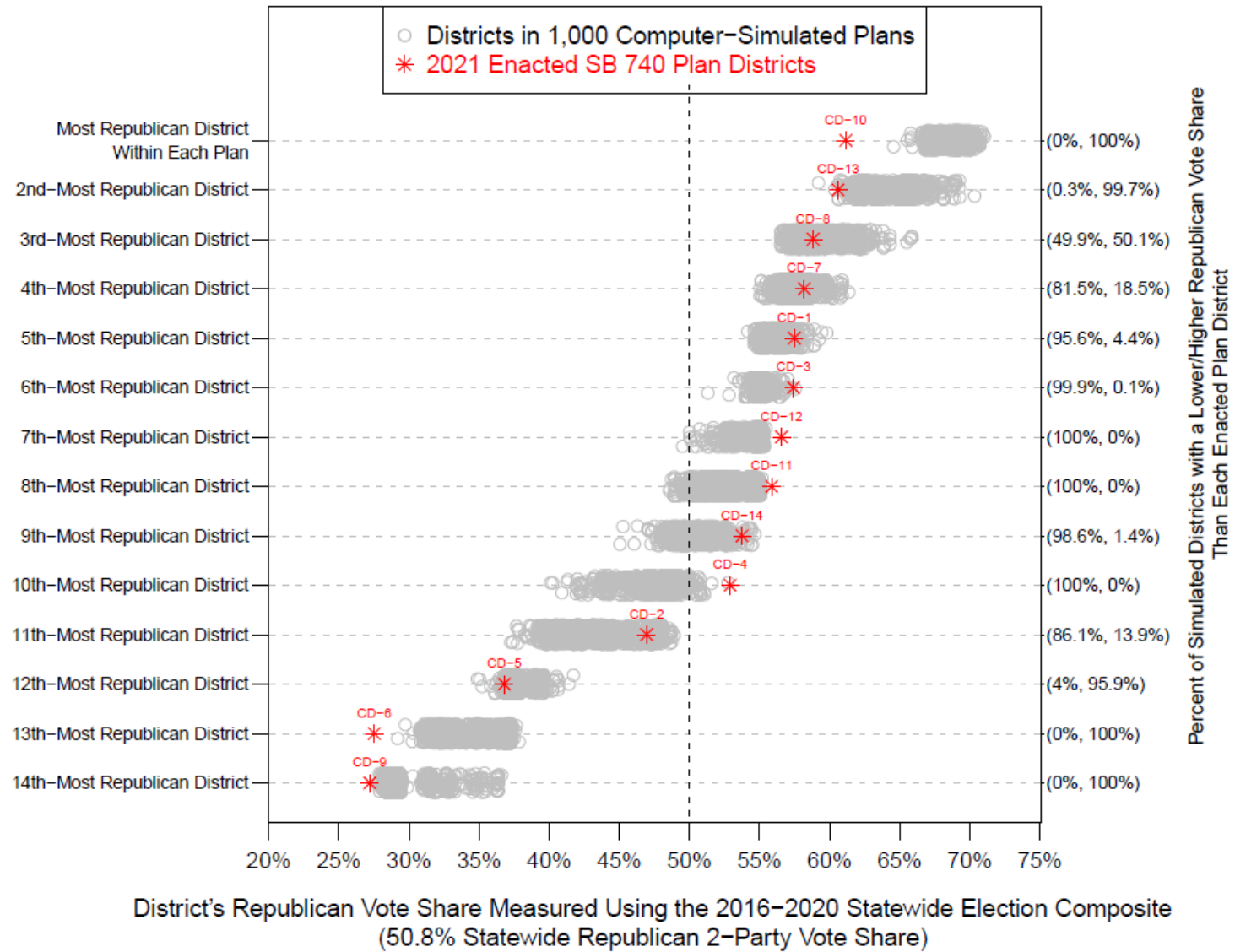
34. In this section, I present partisan comparisons of the Enacted Plan to the computer-simulated plans at both a district-by-district level as well as a plan-wide level using several common measures of districting plan partisanship. First, I compare the district-level Republican vote share of the Enacted Plan’s districts and the districts in the computer-simulated plans. Next, I compare the number of Republican-favoring districts in the Enacted Plan and in the computer-simulated plans. Finally, I use several common measures of partisan bias to compare the Enacted Plan to the computer-simulated plans. Overall, I find that the several individual districts in the Enacted Plan are statistical outliers, exhibiting extreme partisan characteristics that are rarely or never observed in the computer-simulated plan districts drawn with strict adherence to the Adopted Criteria. Moreover, I find that at the plan-wide level, the Enacted Plan creates a degree of partisan bias favoring Republicans that is more extreme than the vast majority of the computer-simulated plans. I describe these findings in detail below:

35. ***Partisan Outlier Districts in the Enacted Plan:*** In Figure 4, I directly compare the partisan distribution of districts in the Enacted Plan to the partisan distribution of districts in the 1,000 computer-simulated plans. I first order the Enacted Plan’s districts from the most to the least-Republican district, as measured by Republican vote share using the 2016-2020 Statewide Election Composite. The most-Republican district appears on the top row, and the least-Republican district appears on the bottom row of Figure 4. Next, I analyze each of the 1,000 computer-simulated plans and similarly order each simulated plan’s districts from the most- to the least-Republican district. I then directly compare the most-Republican Enacted Plan district (CD-10) to the most-Republican simulated district from each of the 1,000 computer-simulated plans. In other words, I compare one district from the Enacted Plan to 1,000 computer-simulated

districts, and I compare these districts based on their Republican vote share. I then directly compare the second-most-Republican district in the Enacted Plan to the second-most-Republican district from each of the 1,000 simulated plans. I conduct the same comparison for each district in the Enacted Plan, comparing the Enacted Plan district to its computer-simulated counterparts from each of the 1,000 simulated plans.

Figure 4:

Comparisons of Enacted SB 740 Plan Districts to 1,000 Computer-Simulated Plans' Districts



36. Thus, the top row of Figure 4 directly compares the partisanship of the most-Republican Enacted Plan district (CD-10) to the partisanship of the most-Republican district from each of the 1,000 simulated plans. The two percentages (in parentheses) in the right margin of this Figure report the percentage of these 1,000 simulated districts that are less Republican than, and more Republican than, the Enacted Plan district. Similarly, the second row of this Figure compares the second-most-Republican district from each plan, the third row compares the third-most-Republican district from each plan, and so on. In each row of this Figure, the Enacted Plan's district is depicted with a red star and labeled in red with its district number; meanwhile, the 1,000 computer-simulated districts are depicted with 1,000 gray circles on each row.

37. As the bottom row of Figure 4 illustrates, the most-Democratic district in the Enacted Plan (CD-9) is more heavily Democratic than 100% of the most-Democratic districts in each of the 1,000 computer-simulated plans. This calculation is numerically reported in the right margin of the Figure. Every single one of the computer-simulated counterpart districts would have been more politically moderate than CD-9 in terms of partisanship: CD-9 exhibits a Republican vote share of 27.2%, while all 1,000 of the most-Democratic districts in the computer-simulated plans would have exhibited a higher Republican vote share and would therefore have been more politically moderate. It is thus clear that CD-9 packs together Democratic voters to a more extreme extent than the most-Democratic district in 100% of the computer-simulated plans. I therefore identify CD-9 as an extreme partisan outlier when compared to its 1,000 computer-simulated counterparts, using a standard threshold test of 95% for statistical significance.

38. The next-to-bottom row of Figure 4 reveals a similar finding regarding CD-6 in the Enacted Plan. This row illustrates that the second-most-Democratic district in the Enacted

Plan (CD-6) is more heavily Democratic than 100% of the second-most-Democratic districts in each of the 1,000 computer-simulated plans. Every single one of its computer-simulated counterpart districts would have been more politically moderate than CD-6 in terms of partisanship: CD-6 exhibits a Republican vote share of 27.5%, while 100% of the second-most-Democratic districts in the computer-simulated plans would have exhibited a higher Republican vote share and would therefore have been more politically moderate. In other words, CD-6 packs together Democratic voters to a more extreme extent than the second-most-Democratic district in 100% of the computer-simulated plans. I therefore identify CD-6 as an extreme partisan outlier when compared to its 1,000 computer-simulated counterparts, using a standard threshold test of 95% for statistical significance.

39. Meanwhile, the top two rows of Figure 4 reveal a similar finding: As the top row illustrates, the most-Republican district in the Enacted Plan (CD-10) is less heavily Republican than 100% of the most-Republican districts in each of the 1,000 computer-simulated plans. A similar pattern appears in the second-to-top row of Figure 4, which illustrates that the second-most-Republican district in the Enacted Plan (CD-13) is less heavily Republican than 99.7% of the second-most-Republican districts in each of the 1,000 computer-simulated plans.

40. It is especially notable that these four aforementioned Enacted Plan districts – the two most Republican districts (CD-10 and CD-13) and the two most Democratic districts (CD-9 and CD-6) in the Enacted Plan – were drawn to include more Democratic voters than virtually all of their counterpart districts in the 1,000 computer-simulated plans. These “extra” Democratic voters in the four most partisan-extreme districts in the Enacted Plan had to come from the remaining ten more moderate districts in the Enacted Plan. Having fewer Democratic voters in these more moderate districts enhances Republican candidate performance in these districts.

41. Indeed, the middle six rows in Figure 4 (i.e., rows 5 through 10) confirm this precise effect. The middle six rows in Figure 4 compare the partisanship of districts in the fifth, sixth, seventh, eighth, ninth, and tenth-most Republican districts within the Enacted Plan and the 1,000 computer-simulated plans. In all six of these rows, the Enacted Plan district is a partisan outlier. In each of these six rows, the Enacted Plan's district is more heavily Republican than over 95% of its counterpart districts in the 1,000 computer-simulated plans. Three of these six rows illustrate Enacted Plan districts that are more heavily Republican than 100% of their counterpart districts in the computer-simulated plans. The six Enacted Plan districts in these six middle rows (CD-1, 3, 4, 11, 12, and 14) are more heavily Republican than nearly all of their counterpart computer-simulated plan districts because the four most partisan-extreme districts in the Enacted Plan (CD-6, 9, 10, and 13) are more heavily Democratic than nearly all of their counterpart districts in the computer-simulated plans.

42. I therefore identify the six Enacted Plan districts in the six middle rows (CD-1, 3, 4, 11, 12, and 14) of Figure 4 as partisan statistical outliers. Each of these six districts has a Republican vote share that is higher than over 95% of the computer-simulated districts in its respective row in Figure 4. I also identify the four Enacted Plan districts in the top rows and the bottom two rows (CD-6, 9, 10, and 13) of Figure 4 as partisan statistical outliers. Each of these four districts has a Republican vote share that is lower than at least 99.7% of the computer-simulated districts in its respective row in Figure 4.

43. In summary, Figure 4 illustrates that 10 of the 14 districts in the Enacted Plan are partisan outliers: Six districts (CD-1, 3, 4, 11, 12, and 14) in the Enacted Plan are more heavily Republican than over 95% of their counterpart computer-simulated plan districts, while four

districts (CD-6, 9, 10, and 13) are more heavily Democratic than at least 99.7% of their counterpart districts in the computer-simulated plans.

44. The Appendix of this report contains ten additional Figures (Figures A1 through A10) that each contain a similar analysis of the Enacted Plan districts and the computer-simulated plan districts. Each of these ten Figures in the Appendix measures the partisanship of districts using one of the individual ten elections included in the 2016-2020 Statewide Election Composite. These ten Figures generally demonstrate that the same extreme partisan outlier patterns observed in Figure 4 are also present when district partisanship is measured using any one of the ten statewide elections held in North Carolina during 2016-2020.

45. ***“Mid-Range” Republican Districts:*** Collectively, the upper ten rows in Figure 4 illustrate that the Enacted Plan’s ten most-Republican districts exhibit a significantly narrower range of partisanship than is exhibited by the ten most-Republican districts in each of the computer-simulated plans. Specifically, the Enacted Plan’s ten most-Republican districts all have Republican vote shares within the narrow range of 52.9% to 61.2%. As explained earlier, this narrow range is the product of two distinct dynamics: In the top two rows of Figure 4, the Enacted Plan’s districts are significantly less Republican than nearly all of the simulated plans’ districts in these rows. But in the fifth to tenth rows of Figure 4, the Enacted Plan’s districts are more safely Republican-leaning than over 95% of the computer-simulated districts within each of these six rows. The overall result of these two distinct dynamics is that the Enacted Plan contains ten districts that all have Republican vote shares within the narrow range of 52.9% to 61.2%. I label any districts within this narrow range of partisanship as “mid-range” Republican-leaning districts, reflecting the fact that these districts have generally favored Republican candidates, but not by overwhelmingly large margins.

46. Is the Enacted Plan’s creation of ten such “mid-range” Republican-leaning districts an outcome that ever occurs in the 1,000 computer-simulated plans? I analyzed the simulated plans and counted the number of districts within each plan that are similarly “mid-range” with a Republican vote share between 52.9% and 61.2%. As Figure 5 illustrates, the Enacted Plan’s creation of ten “mid-range” Republican districts is an extreme statistical outlier. None of the 1,000 simulated plans comes close to creating ten such districts. Virtually all of the simulated plans contain from two to six “mid-range” Republican districts, and the most common outcome among the simulations is four such districts. Hence, the Enacted Plan is clearly an extreme partisan outlier in terms of its peculiar focus on maximizing the number of “mid-range” Republican districts, and the Enacted Plan did so to an extreme degree far beyond any of the 1,000 simulated plans created using a partisan-blind computer algorithm that follows the Adopted Criteria.

47. ***Competitive Districts:*** The Enacted Plan’s maximization of “mid-range” Republican districts necessarily comes at the expense of creating more competitive districts. As Figure 4 illustrates, the Enacted Plan contains zero districts whose Republican vote share is higher than 47.0% and lower than 52.9%, as measured using the 2016-2020 Statewide Election Composite. In other words, there are zero districts in which the Republican vote share is within 5% of the Democratic vote share.

48. I label districts with a Republican vote share from 47.5% to 52.5% as “competitive” districts to reflect the fact that such districts have a nearly even share of Republican and Democratic voters, and election outcomes in the district could therefore swing in favor of either party. The Enacted Plan contains zero “competitive” districts, as measured using the 2016-2020 Statewide Election Composite.

Figure 5:
Comparisons of Enacted SB 740 Plan to 1,000 Computer-Simulated Plans
On Number of Mid-Range Republican Districts

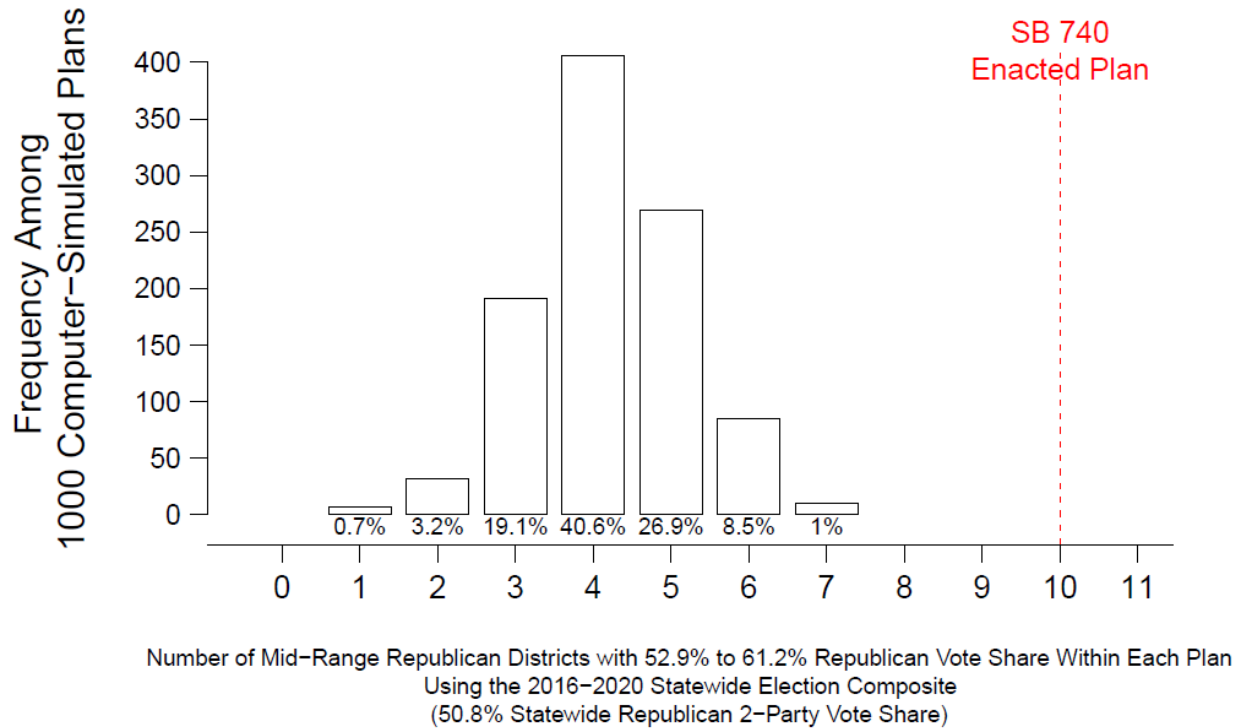
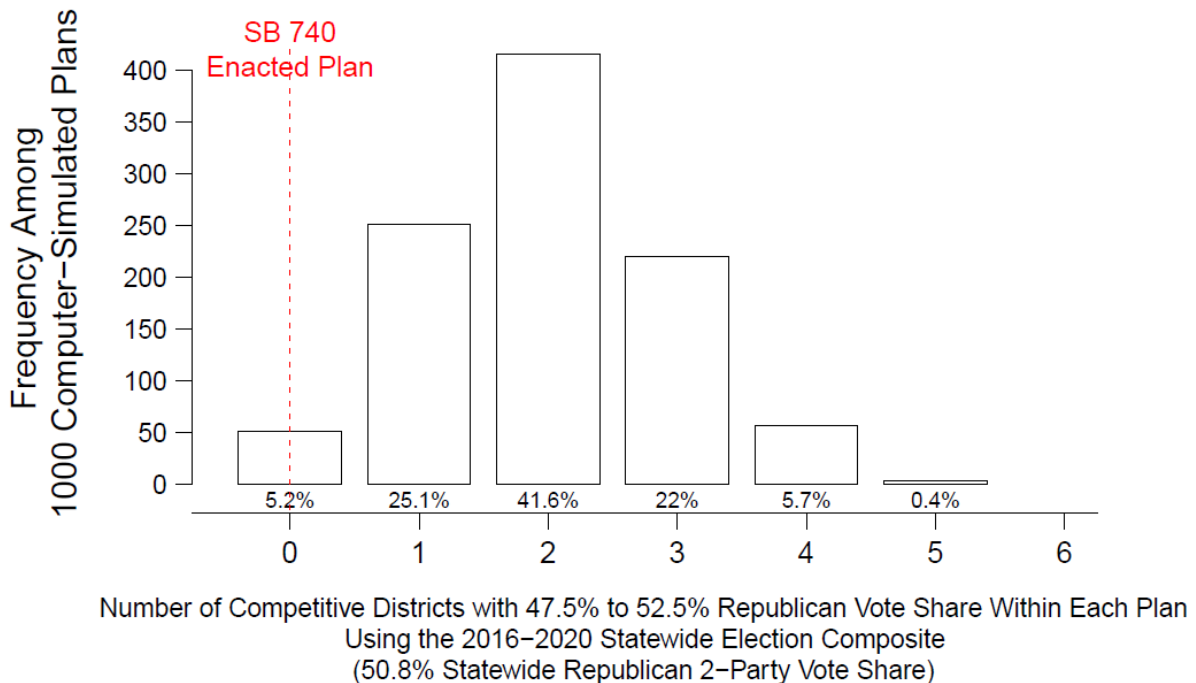


Figure 6:
Comparisons of Enacted SB 740 Plan to 1,000 Computer-Simulated Plans
On Number of Competitive Districts



49. Is the Enacted Plan’s failure to create any “competitive” districts an outcome that ever occurs in the 1,000 computer-simulated plans? I analyzed the simulated plans and counted the number of districts within each plan that are “competitive” districts with a Republican vote share between 47.5% and 52.5%. As Figure 6 illustrates, the Enacted Plan’s creation of zero “competitive” districts is almost a statistical outlier: Only 5.2% of the 1,000 simulated plans similarly fail to have a single “competitive” district. The vast majority of the computer-simulated plans contain two or more “competitive” districts. Almost 95% of the computer-simulated plans create more “competitive” districts than the Enacted Plan does.

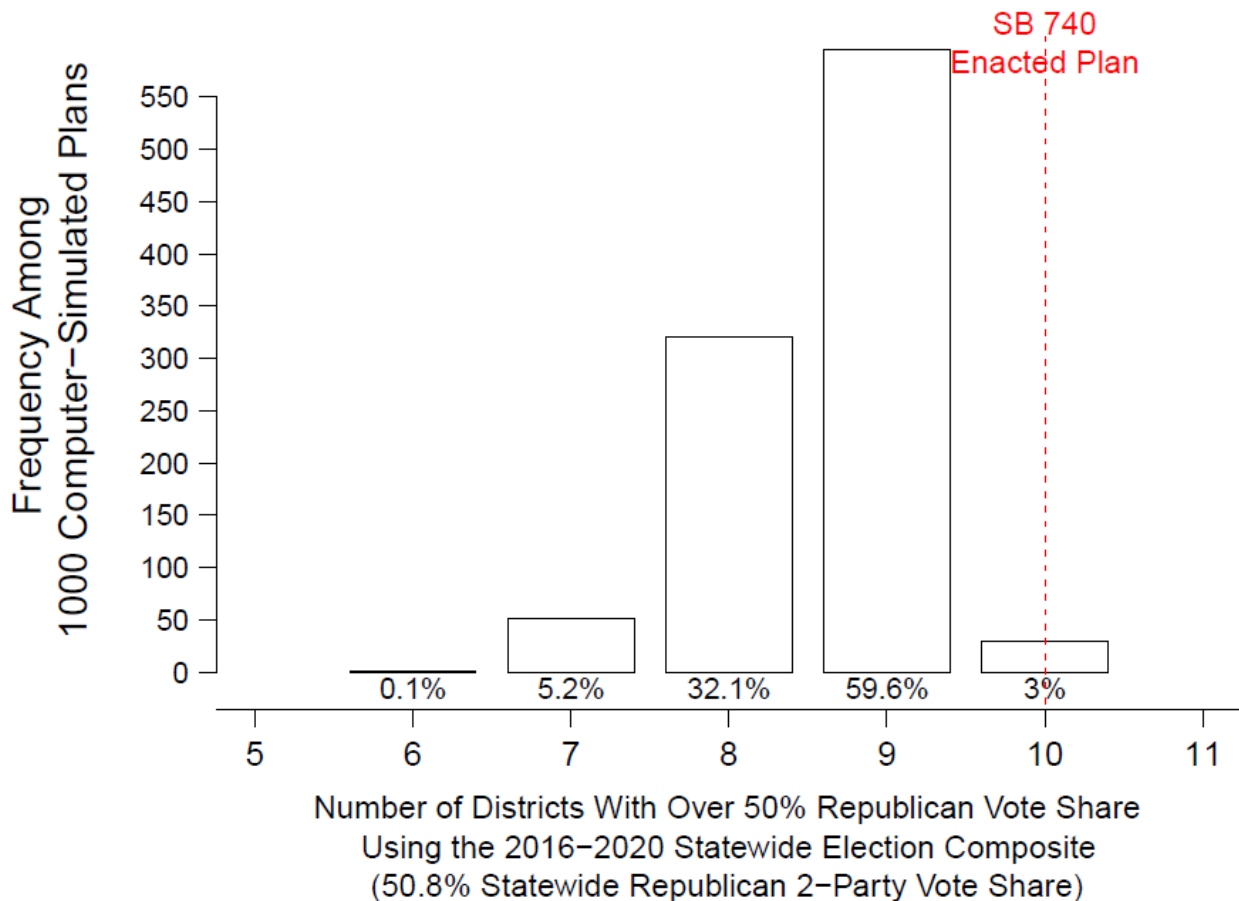
50. *Number of Democratic and Republican Districts:* Figure 7 compares the partisan breakdown of the computer-simulated plans to the partisanship of the Enacted Plan. Specifically, Figure 7 uses the 2016-2020 Statewide Election Composite to measure the number of Republican-favoring districts created in each of the 1,000 simulated plans. Across the entire state, Republican candidates collectively won a 50.8% share of the votes in the ten elections in the 2016-2020 Statewide Election Composite. But within the 14 districts in the Enacted Plan, Republicans have over a 50% vote share in 10 out of 14 districts. In other words, the Enacted Plan created 10 Republican-favoring districts, as measured using the 2016-2020 Statewide Election Composite. By contrast, only 3% of the computer-simulated plans create 10 Republican-favoring districts, and no computer-simulated plan ever creates more than 10 Republican districts.

51. Hence, in terms of the total number of Republican-favoring districts created by the plan, the 2021 Enacted Plan is a statistical outlier when compared to the 1,000 computer-simulated plans. The Enacted Plan creates the maximum number of Republican districts that ever occurs in any computer-simulated plan, and the Enacted Plan creates more Republican districts

than 97% of the computer-simulated plans, which were drawn using a non-partisan districting process adhering to the General Assembly’s 2021 Adopted Criteria. I characterize the Enacted Plan’s creation of 10 Republican districts as a statistical outlier among the computer-simulated plans because the Enacted Plan exhibits an outcome that is more favorable to Republicans than over 95% of the simulated plans.

Figure 7:

Comparisons of Enacted SB 740 Plan to 1,000 Computer-Simulated Plans



52. Notably, the ten elections included in the Statewide Election Composite all occurred in two election years and in electoral environments that were relatively favorable to Republicans across the country (November 2016 and November 2020). North Carolina did not hold any statewide elections for non-judicial offices in November 2018, which was an electoral environment more favorable to Democrats across the country.

53. Hence, the projected number of Republican seats would be even lower in the computer-simulated plans if one measured district partisanship using a statewide election whose outcome was more partisan-balanced or even favorable to Democrats. In the Appendix, I present ten histograms (labeled as Figures B1 to B10), each presenting the projected number of Republican seats across all of the simulated plans and the Enacted Plan using only one of the ten elections in the Statewide Election Composite.

54. The ten histograms in Figures B1 to B10 illustrate how the partisanship of the Enacted Plan compares to the partisanship of the 1,000 computer-simulated plans under a range of different electoral environments, as reflected by the ten elections in the Statewide Election Composite. Most notably, under all ten of these elections, the Enacted Plan always contains exactly 10 Republican-favoring districts and 4 Democrat-favoring districts. Hence, it is clear that the Enacted Plan creates a 10-to-4 distribution of seats in favor of Republican candidates that is durable across a range of different electoral conditions.

55. Moreover, the histograms in Figures B1 to B10 demonstrate that the Enacted Plan becomes a more extreme partisan outlier relative to the computer-simulated plans under electoral conditions that are slightly to moderately favorable to the Democratic candidate. For example, Figure B1 compares the Enacted Plan to the computer-simulated plan using the results of the 2016 Attorney General election, which was a near-tied statewide contest in which Democrat Josh

Stein defeated Republican Buck Newton by a very slim margin. Using the 2016 Attorney General election to measure district partisanship, the 2021 Enacted Plan contains 10 Republican-favoring districts out of 14. The Enacted Plan’s creation of 10 districts favoring Republican Buck Newton over Democrat Josh Stein is an outcome that never occurs in the 1,000 computer-simulated plans, indicating that the Enacted Plan is a partisan statistical outlier under electoral conditions that are more favorable for Democrats (and thus relatively more unfavorable for Republicans) than is normal in North Carolina.

56. An even more favorable election for the Democratic candidate was the 2020 gubernatorial contest, in which Democrat Roy Cooper defeated Republican Dan Forest by a 4.5% margin. Figure B7 compares the Enacted Plan to the computer-simulated plans using the results of this 2020 gubernatorial election. Using the results from this election, the 2021 Enacted Plan contains 10 Republican-favoring districts out of 14. None of the 1,000 simulated plans ever contain 10 districts favoring the Republican candidate. The Enacted Plan’s creation of 10 Republican-favoring districts is therefore an extreme partisan outlier that is durable even in Democratic-favorable electoral conditions. In fact, the 10-to-4 Republican partisan advantage under the Enacted Plan appears to become even more of an extreme partisan outlier under Democratic-favorable elections.

57. ***The Mean-Median Difference:*** I also calculate each districting plan’s mean-median difference, which is another accepted method that redistricting scholars commonly use to compare the relative partisan bias of different districting plans. The mean-median difference for any given plan is calculated as the mean district-level Republican vote share, minus the median district-level Republican vote share. For any congressional districting plan, the mean is calculated as the average of the Republican vote shares in each of the 14 districts. The median, in

turn, is the Republican vote share in the district where Republican performed the middle-best, which is the district that Republican would need to win to secure a majority of the congressional delegation. For a congressional plan containing 14 districts, the median district is calculated as the average of the Republican vote share in the districts where Republican performed the 7th and 8th-best across the state.

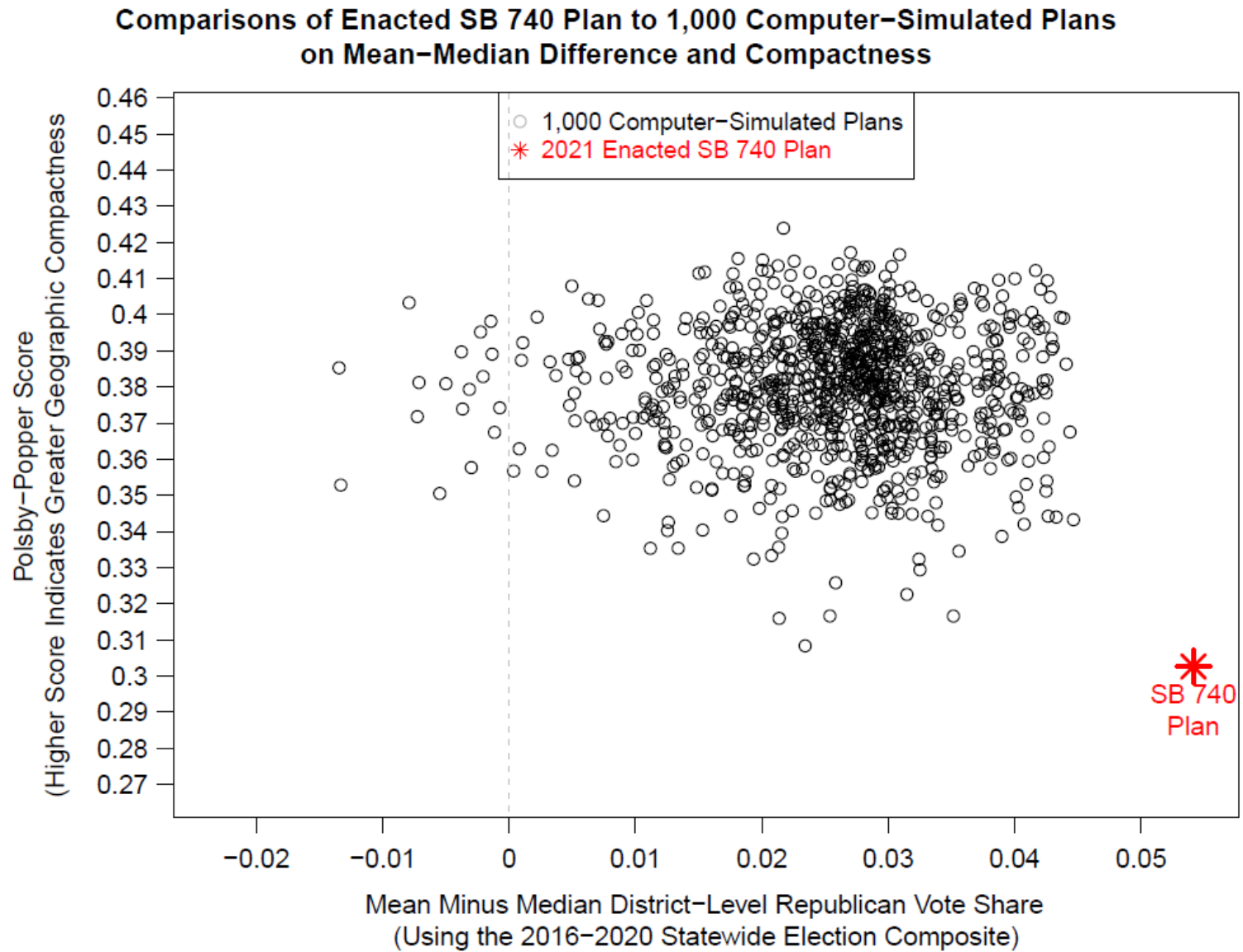
58. Using the 2016-2020 Statewide Election Composite to measure partisanship, the districts in the 2021 Enacted Plan have a mean Republican vote share of 50.8%, while the median district has a Republican vote share of 56.2%. Thus, the Enacted Plan has a mean-median difference of +5.4%, indicating that the median district is skewed significantly more Republican than the plan's average district. The mean-median difference thus indicates that the Enacted Plan distributes voters across districts in such a way that most districts are significantly more Republican-leaning than the average North Carolina congressional district, while Democratic voters are more heavily concentrated in a minority of the Enacted Plan's districts.

59. I perform this same mean-median difference calculation on all computer-simulated plans in order to determine whether this partisan skew in the median congressional districts could have resulted naturally from North Carolina's political geography and the application of the Adopted Criteria. Figure 8 compares the mean-median difference of the Enacted Plan to the mean-median difference for each of the 1,000 computer-simulated plans.

60. Figure 8 contains 1,000 gray circles, representing the 1,000 computer-simulated plans, as well as a red star, representing the 2021 Enacted Plan. The horizontal axis in this Figure measures the mean-median difference of the 2021 Enacted Plan and each simulated plan using the 2016-2020 Statewide Election Composite, while the vertical axis measures the average Polsby-Popper compactness score of the districts within each plan, with higher Polsby-Popper

scores indicating more compact districts. Figure 8 illustrates that the Enacted Plan's mean-median difference is +5.4%, indicating that the median district is skewed significantly more Republican than the plan's average district. Figure 8 further indicates that this difference is an extreme statistical outlier compared to the 1,000 computer-simulated plans. Indeed, the Enacted Plan's +5.4% mean-median difference is an outcome never observed across these 1,000 simulated plans. The 1,000 simulated plans all exhibit mean-median differences that range from -0.1% to +4.6%. In fact, the middle 50% of these computer-simulated plans have mean-median differences ranging from +2.1% to +3.1%, indicating a much smaller degree of skew in the median district than occurs under the 2021 Enacted Plan. These results confirm that the Enacted Plan creates an extreme partisan outcome that cannot be explained by North Carolina's voter geography or by strict adherence to the required districting criteria set forth in the General Assembly's Adopted Criteria.

Figure 8:



61. Figure 8 illustrates that the Enacted Plan is less geographically compact than every single one of the computer-simulated plans, as measured by each plan’s average Polsby-Popper score. The simulated plans have Polsby-Popper scores ranging from 0.31 to 0.42. In fact, the middle 50% of these computer-simulated plans have Polsby-Popper scores ranging from 0.37 to 0.39. Meanwhile, the Enacted Plan exhibits a Polsby-Popper score of only 0.30, which is lower than all 1,000 of the computer-simulated plans. Hence, it is clear that the Enacted Plan did not seek to draw districts that were as geographically compact as reasonably possible. Instead, the Enacted Plan subordinated geographic compactness, which enabled the Enacted Plan to create a partisan skew in North Carolina’s congressional districts favoring Republican candidates.

62. ***The Efficiency Gap:*** Another commonly used measure of a districting plan’s partisan bias is the efficiency gap.¹² To calculate the efficiency gap of the Enacted Plan and every computer-simulated plan, I first measure the number of Republican and Democratic votes within each Enacted Plan district and each computer-simulated district, as measured using the 2016- 2020 Statewide Election Composite. Using this measure of district-level partisanship, I then calculate each districting plan’s efficiency gap using the method outlined in *Partisan Gerrymandering and the Efficiency Gap*.¹³ Districts are classified as Democratic victories if, using the 2016-2020 Statewide Election Composite, the sum total of Democratic votes in the district during these elections exceeds the sum total of Republican votes; otherwise, the district is classified as Republican. For each party, I then calculate the total sum of surplus votes in districts the party won and lost votes in districts where the party lost. Specifically, in a district lost by a

¹² Eric McGhee, “Measuring Partisan Bias in Single-Member District Electoral Systems.” *Legislative Studies Quarterly* Vol. 39, No. 1: 55–85 (2014).

¹³ Nicholas O. Stephanopoulos & Eric M. McGhee, *Partisan Gerrymandering and the Efficiency Gap*, 82 *University of Chicago Law Review* 831 (2015).

given party, all of the party's votes are considered lost votes; in a district won by a party, only the party's votes exceeding the 50% threshold necessary for victory are considered surplus votes. A party's total wasted votes for an entire districting plan is the sum of its surplus votes in districts won by the party and its lost votes in districts lost by the party. The efficiency gap is then calculated as total wasted Democratic votes minus total wasted Republican votes, divided by the total number of two-party votes cast statewide across all seven elections.

63. Thus, the theoretical importance of the efficiency gap is that it tells us the degree to which more Democratic or Republican votes are wasted across an entire districting plan. A significantly positive efficiency gap indicates far more Democratic wasted votes, while a significantly negative efficiency gap indicates far more Republican wasted votes.

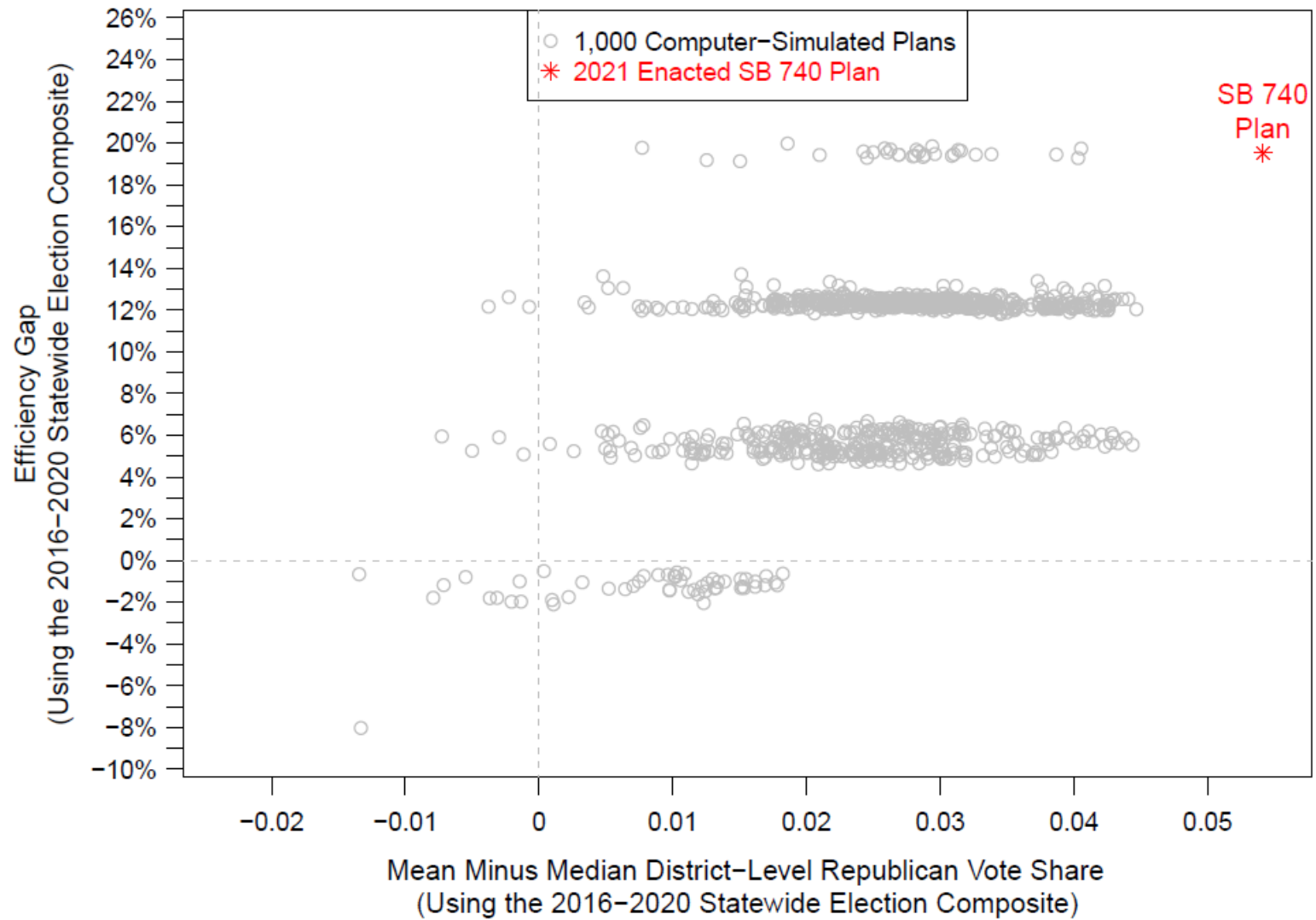
64. I analyze whether the Enacted Plan's efficiency gap arises naturally from a map-drawing process strictly adhering to the mandated criteria in the General Assembly's Adopted Criteria, or rather, whether the skew in the Enacted Plan's efficiency gap is explainable only as the product of a map-drawing process that intentionally favored one party over the other. By comparing the efficiency gap of the Enacted Plan to that of the computer-simulated plans, I am able to evaluate whether or not such the Enacted Plan's efficiency gap could have realistically resulted from adherence to the Adopted Criteria.

65. Figure 9 compares the efficiency gaps of the Enacted Plan and of the 1,000 computer-simulated plans. As before, the 1,000 circles in this Figure represent the 1,000 computer-simulated plans, while the red star in the upper right corner represents the Enacted Plan. Each plan is plotted along the vertical axis according to its efficiency gap, while each plan is plotted along the horizontal axis according to its mean-median difference.

66. The results in Figure 9 illustrate that the Enacted Plan exhibits an efficiency gap

of +19.5%, indicating that the plan results in far more wasted Democratic votes than wasted Republican votes. Specifically, the difference between the total number of wasted Democratic votes and wasted Republican votes amounts to 19.5% of the total number of votes statewide. The Enacted Plan's efficiency gap is larger than the efficiency gaps exhibited by 98.7% of the computer-simulated plans. This comparison reveals that the significant level of Republican bias exhibited by the Enacted Plan cannot be explained by North Carolina's political geography or the Adopted Criteria alone.

Figure 9:
Comparisons of Enacted SB 740 Plan to 1,000 Computer-Simulated Plans
on Mean-Median Difference and Efficiency Gap



67. ***The Lopsided Margins Measure:*** Another measure of partisan bias in districting plans is the “lopsided margins” test. The basic premise captured by this measure is that a partisan-motivated map-drawer may attempt to pack the opposing party’s voters into a small number of extreme districts that are won by a lopsided margin. Thus, for example, a map-drawer attempting to favor Party A may pack Party B’s voters into a small number of districts that very heavily favor Party B. This packing would then allow Party A to win all the remaining districts with relatively smaller margins. This sort of partisan manipulation in districting would result in Party B winning its districts by extremely large margins, while Party A would win its districts by relatively small margins.

68. Hence, the lopsided margins test is performed by calculating the difference between the average margin of victory in Republican-favoring districts and the average margin of victory in Democratic-favoring districts. The 2021 Enacted Plan contains four Democratic-favoring districts (CD-2, 5, 6, and 9), and these four districts have an average Democratic vote share of 65.4%, as measured using the 2016-2020 Statewide Election Composite. By contrast, the Enacted Plan contains ten Republican-favoring districts (CD-1, 3, 4, 7, 8, 10, 11, 12, 13, and 14), and these ten districts have an average Republican vote share of 57.3%. Hence, the difference between the average Democratic margin of victory in Democratic-favoring districts and the average Republican margin of victory in Republican-favoring districts is +8.1%, which is calculated as 65.4% - 57.3%. I refer to this calculation of +8.1% as the Enacted Plan’s lopsided margins measure.

69. How does the 8.1% lopsided margins measure of the Enacted Plan compare to the same calculation for the 1,000 computer-simulated plans? Figure 10 reports the lopsided margins calculations for the Enacted Plan and for the simulated plans. In Figure 10, each plan is plotted

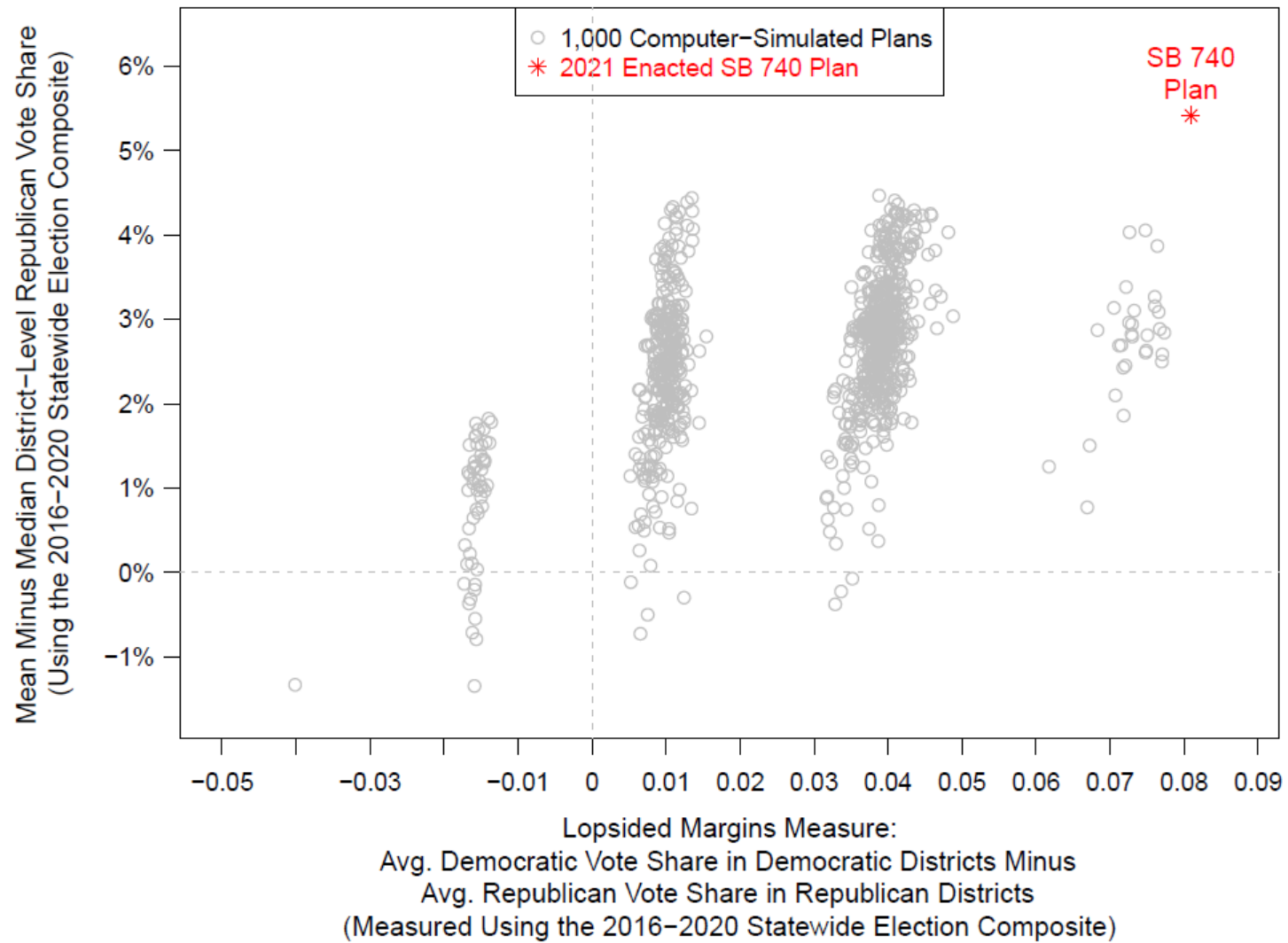
along the horizontal axis according to its lopsided margins measure and along the vertical axis according to its mean-median difference.

70. Figure 10 reveals that the Enacted Plan's +8.1% lopsided margins measure is an extreme outlier compared to the lopsided margins measures of the 1,000 computer-simulated plans. All 1,000 of the simulated plans have a smaller lopsided margins measure than the Enacted Plan. In fact, a significant minority (37.3%) of the 1,000 simulated plans have a lopsided margins measure of between -2% to +2%, indicating a plan in which Democrats and Republicans win their respective districts by similar average margins.

71. By contrast, the Enacted Plan's lopsided margins measure of +8.1% indicates that the Enacted Plan creates districts in which Democrats are extremely packed into their districts, while the margin of victory in Republican districts is significantly smaller. The "lopsidedness" of the two parties' average margin of victory is extreme when compared to the computer-simulated plans. The finding that all 1,000 simulated plans have a smaller lopsided margins measure indicates that the Enacted Plan's extreme packing of Democrats into Democratic-favoring districts was not simply the result of North Carolina's political geography, combined with adherence to the Adopted Criteria.

Figure 10:

**Comparisons of Enacted SB 740 Plan to 1,000 Computer-Simulated Plans
on Lopsided Margins Measure and Mean-Median Difference**



72. *Partisan Symmetry Based on Uniform Swing:* Another common measure of partisan bias is based on the concept of partisan symmetry and asks the following question: Under a given districting plan and given a particular election-based measure of district partisanship, what share of seats would each party win in a hypothetical tied election (i.e., 50% vote share for each of two parties). To approximate the district-level outcomes in a hypothetical tied election, one normally uses a uniform swing in order to simulate a tied statewide election. We then calculate whether each party would receive more than or less than 50% of the seats under this hypothetical tied election in a given districting plan. This particular measure is often referred to in the academic literature as “partisan bias.” In order to avoid confusion with other measures of partisan bias described in this report, I will refer to this measure as “Partisan Symmetry Based on Uniform Swing.”

73. Specifically, I use the 2016-2020 Statewide Election Composite to calculate the Partisan Symmetry measure for both the Enacted Plan and for the computer-simulated plans. The 2016-2020 Statewide Election Composite produces a statewide Republican vote share of 50.8%. Therefore, I use a uniform swing of -0.8% in order to estimate the partisanship of districts under a hypothetical tied election in which each party wins exactly 50% of the statewide vote. In other words, this uniform swing subtracts 0.8% from the Republican vote share in every district, both in the Enacted Plan and in all simulated plans.

74. After applying this -0.8% uniform swing, I compare the number of Republican-favoring districts in the Enacted Plan and the simulated plans. In the Enacted Plan, 71.4% of the districts (10 out of 14) are Republican-favoring after applying the uniform swing. I then report the Republicans’ seat share (71.4%) under this hypothetical tied election in Figure 11 as the “Partisan

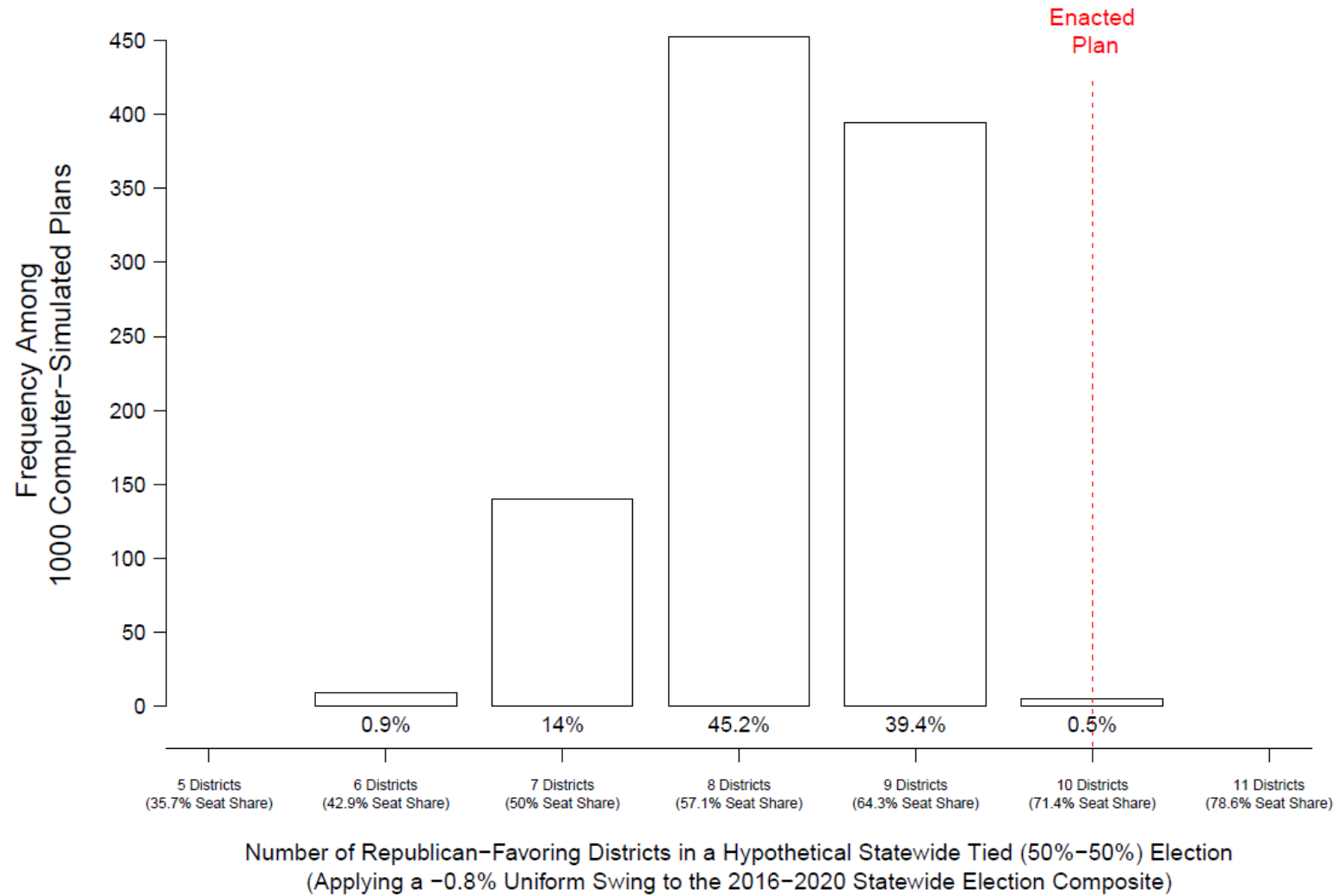
Symmetry Based on Uniform Swing” measure for the Enacted Plan. Figure 11 also reports the calculations for all 1,000 simulated plans using this identical method.

75. Figure 11 reveals 99.5% of the 1,000 simulated plans have a “Partisan Symmetry Based on Uniform Swing” measure that is closer to 50% than the Enacted Plan’s measure. In fact, 14% of the simulated plans have a measure that is exactly 50% (7 out of 14 districts), while over 60% of the simulated plans are between 40% and 60%.

76. By contrast, the Enacted Plan’s measure of 71.4% in Figure 11 would be a statistical outlier and is more favorable to Republicans than in 99.5% of the simulated plans. Substantively, this 71.4% measure reflects the Enacted Plan’s creation of a durable Republican majority for North Carolina’s congressional delegation, such that even when Democrats win 50% of the statewide vote, Republicans will still be favored in 10 out of 14 (71.4%) of the congressional districts, while Democrats will only be favored in only 4 out of the 14 (28.6%) districts.

Figure 11:

**Comparisons of SB 740 Enacted Plan to 1,000 Computer-Simulated Plans
On Partisan Symmetry Based on Uniform Swing**



Conclusions Regarding Partisanship and Traditional Districting Criteria

77. The analysis described thus far in this report lead me to reach two main findings: First, among the five traditional districting criteria mandated by the General Assembly’s 2021 Adopted Criteria, the Enacted Plan fails to minimize county splits, fails to minimize VTD splits, and is significantly less geographically compact than is reasonably possible under a districting process that follows the Adopted Criteria. Second, I found that the Enacted Plan is an extreme partisan outlier when compared to computer-simulated plans produced by a process following the Adopted Criteria. The Enacted Plan contains 10 districts that are partisan outliers when compared to the simulated plans’ districts, and using several different common measures of partisan bias, the Enacted Plan creates a level of pro-Republican bias more extreme than in over 95% of the computer-simulated plans. In particular, the Enacted Plan creates more “mid-range” Republican districts than is created in 100% of the computer-simulated plans (Paragraphs 45-46).

78. Based on these two main findings, I conclude that partisanship predominated in the drawing of the 2021 Enacted Plan and subordinated the traditional districting principles of avoiding county splits, avoiding VTD splits, and geographic compactness. Because the Enacted Plan fails to follow three of the Adopted Criteria’s mandated districting principles while simultaneously creating an extreme level of partisan bias, I therefore conclude that the partisan bias of the Enacted Plan did not naturally arise by chance from a districting process adhering to the Adopted Criteria. Instead, I conclude that partisan goals predominated in the drawing of the Enacted Plan. By subordinating traditional districting criteria, the General Assembly’s Enacted Plan was able to achieve partisan goals that could not otherwise have been achieved under a partisan-neutral districting process that follows the Adopted Criteria.

Regional Comparisons of Enacted Plan and Simulated Plan Districts

79. I have thus far compared the Enacted Plan to the simulated plans at a statewide level using several common measures of partisan bias and by identifying individual districts that are partisan outliers. However, I also analyzed the extent to which partisan bias affected the map-drawing process within specific cities and geographic regions of North Carolina. I found that the Enacted Plan’s individual districts in certain regions exhibit extreme political bias when compared to the computer-simulated districts in the same regions. Below, I describe my findings regarding the partisan bias caused by the Enacted Plan’s district boundaries in the Piedmont Triad area, in the Research Triangle, and in Mecklenburg County.

80. ***The Piedmont Triad Area:*** The Enacted Plan splits Guilford County into three different districts: CD-7, 10, and 11. These three fragments of Guilford County, which has voted solidly Democratic in recent statewide elections, are each combined with more Republican areas in surrounding counties across the Piedmont Triad area. This three-way splitting of Guilford County results in CD-7, 10, and 11 being safely Republican, each with a Republican vote share between 55.9% and 61.2%, as measured using the 2016-2020 Statewide Election Composite.

81. Is this three-way splitting of Guilford County, and the resulting creation of three safe Republican districts, a districting outcome that could have resulted naturally from the region’s political geography, combined with the districting principles required by the Adopted Criteria? A comparison of the Enacted Plan’s districts to the simulated districts in the Piedmont Triad area reveals that the Enacted Plan managed to crack Democratic voters in the region to a more extreme extent than in virtually all of the computer-simulated plans. Moreover, the Enacted Plan achieved this extreme cracking of Democrats by creating districts that are significantly less compact than virtually all of the Guilford County districts in the computer-simulated plans.

82. Figure 12 directly compares the partisanship of the Enacted Plan’s districts to the simulated plans’ districts in the Piedmont Triad area at a local level. Specifically, the top row of Figure 12 describes the district within each plan that contains the most amount of Greensboro’s population. In the Enacted Plan, this district is CD-11, and Figure 12 directly compares the Republican vote share of CD-11 to the Republican vote shares of all simulated districts that contain the largest portion of Greensboro residents among all districts in their respective simulated plans. The Figure reveals that the Enacted Plan’s CD-11 is more safely Republican than 99.6% of the computer-simulated Greensboro districts. In fact, although CD-11 exhibits a 55.9% Republican vote share, 96.1% of the simulated districts containing Greensboro are Democratic-favoring districts. Hence, it is clear that the Enacted Plan created a safe Republican district for Greensboro, even though a partisan-neutral districting process following the Adopted Criteria would almost always have placed Greensboro in a Democratic-favoring district.

83. The second row of Figure 12 illustrates a similar finding regarding the city of High Point in Guilford County. The Enacted Plan places High Point into CD-10, which has a Republican vote share of 61.2%. CD-10 is more heavily Republican than 99.6% of the High Point-based district in the 1,000 computer-simulated plans. Once again, nearly all of the simulated plans place High Point into a Democratic-favoring district, but the Enacted Plan managed to place High Point into an anomalously Republican district.

84. The third row of Figure 12 reveals a similar finding regarding CD-7, the third district containing a fragment of Guilford County. The city of Burlington (Alamance and Guilford Counties) is assigned to the Enacted Plan’s CD-7, which exhibits a 58.2% Republican vote share. CD-7 is more heavily Republican than 99.7% of the Burlington-based districts in the 1,000 computer-simulated plans. In fact, 95.5% of the Burlington districts in the simulated plans

favor the Democrats, often by an extremely wide margin. Thus, it is clear that the Enacted Plan created a far more Republican-favorable district for Burlington than could be reasonably expected from a partisan-blind districting process.

85. Of course, the creation of three safe Republican districts (CD-7, 10, and 11) in the Guilford County area required bringing in Republican voters from other, surrounding districts. One such district was CD-12, a safely Republican district covering areas in the Piedmont Triad region to the west of Guilford County. The fourth row of Figure 12 compares the partisanship of the Enacted Plan’s district containing Winston-Salem (CD-12) to the simulated plans’ districts containing Winston-Salem. The simulated plan results on this row illustrate that under a partisan-blind districting process, Winston-Salem would normally be placed into an even more heavily Republican district than the Enacted Plan’s CD-12. The Enacted Plan’s CD-12 is a safe Republican seat with a Republican vote share of 56.6%, but it is less heavily Republican than 91.4% of the computer-simulated districts containing the most of Winston-Salem’s population. This finding suggests that CD-12 was drawn to be less extremely Republican than should be expected, given the political geography of the Piedmont Triad area. As a result, more Republican voters could be placed in the surrounding districts, particularly CD-10 and CD-11, that split up Guilford County.

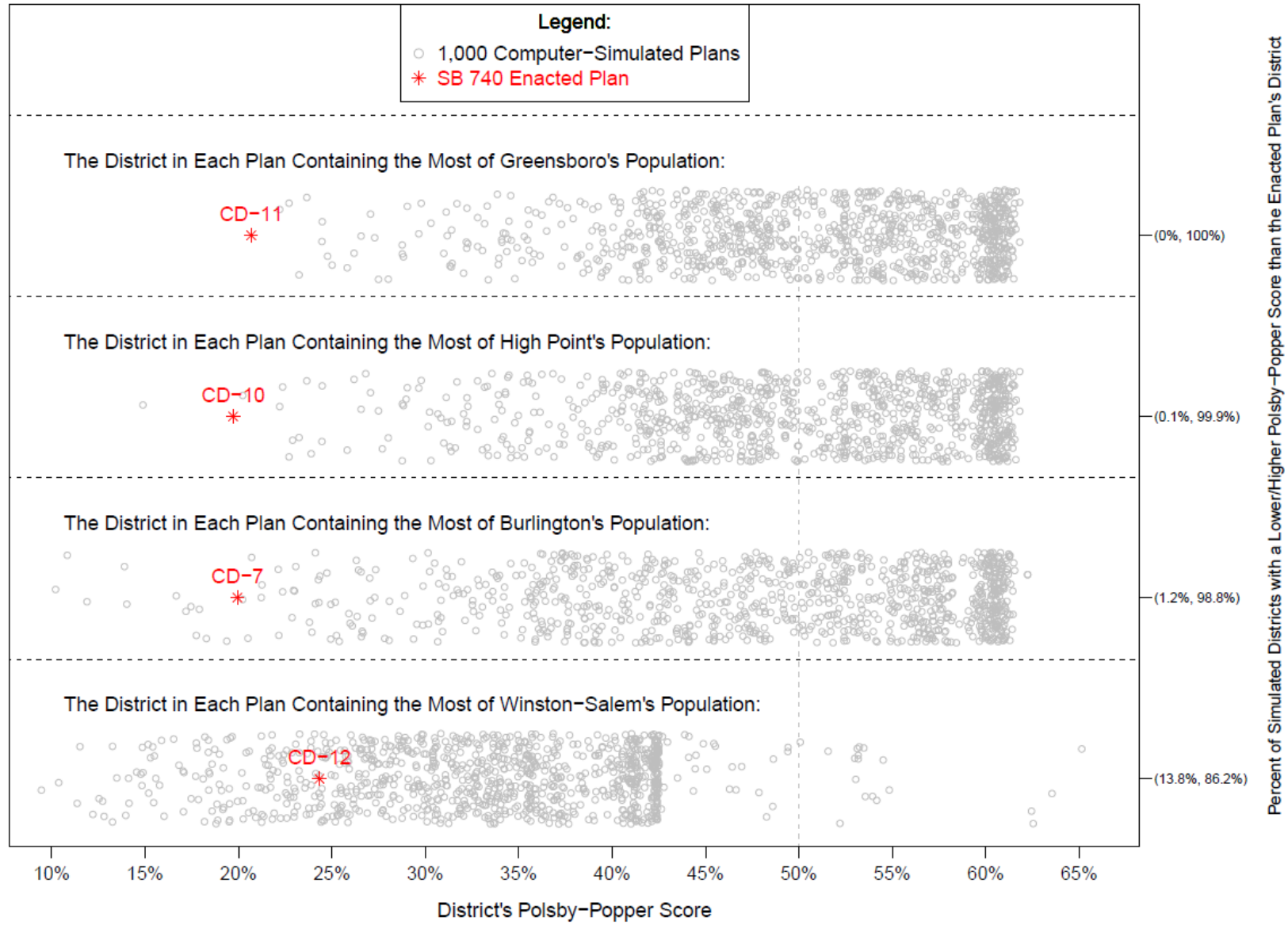
**Figure 12: Piedmont Triad Area:
Comparison of Individual Districts' Republican Vote Shares
in the SB 740 Plan and in 1,000 Computer-Simulated Plans**



86. Could the Enacted Plan’s cracking of Guilford County Democrats into three districts (CD-7, 10, and 11) have resulted from a mapdrawing process attempting to follow the Adopted Criteria? The geographic characteristics of these three districts illustrate the opposite conclusion: The General Assembly managed to split Guilford County into three safe Republican districts by subordinating the districting principles required by the Adopted Criteria. Although the Adopted Criteria do not explicitly prohibit dividing Guilford County into three districts, doing so was not necessary to comply with the Adopted Criteria. Guilford County’s population is well under that of an equally populated congressional district. In fact, the vast majority (75.6%) of the computer-simulated plans do not split Guilford County a single time. When Guilford County is split, the simulated plans usually split it only once.

87. Moreover, the compactness scores of the Enacted Plan’s CD-7, 10, and 11 reveal that the General Assembly subordinated geographic compactness considerations in the process of cracking Democrats in Guilford County. The first row of Figure 13 illustrates that the Enacted Plan’s CD-11 has a lower Polsby-Popper score than all 1,000 of the Greensboro-based districts in the computer-simulated plans. The second and third rows of Figure 13 reveal a nearly identical conclusion regarding the other two districts covering Guilford County (CD-7 and CD-10). In fact, there is a vast disparity between the compactness of the Enacted Plan’s Guilford County districts and the simulated plans’ districts in Guilford County. CD-7, 10, and 11 have Polsby-Popper scores of 0.197, 0.199, and 0.207. Meanwhile, over half of the simulated districts displayed in these upper three rows of Figure 13 have a Polsby-Popper score over 0.5. It is therefore clear that the Enacted Plan subordinated geographic compactness in the pursuit of Republican partisan advantage in the drawing of district boundaries in the Piedmont Triad area.

**Figure 13: Piedmont Triad Area:
Comparison of Individual Districts' Compactness Scores
in the SB 740 Plan and in 1,000 Computer-Simulated Plans**



88. ***The Research Triangle:*** Figures 14 and 15 present a similar analysis of the districts in the Research Triangle. The top row of Figure 14 compares the Republican vote shares of the Enacted Plan’s and each computer-simulated plan’s district containing the most of Raleigh’s population. The second row of Figure 14 is a similar comparison of the Enacted Plan’s and each simulated plan’s district containing the most of Durham’s population. Overall, these two rows illustrate that the Enacted Plan’s Raleigh-based district (CD-5) and Durham-based district (CD-6) are more heavily packed with Democrats than almost 100% of the computer-simulated districts containing Raleigh and Durham.

89. The top two rows of Figure 15 illustrate that extreme degree of Democratic voter packing in CD-5 and CD-6 is not the result of the Research Triangle’s political geography or the Adopted Criteria. Instead, Figure 15 reveals that CD-5 and CD-6 are less geographically compact than nearly 100% of the computer-simulated districts containing Raleigh and Durham. Thus, the General Assembly managed to unnaturally pack Democrats in its Raleigh-based and Durham-based districts by subordinating geographic compactness in the drawing of these districts.

90. As a result of this packing of Democratic voters in CD-5 and CD-6, the surrounding districts in the Enacted Plan are more safely Republican than they would have been in the absence of such packing of Democrats. One example of these surrounding Republican districts in the Enacted Plan is CD-7, which combines Southern Wake County with various counties west of the Research Triangle. Southern Wake County is more politically moderate than the heavily Democratic cores of Raleigh and Durham. The third row of Figure 14 compares the partisanship of the Enacted Plan’s district and each simulated plan’s district containing the most of Holly Springs’s and Fuquay-Varina’s populations in Southern Wake County. The results on

this row illustrate that in the computer-simulated plans drawn according to the Adopted Criteria, Southern Wake County is generally placed into a heavily-Democratic district because it is generally placed into the same district with part of Raleigh. But the Enacted Plan packed Democrats into CD-5 (Raleigh) and CD-6 (Durham), so the General Assembly was able to create a safe Republican district by combining Southern Wake County with other Republican-favoring counties to the west of the Research Triangle. As the third row of Figure 14 illustrates, this outcome is an extreme statistical outlier compared to the computer-simulated districts in Southern Wake County. 99.2% of the simulated plans place Southern Wake County into a Democratic-favoring district, and 100% of the simulated districts containing Southern Wake County are less extremely Republican than CD-7. Hence, it is clear that CD-7 is a partisan outlier that was enabled by the packing of Democratic voters in CD-5 (Raleigh) and CD-6 (Durham).

**Figure 14: Research Triangle Area:
Comparison of Individual Districts' Republican Vote Shares
in the SB 740 Plan and in 1,000 Computer-Simulated Plans**



**Figure 15: Research Triangle Area:
Comparison of Individual Districts' Compactness Scores
in the SB 740 Plan and in 1,000 Computer-Simulated Plans**



91. ***Mecklenburg County Districts:*** Figure 16 illustrates a similar finding regarding Mecklenburg County. The top row of Figure 16 compares the partisanship of the Enacted Plan’s district and each simulated plan’s district containing the most of Charlotte’s population. The results in this row illustrate that the Enacted Plan’s CD-9 is more heavily Democratic than 100% of the simulated plans’ primary Charlotte districts.

92. As a result, the second and third rows of Figure 16 reveal that the surrounding suburban districts in the Enacted Plan are more safely Republican than their geographic counterparts in all of the computer-simulated plans. Specifically, the second row of Figure 16 compares the partisanship of the Enacted Plan’s district and each simulated plan’s district containing the most of Huntersville’s (Northern Mecklenburg County) population. In the simulated plans, Huntersville is either placed into the same district as most of Charlotte, resulting in a heavily Democratic district, or it is grouped with other counties outside of Mecklenburg, thus forming a politically competitive district with a Republican vote share close to 50%. But the Enacted Plan places Huntersville into a district (CD-13) that is much more strongly Republican than all 100% of the simulated districts containing Huntersville.

93. The third row of Figure 16 reveals a similar finding regarding Eastern Mecklenburg County. Specifically, this row compares the partisanship of the Enacted Plan’s district and each simulated plan’s district containing the most of Mint Hill’s and Matthews’ (Eastern Mecklenburg County) population. Once again, the results reveal that the Enacted Plan places Eastern Mecklenburg County into a district (CD-8) that is more strongly Republican than all 100% of the computer-simulated districts containing Mint Hill and Matthews.

94. Thus, it is clear that the Enacted Plan packed Democrats in Mecklenburg County to an extent greater than what naturally occurs as a result of the area’s political geography.

Democratic voters are residentially concentrated in Charlotte, and this political geography tends to cause a clustering of Democratic voters in Mecklenburg County districts, as reflected in the simulation results in Figure 16. But the Enacted Plan’s packing of Democratic voters in Mecklenburg goes beyond what is caused by political geography, resulting in a Charlotte district that is even more heavily Democratic than what could be expected from a partisan-blind map-drawing process.

**Figure 16: Mecklenburg County:
Comparison of Individual Districts' Republican Vote Shares
in the SB 740 Plan and in 1,000 Computer-Simulated Plans**



Percent of Simulated Districts with a Lower/Higher Republican Vote Share than the Enacted Plan's District

*North Carolina's Political Geography Did Not Cause the Enacted Plan's
Extreme Partisan Bias*

95. How does North Carolina's political geography affect the partisan characteristics of the 2021 Enacted Plan? Democratic voters tend to be geographically concentrated in the urban cores of several of the state's largest cities, including Charlotte, Raleigh, and Greensboro. As I have explained in my prior academic research,¹⁴ these large urban clusters of Democratic voters, combined with the common districting principle of drawing geographically compact districts, can sometimes result in urban districts that “naturally” pack together Democratic voters, thus boosting the Republican vote share of other surrounding suburban and rural districts.

96. More importantly, my prior academic research explained how I can estimate the precise level of electoral bias in districting caused by a state's unique political geography: I programmed a computer algorithm that draws districting plans using North Carolina's unique political geography, including the state's census population data and political subdivision boundaries. In this report, I have also programmed the algorithm to follow North Carolina's Adopted Criteria. I then analyzed the partisan characteristics of the simulated districting plans using North Carolina's precinct-level voting data from past elections (past elections that were themselves skewed towards Republicans). Hence, the entire premise of conducting districting simulations is to fully account for North Carolina's unique political geography, its political subdivision boundaries, and its districting criteria, as mandated by the General Assembly's Adopted Criteria.

97. This districting simulation analysis allowed me to identify how much of the

¹⁴ Jowei Chen and Jonathan Rodden, 2013. “Unintentional Gerrymandering: Political Geography and Electoral Bias in Legislatures” *Quarterly Journal of Political Science*, 8(3): 239-269; Jowei Chen and David Cottrell, 2016. “Evaluating Partisan Gains from Congressional Gerrymandering: Using Computer Simulations to Estimate the Effect of Gerrymandering in the U.S. House.” *Electoral Studies*, Vol. 44, No. 4: 329-430.

electoral bias in the 2021 Enacted Plan is caused by North Carolina’s political geography and how much is caused by the map-drawer’s intentional efforts to favor one political party over the other. North Carolina’s natural political geography, combined with the Adopted Criteria, almost never resulted in simulated congressional plans containing 10 Republican-favoring districts out of 14 total districts.

98. The 2021 Enacted Plan’s creation of 10 electorally safe Republican districts, which persists across a range of electoral outcomes, goes beyond any “natural” level of electoral bias caused by North Carolina’s political geography or the political composition of the state’s voters. The Enacted Plan is a statistical outlier in terms of its partisan characteristics when compared to the 1,000 computer-simulated plans and cannot be explained by North Carolina’s natural political geography.

99. The two most Republican districts (CD-10 and CD-13) and the two most Democratic districts (CD-9 and CD-6) in the Enacted Plan were drawn to include more Democratic voters than virtually all of their counterpart districts in the 1,000 computer-simulated plans. Six other districts (CD-1, 3, 4, 11, 12, and 14) were drawn to be more heavily Republican than over 95% of their counterpart computer-simulated plan districts. Ten districts were drawn precisely to have Republican vote shares within the narrow range of 52.9% to 61.2%—an outcome that never arises in the computer-simulated plans.

100. This extreme, additional level of partisan bias in the 2021 Enacted Plan can be directly attributed to the map-drawer’s clear efforts to favor the Republican Party. This level of partisan bias was not caused by North Carolina’s political geography.

The Effect of the Enacted Plan Districts on Plaintiffs

101. I evaluated the congressional districts in which each Plaintiff would reside under the 1,000 computer-simulated maps using a list of geocoded residential addresses for the Plaintiffs that counsel for the Plaintiffs provided me. I used these geocoded addresses to identify the specific district in which each Plaintiff would be located under each computer-simulated plan, as well as under the Enacted Plan. I then compared the partisanship of each individual Plaintiff's Enacted Plan district to the partisanship of the Plaintiff's 1,000 districts from the 1,000 computer-simulated plans. Using this approach, I identify whether each Plaintiff's district is a partisan outlier when compared to the Plaintiff's 1,000 computer-simulated districts.

102. Figures 17a and 17b present the results of this analysis. These Figures list the individual Plaintiffs and describes the partisanship of each Plaintiff's district of residence in the Enacted Plan, as well as the partisanship of the district the Plaintiff would have resided in under each of the 1,000 simulated congressional plans. The first half of the plaintiffs are analyzed in Figure 17a, while the second half of the plaintiffs appear in Figure 17b.

103. To explain these analyses with an example, each row in Figure 17a corresponds to a particular individual Plaintiff. In the first row, describing Plaintiff Bobby Jones, the red star depicts the partisanship of the Plaintiff's Enacted Plan district (CD-2), as measured by its Republican vote share using the 2016-2020 Statewide Election Composite. The 1,000 gray circles on this row depict the Republican vote share of each of the 1,000 simulated districts in which the Plaintiff would reside in each of the 1,000 computer-simulated plans, based on that Plaintiff's residential address. In the margin to the right of each row, I list in parentheses how many of the 1,000 simulated plans would place the plaintiff in a more Democratic-leaning district (on the left) and how many of the 1,000 simulations would place the plaintiff in a more

Republican-leaning district (on the right) than the Plaintiff's Enacted Plan district. Thus, for example, the first row of Figure 17a reports that 99% of the 1,000 computer-simulated plans would place Plaintiff Bobby Jones in a more Republican-leaning district than his actual Enacted Plan district (CD-2). Therefore, I can conclude that Plaintiff Bobby Jones' Enacted Plan district is a partisan statistical outlier when compared to his district under the 1,000 simulated plans.

Figure 17a:
Plaintiffs' Districts in the SB 740 Plan and in 1,000 Computer-Simulated Plans

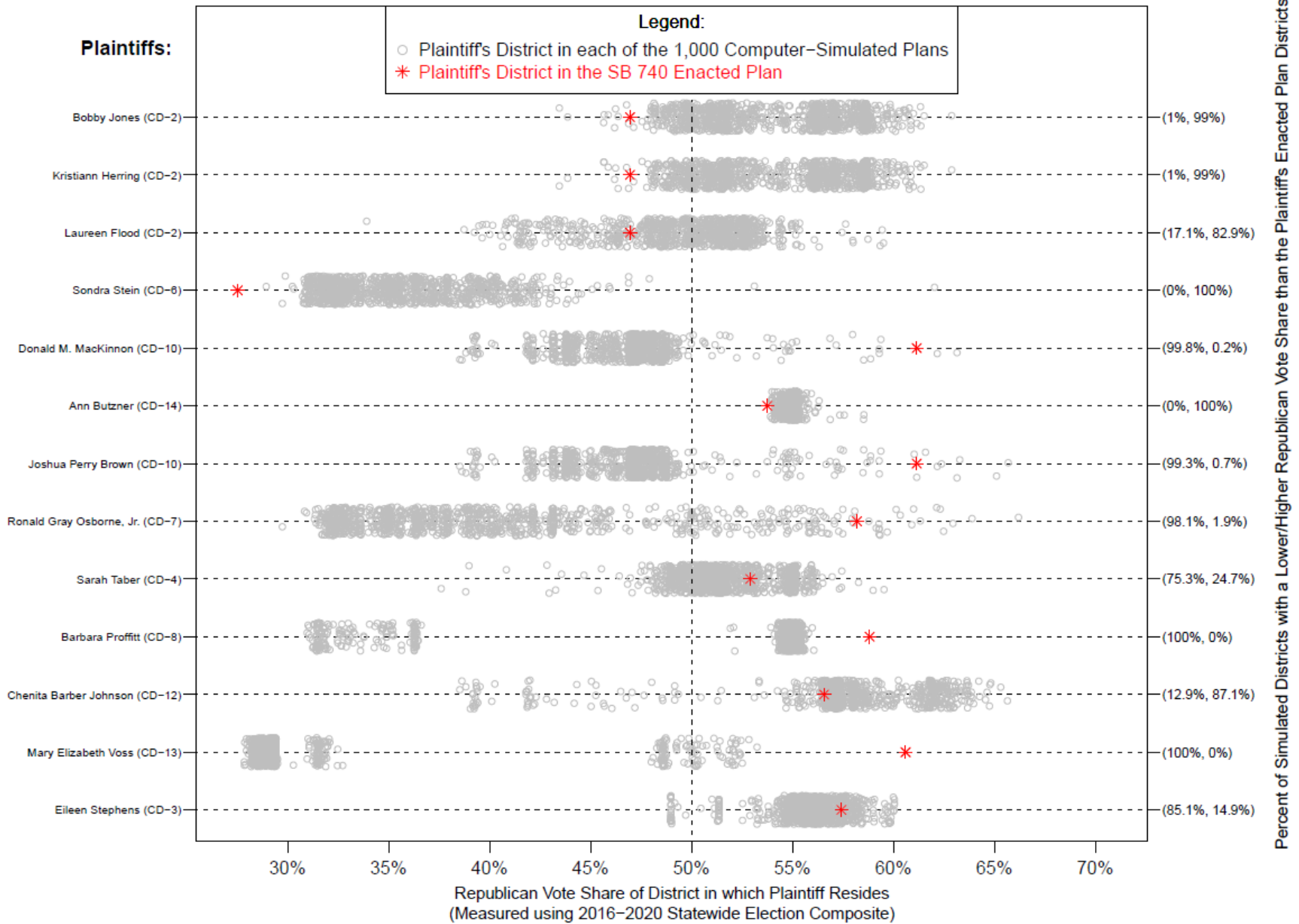
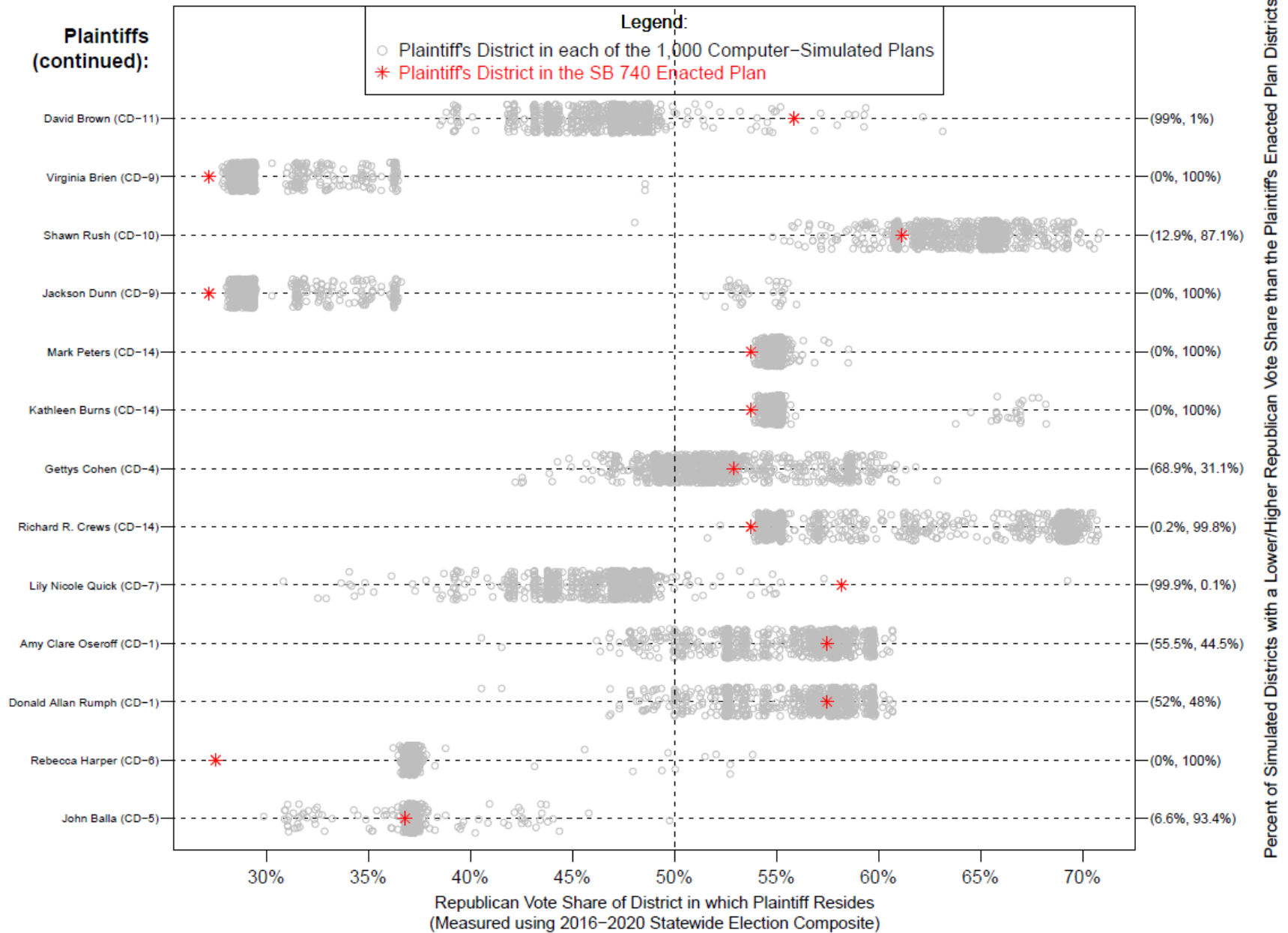


Figure 17b:
Plaintiffs' Districts in the SB 740 Plan and in 1,000 Computer-Simulated Plans



104. Figures 17a and 17b show that seven Plaintiffs residing in Republican-leaning districts under the Enacted Plan would be placed in a more Democratic-leaning district in over 95% of the computer-simulated plans: Donald M. MacKinnon (CD-10), Joshua Perry Brown (CD-10), Ronald Gray Osborne, Jr. (CD-7), Barbara Proffitt (CD-8), Mary Elizabeth Voss (CD-13); David Brown (CD-11) and Lily Nicole Quick (CD-7). Additionally, six Plaintiffs residing in Democratic-leaning districts under the Enacted Plan would be placed in a more Republican-leaning district in over 95% of the computer-simulated plans: Bobby Jones (CD-2), Kristiann Herring (CD-2), Sondra Stein (CD-6), Virginia Brien (CD-9), Jackson Dunn (CD-9), and Rebecca Harper (CD-6). Additionally, six Plaintiffs would be placed in a more Republican district in 99.9% or more of the simulated plans relative to their districts under the Enacted Plan: Ann Butzner (CD-14), Virginia Brien (CD-9), Jackson Dunn (CD-9), Mark Peters (CD-14), Kathleen Barnes (CD-14), Richard R. Crews (CD-14), and Rebecca Harper (CD-6).

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

This 23rd day of December, 2021.

A handwritten signature in black ink, appearing to read 'J. Chen', written over a horizontal line.

Dr. Jowei Chen

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Curriculum Vitae

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Academic Positions:

Associate Professor (2015-present), Assistant Professor (2009-2015), Department of Political Science, University of Michigan.
Research Associate Professor (2016-present), Faculty Associate (2009-2015), Center for Political Studies, University of Michigan.
W. Glenn Campbell and Rita Ricardo-Campbell National Fellow, Hoover Institution, Stanford University, 2013.
Principal Investigator and Senior Research Fellow, Center for Governance and Public Policy Research, Willamette University, 2013 – Present.

Education:

Ph.D., Political Science, Stanford University (June 2009)
M.S., Statistics, Stanford University (January 2007)
B.A., Ethics, Politics, and Economics, Yale University (May 2004)

Publications:

Chen, Jowei and Neil Malhotra. 2007. “The Law of k/n: The Effect of Chamber Size on Government Spending in Bicameral Legislatures.”

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Chen, Jowei, 2010. “The Effect of Electoral Geography on Pork Barreling in Bicameral Legislatures.”

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[*California Law Review*, Accepted for Publication, Volume 109.](#)

Non-Peer-Reviewed Publication:

Chen, Jowei and Tim Johnson. 2017. “Political Ideology in the Bureaucracy.”

[*Global Encyclopedia of Public Administration, Public Policy, and Governance*.](#)

Research Grants:

"How Citizenship-Based Redistricting Systemically Disadvantages Voters of Color". 2020 (\$18,225). Combating and Confronting Racism Grant. University of Michigan Center for Social Solutions and Poverty Solutions.

Principal Investigator. [National Science Foundation Grant SES-1459459](#), September 2015 – August 2018 (\$165,008). "The Political Control of U.S. Federal Agencies and Bureaucratic Political Behavior."

"Economic Disparity and Federal Investments in Detroit," (with Brian Min) 2011. Graham Institute, University of Michigan (\$30,000).

"The Partisan Effect of OSHA Enforcement on Workplace Injuries," (with Connor Raso) 2009. John M. Olin Law and Economics Research Grant (\$4,410).

Invited Talks:

September, 2011. University of Virginia, American Politics Workshop.

October 2011. Massachusetts Institute of Technology, American Politics Conference.

January 2012. University of Chicago, Political Economy/American Politics Seminar.

February 2012. Harvard University, Positive Political Economy Seminar.

September 2012. Emory University, Political Institutions and Methodology Colloquium.

November 2012. University of Wisconsin, Madison, American Politics Workshop.

September 2013. Stanford University, Graduate School of Business, Political Economy Workshop.

February 2014. Princeton University, Center for the Study of Democratic Politics Workshop.

November 2014. Yale University, American Politics and Public Policy Workshop.

December 2014. American Constitution Society for Law & Policy Conference: Building the Evidence to Win Voting Rights Cases.

February 2015. University of Rochester, American Politics Working Group.

March 2015. Harvard University, Voting Rights Act Workshop.

May 2015. Harvard University, Conference on Political Geography.

October 2015. George Washington University School of Law, Conference on Redistricting Reform.

September 2016. Harvard University Center for Governmental and International Studies, Voting Rights Institute Conference.

March 2017. Duke University, Sanford School of Public Policy, Redistricting Reform Conference.

October 2017. Willamette University, Center for Governance and Public Policy Research

October 2017, University of Wisconsin, Madison. Geometry of Redistricting Conference.

February 2018: University of Georgia Law School

September 2018. Willamette University.

November 2018. Yale University, Redistricting Workshop.

November 2018. University of Washington, Severyns Ravenholt Seminar in Comparative Politics.
January 2019. Duke University, Reason, Reform & Redistricting Conference.
February 2019. Ohio State University, Department of Political Science. Departmental speaker series.
March 2019. Wayne State University Law School, Gerrymandering Symposium.
November 2019. Big Data Ignite Conference.
November 2019. Calvin College, Department of Mathematics and Statistics.
September 2020 (Virtual). Yale University, Yale Law Journal Scholarship Workshop

Conference Service:

Section Chair, 2017 APSA (San Francisco, CA), Political Methodology Section
Discussant, 2014 Political Methodology Conference (University of Georgia)
Section Chair, 2012 MPSA (Chicago, IL), Political Geography Section.
Discussant, 2011 MPSA (Chicago, IL) “Presidential-Congressional Interaction.”
Discussant, 2008 APSA (Boston, MA) “Congressional Appropriations.”
Chair and Discussant, 2008 MPSA (Chicago, IL) “Distributive Politics: Parties and Pork.”

Conference Presentations and Working Papers:

“Ideological Representation of Geographic Constituencies in the U.S. Bureaucracy,” (with Tim Johnson). 2017 APSA.

“Incentives for Political versus Technical Expertise in the Public Bureaucracy,” (with Tim Johnson). 2016 APSA.

“Black Electoral Geography and Congressional Districting: The Effect of Racial Redistricting on Partisan Gerrymandering”. 2016 Annual Meeting of the Society for Political Methodology (Rice University)

“Racial Gerrymandering and Electoral Geography.” Working Paper, 2016.

“Does Deserved Spending Win More Votes? Evidence from Individual-Level Disaster Assistance,” (with Andrew Healy). 2014 APSA.

“The Geographic Link Between Votes and Seats: How the Geographic Distribution of Partisans Determines the Electoral Responsiveness and Bias of Legislative Elections,” (with David Cottrell). 2014 APSA.

“Gerrymandering for Money: Drawing districts with respect to donors rather than voters.” 2014 MPSA.

“Constituent Age and Legislator Responsiveness: The Effect of Constituent Opinion on the Vote for Federal Health Reform.” (with Katharine Bradley) 2012 MPSA.

“Voter Partisanship and the Mobilizing Effect of Presidential Advertising.” (with Kyle Dropp) 2012 MPSA.

“Recency Bias in Retrospective Voting: The Effect of Distributive Benefits on Voting Behavior.” (with Andrew Feher) 2012 MPSA.

“Estimating the Political Ideologies of Appointed Public Bureaucrats,” (with Adam Bonica and Tim Johnson) 2012 Annual Meeting of the Society for Political Methodology (University of North Carolina)

“Tobler’s Law, Urbanization, and Electoral Bias in Florida.” (with Jonathan Rodden) 2010 Annual Meeting of the Society for Political Methodology (University of Iowa)

“Unionization and Presidential Control of the Bureaucracy” (with Tim Johnson) 2011 MPSA.

“Estimating Bureaucratic Ideal Points with Federal Campaign Contributions” 2010 APSA. (Washington, DC).

“The Effect of Electoral Geography on Pork Spending in Bicameral Legislatures,” Vanderbilt University Conference on Bicameralism, 2009.

“When Do Government Benefits Influence Voters’ Behavior? The Effect of FEMA Disaster Awards on US Presidential Votes,” 2009 APSA (Toronto, Canada).

“Are Poor Voters Easier to Buy Off?” 2009 APSA (Toronto, Canada).

“Credit Sharing Among Legislators: Electoral Geography’s Effect on Pork Barreling in Legislatures,” 2008 APSA (Boston, MA).

“Buying Votes with Public Funds in the US Presidential Election,” Poster Presentation at the 2008 Annual Meeting of the Society for Political Methodology (University of Michigan).

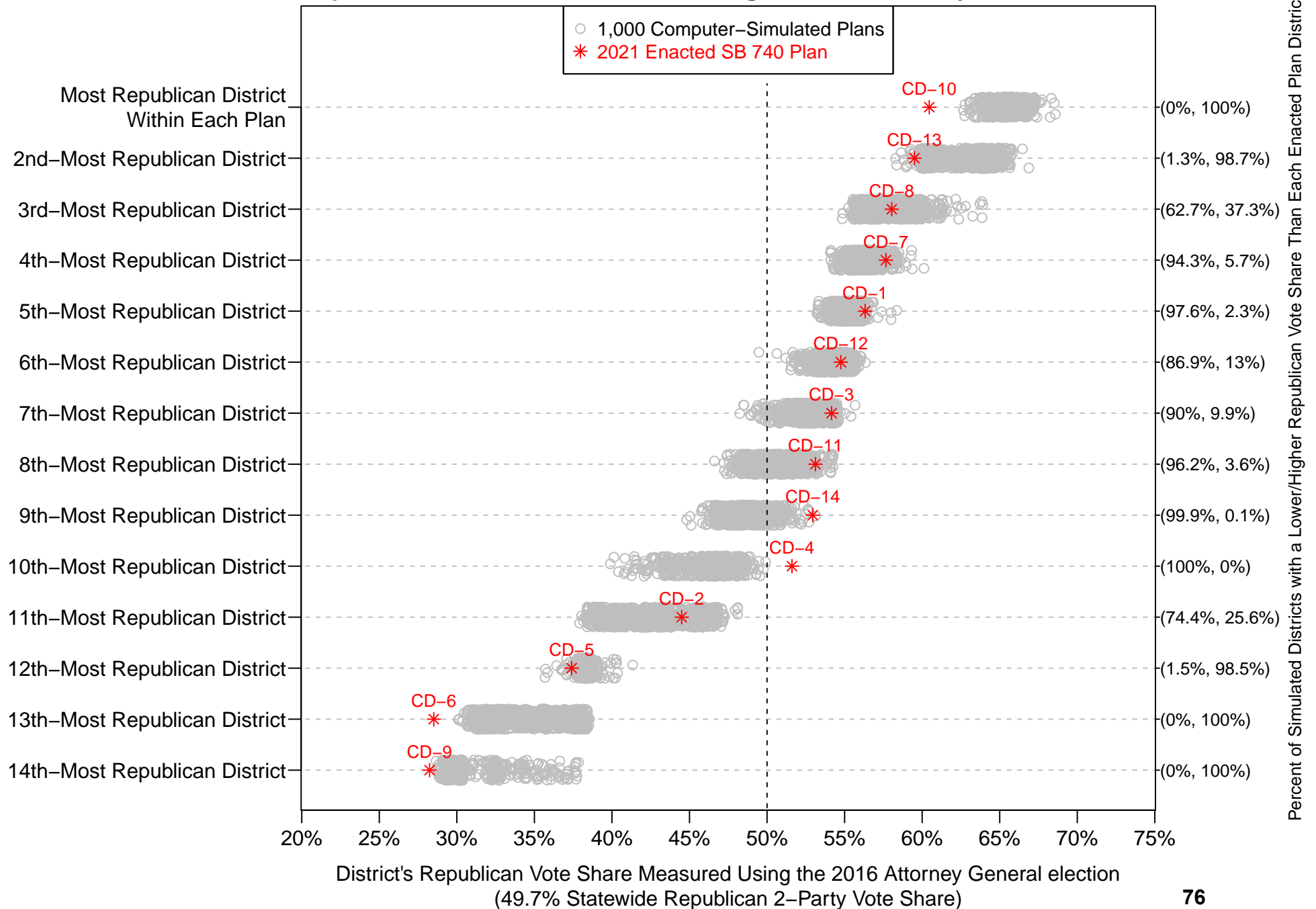
“The Effect of Electoral Geography on Pork Spending in Bicameral Legislatures,” 2008 MPSA.

“Legislative Free-Riding and Spending on Pure Public Goods,” 2007 MPSA (Chicago, IL).

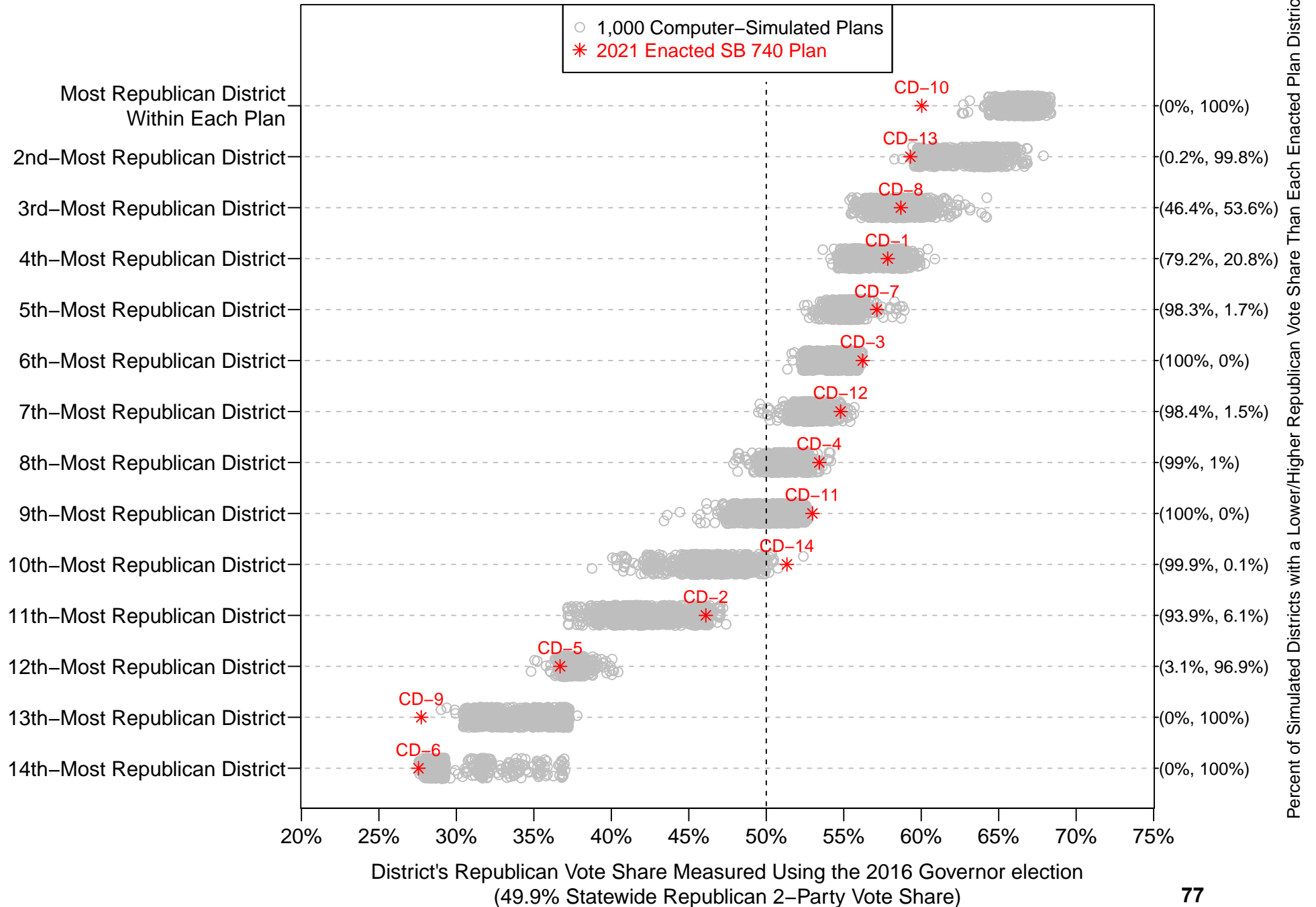
“Free Riding in Multi-Member Legislatures,” (with Neil Malhotra) 2007 MPSA (Chicago, IL).

“The Effect of Legislature Size, Bicameralism, and Geography on Government Spending: Evidence from the American States,” (with Neil Malhotra) 2006 APSA (Philadelphia, PA).

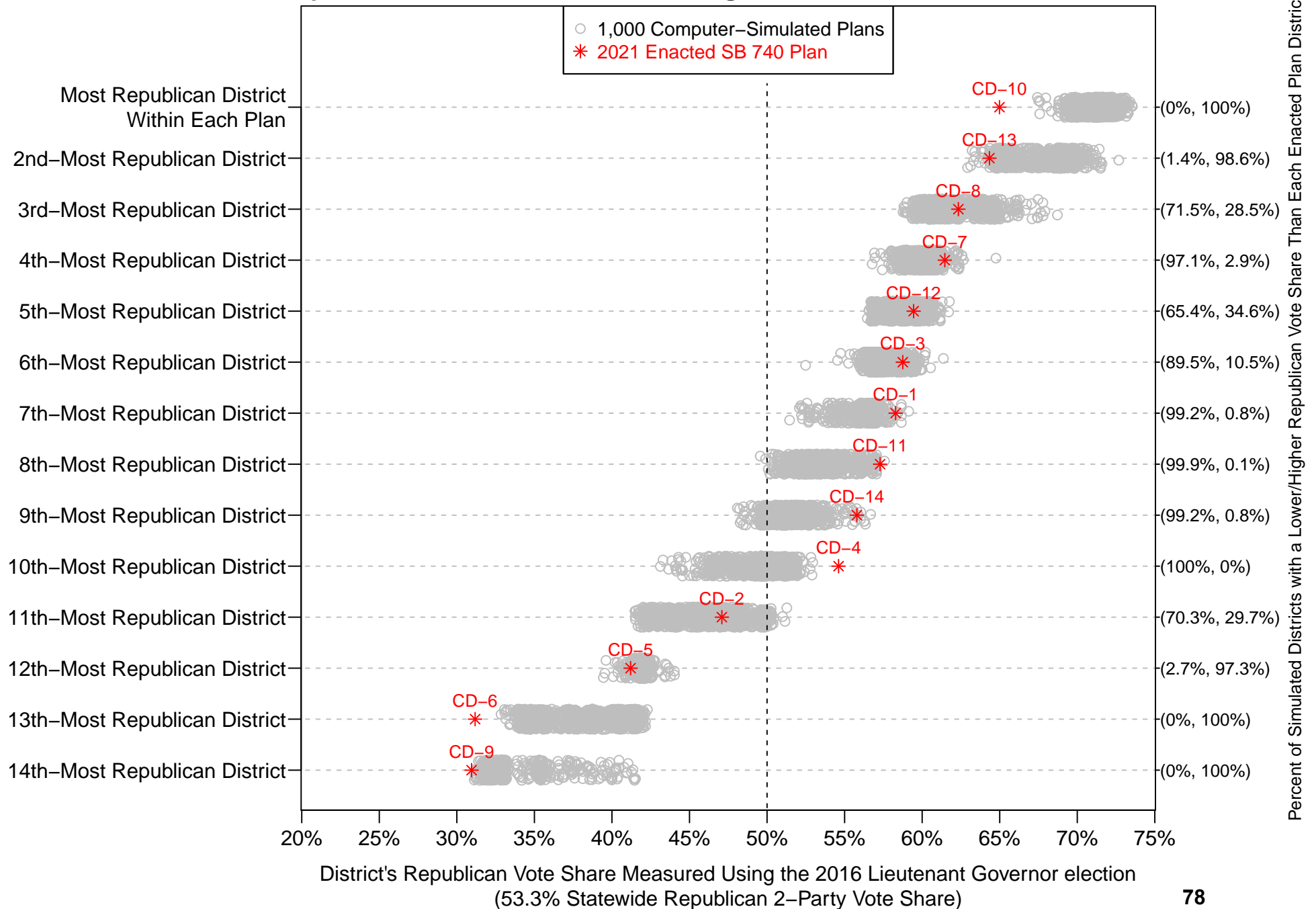
**Figure A1: Comparison of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans:
Districts' Republican Vote Share Measured Using the 2016 Attorney General Election Results**



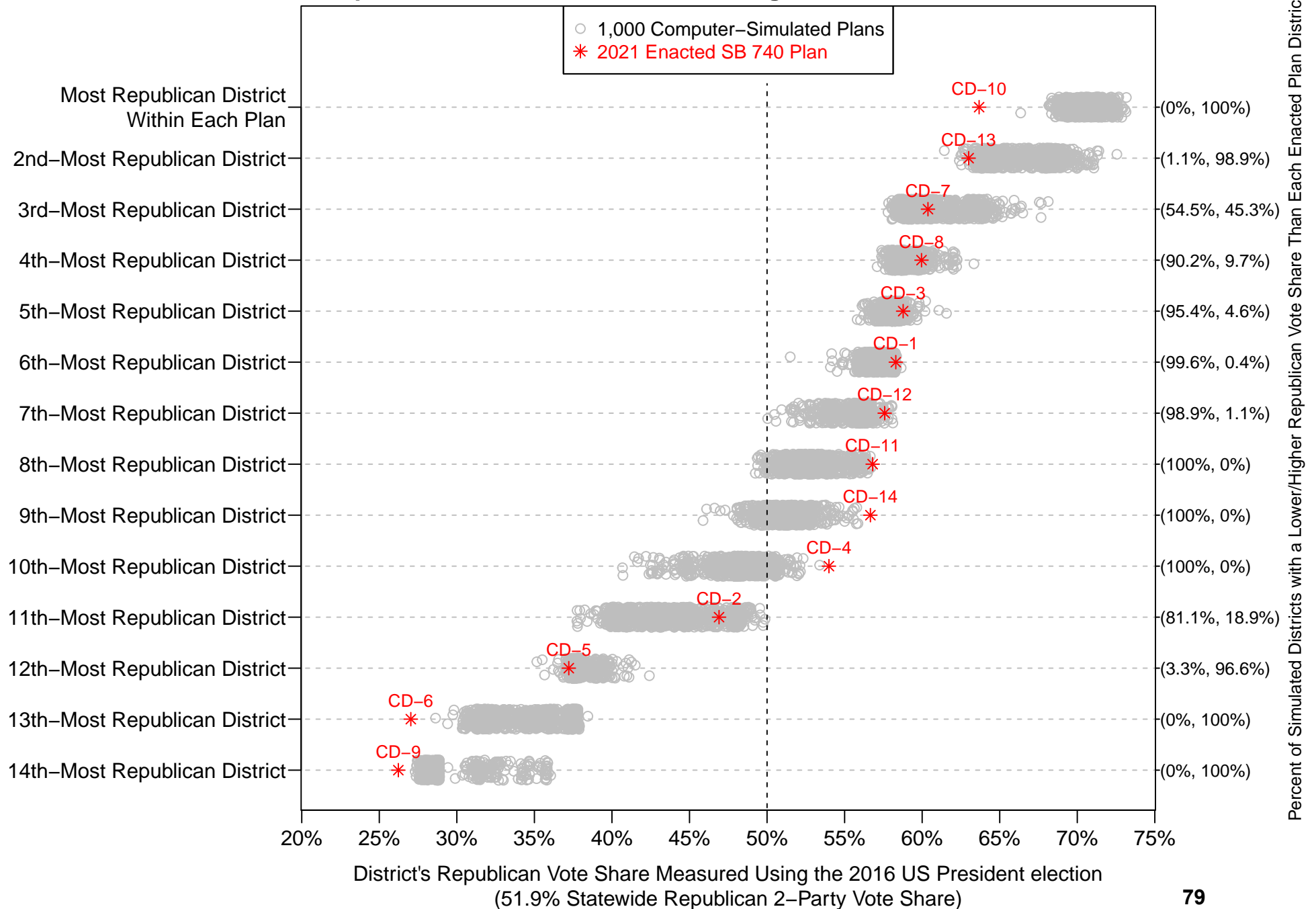
**Figure A2: Comparison of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans:
Districts' Republican Vote Share Measured Using the 2016 Governor Election Results**



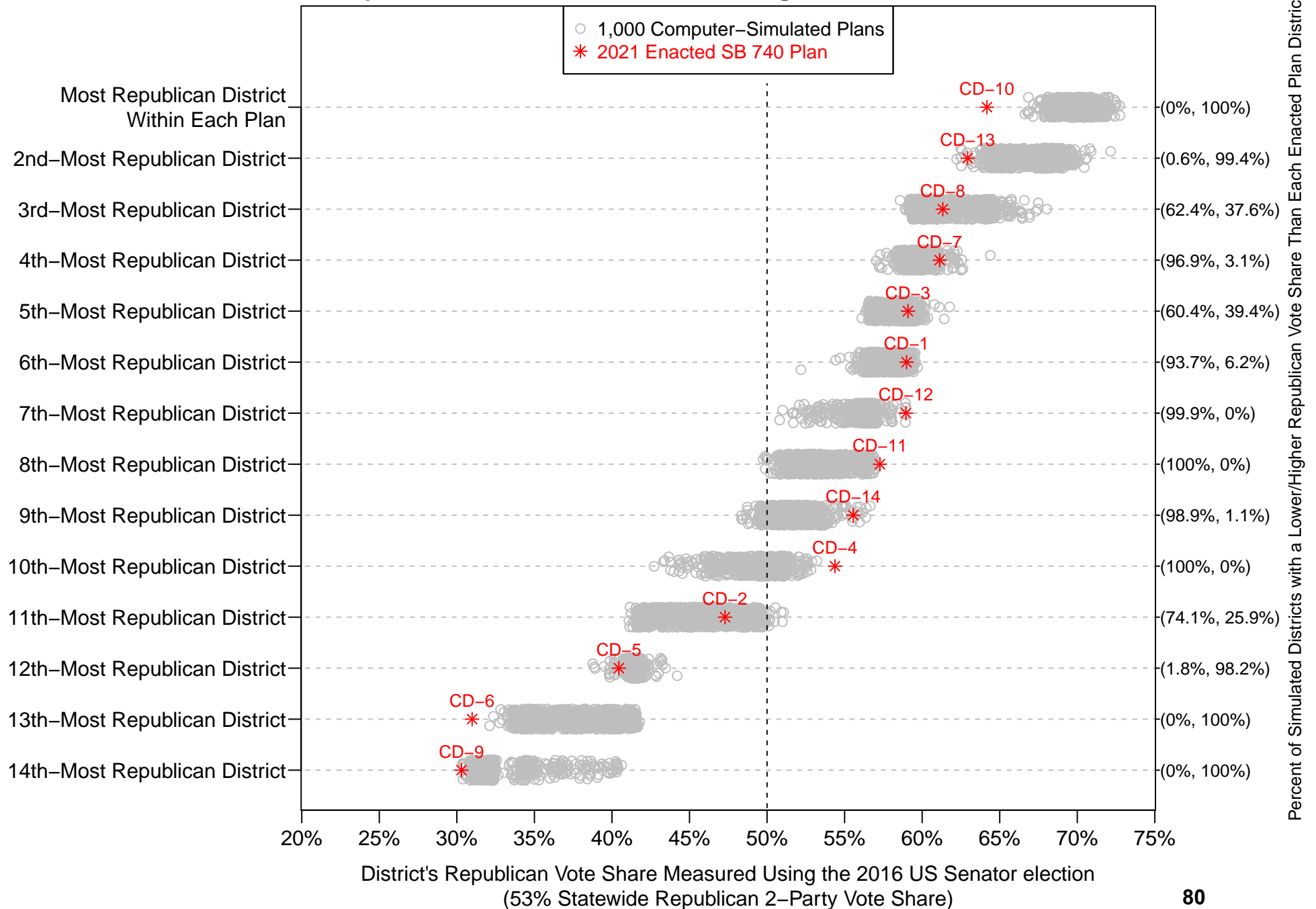
**Figure A3: Comparison of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans:
Districts' Republican Vote Share Measured Using the 2016 Lieutenant Governor Election Results**



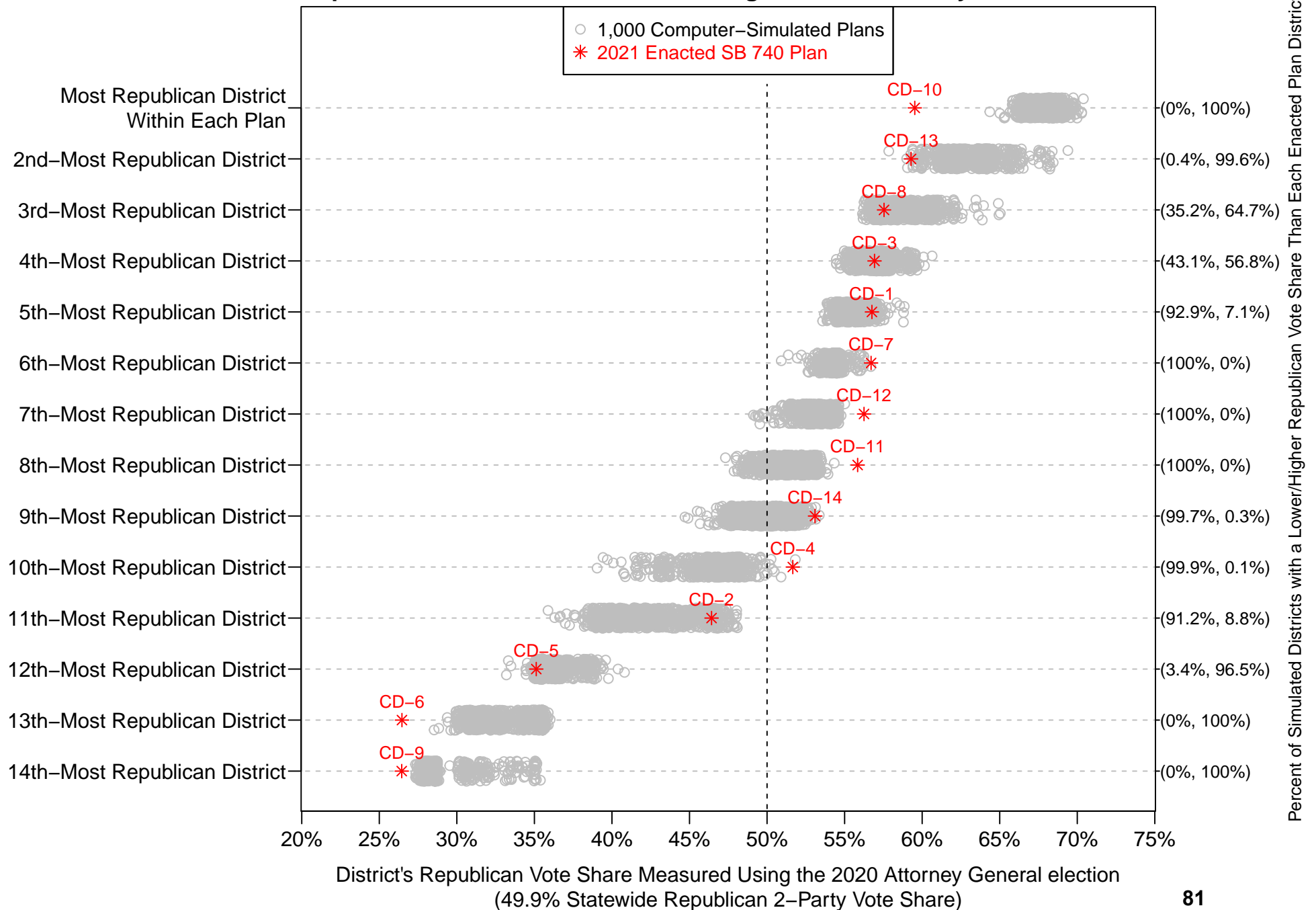
**Figure A4: Comparison of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans:
Districts' Republican Vote Share Measured Using the 2016 US President Election Results**



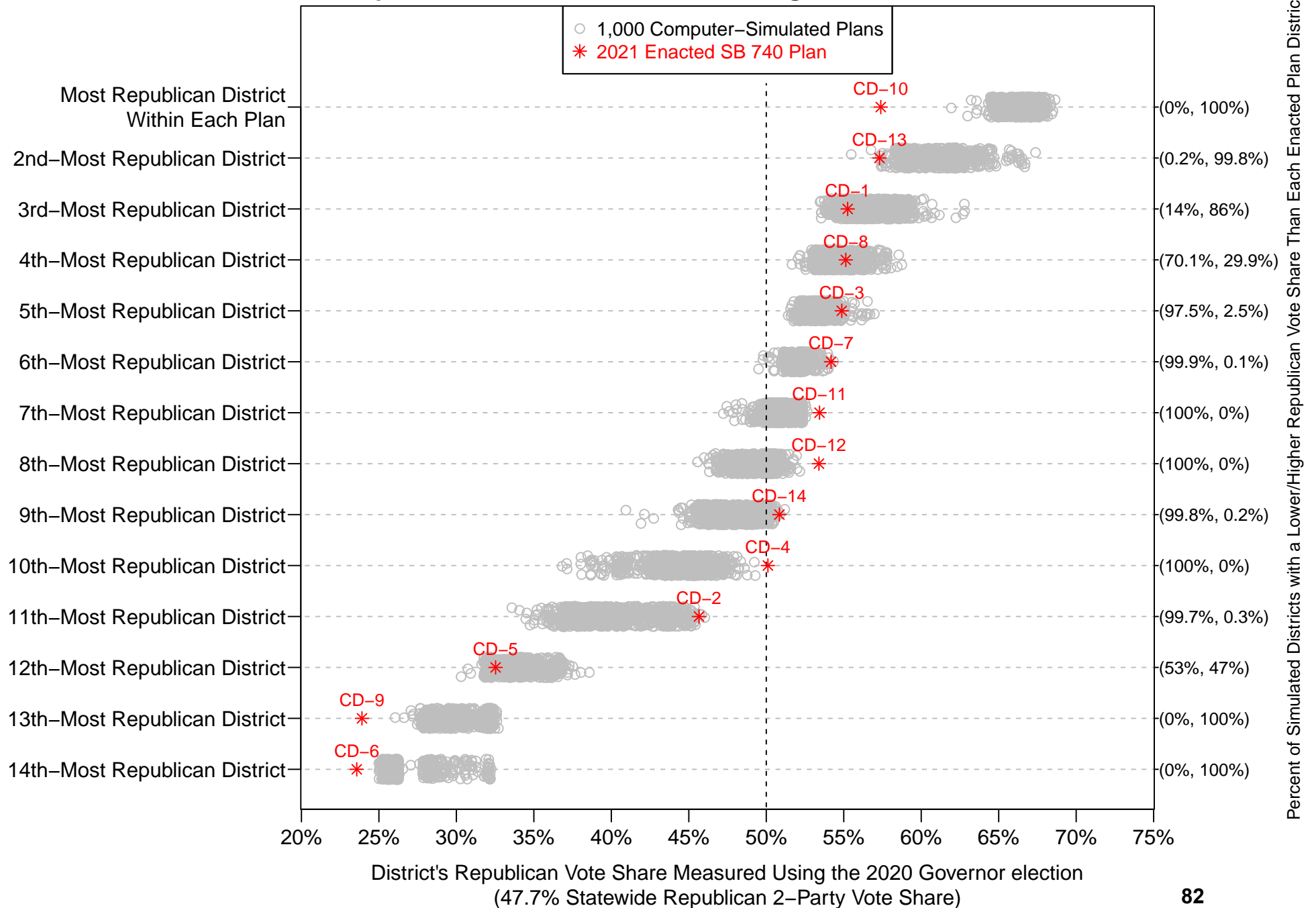
**Figure A5: Comparison of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans:
Districts' Republican Vote Share Measured Using the 2016 US Senator Election Results**



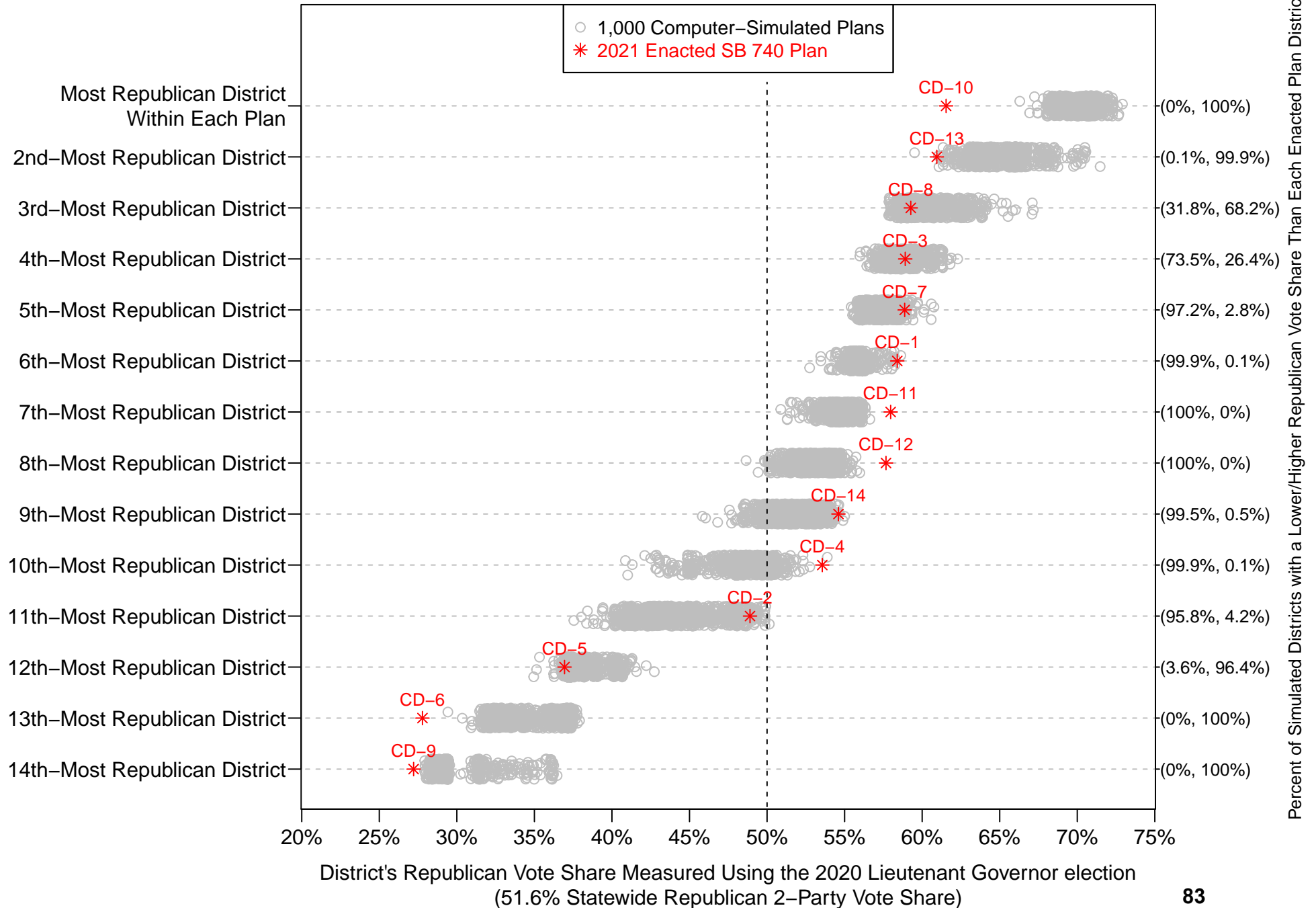
**Figure A6: Comparison of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans:
Districts' Republican Vote Share Measured Using the 2020 Attorney General Election Results**



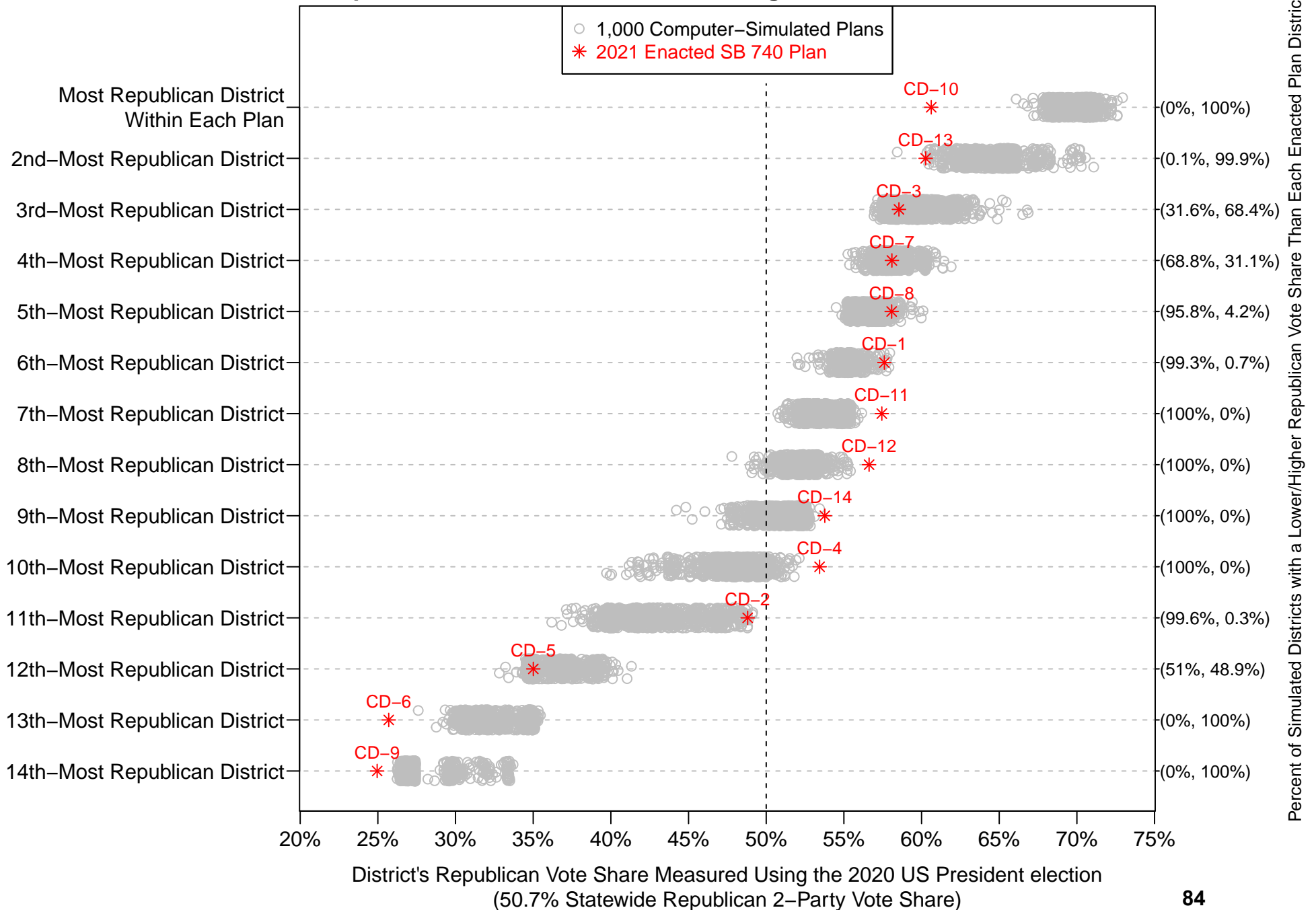
**Figure A7: Comparison of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans:
Districts' Republican Vote Share Measured Using the 2020 Governor Election Results**



**Figure A8: Comparison of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans:
Districts' Republican Vote Share Measured Using the 2020 Lieutenant Governor Election Results**



**Figure A9: Comparison of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans:
Districts' Republican Vote Share Measured Using the 2020 US President Election Results**



**Figure A10: Comparison of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans:
Districts' Republican Vote Share Measured Using the 2020 US Senator Election Results**

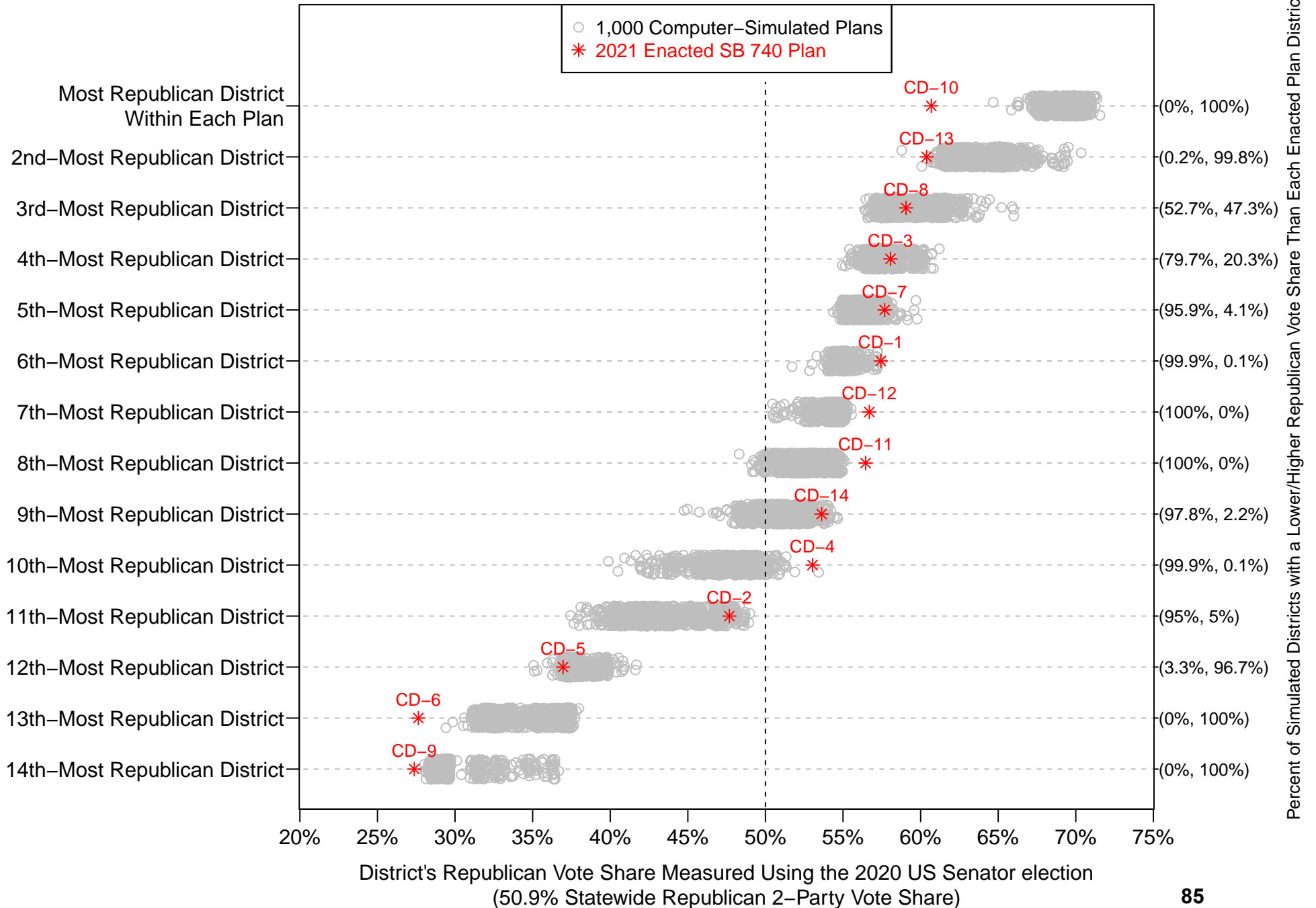


Figure B1: Comparisons of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans
Number of Districts With Over 50% Republican Vote Share in the 2016 Attorney General election
(49.7% Statewide Republican 2–Party Vote Share)

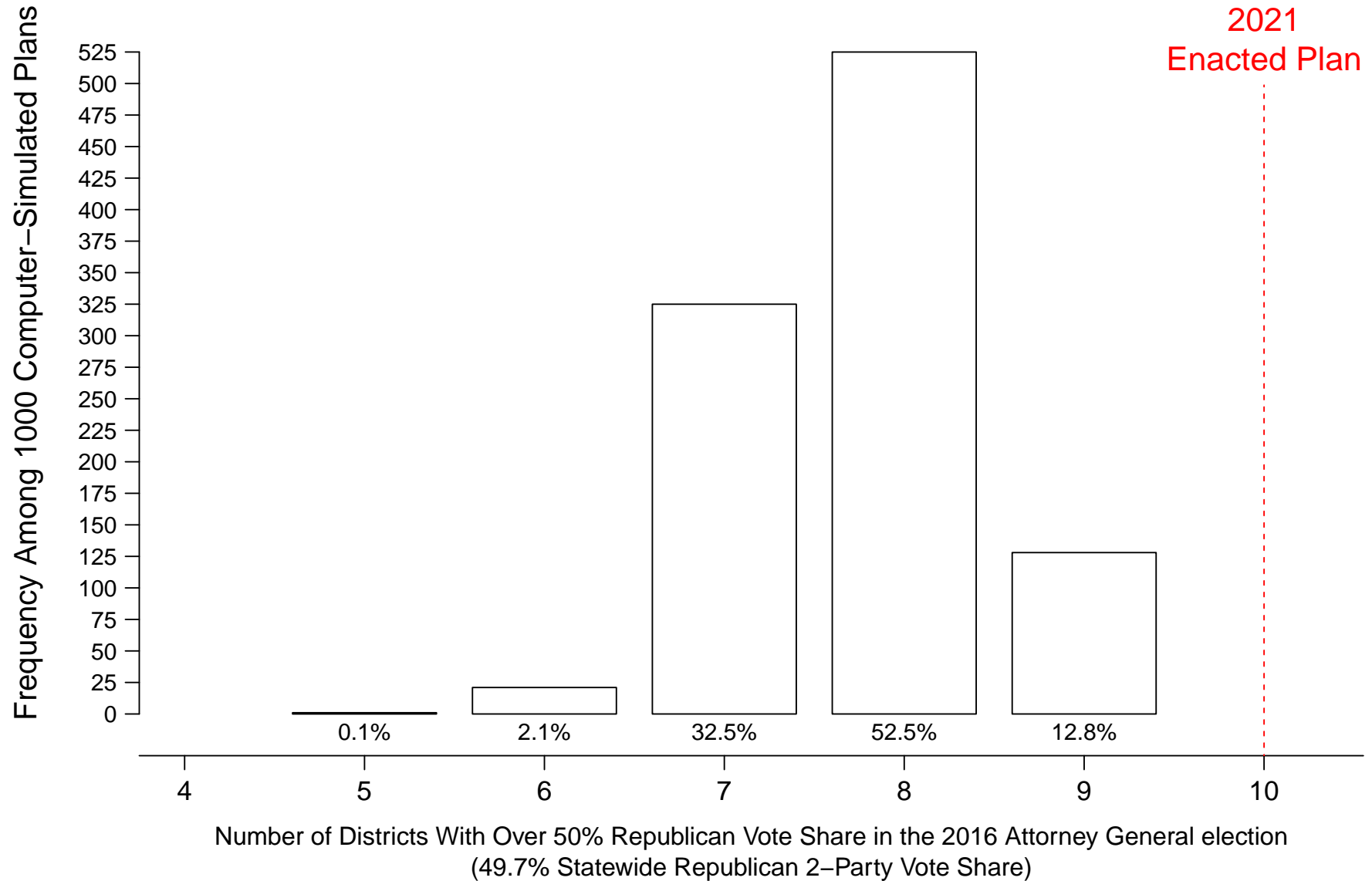


Figure B2: Comparisons of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans
Number of Districts With Over 50% Republican Vote Share in the 2016 Governor election
(49.9% Statewide Republican 2–Party Vote Share)

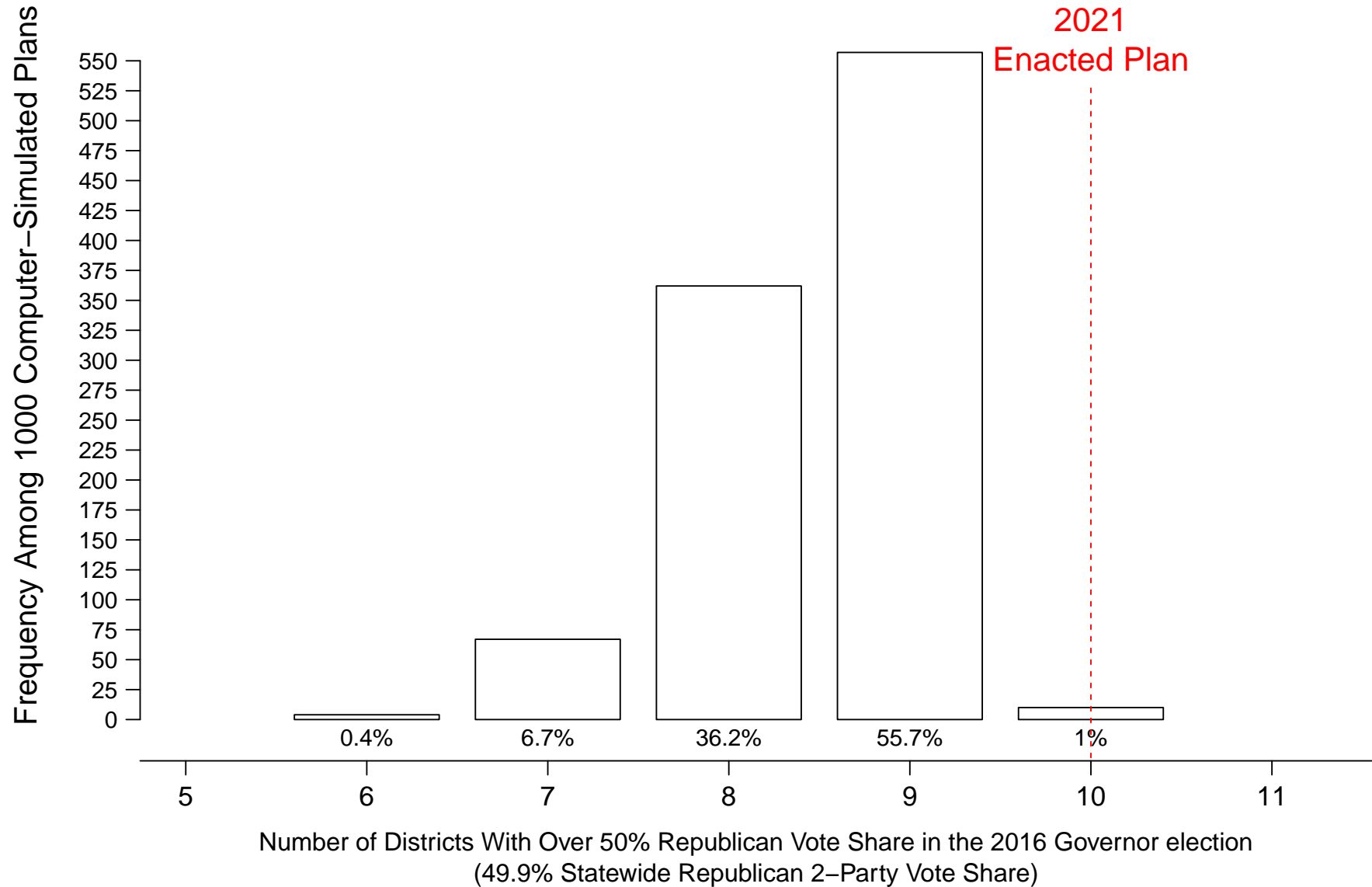


Figure B3: Comparisons of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans
Number of Districts With Over 50% Republican Vote Share in the 2016 Lieutenant Governor election
(53.3% Statewide Republican 2–Party Vote Share)

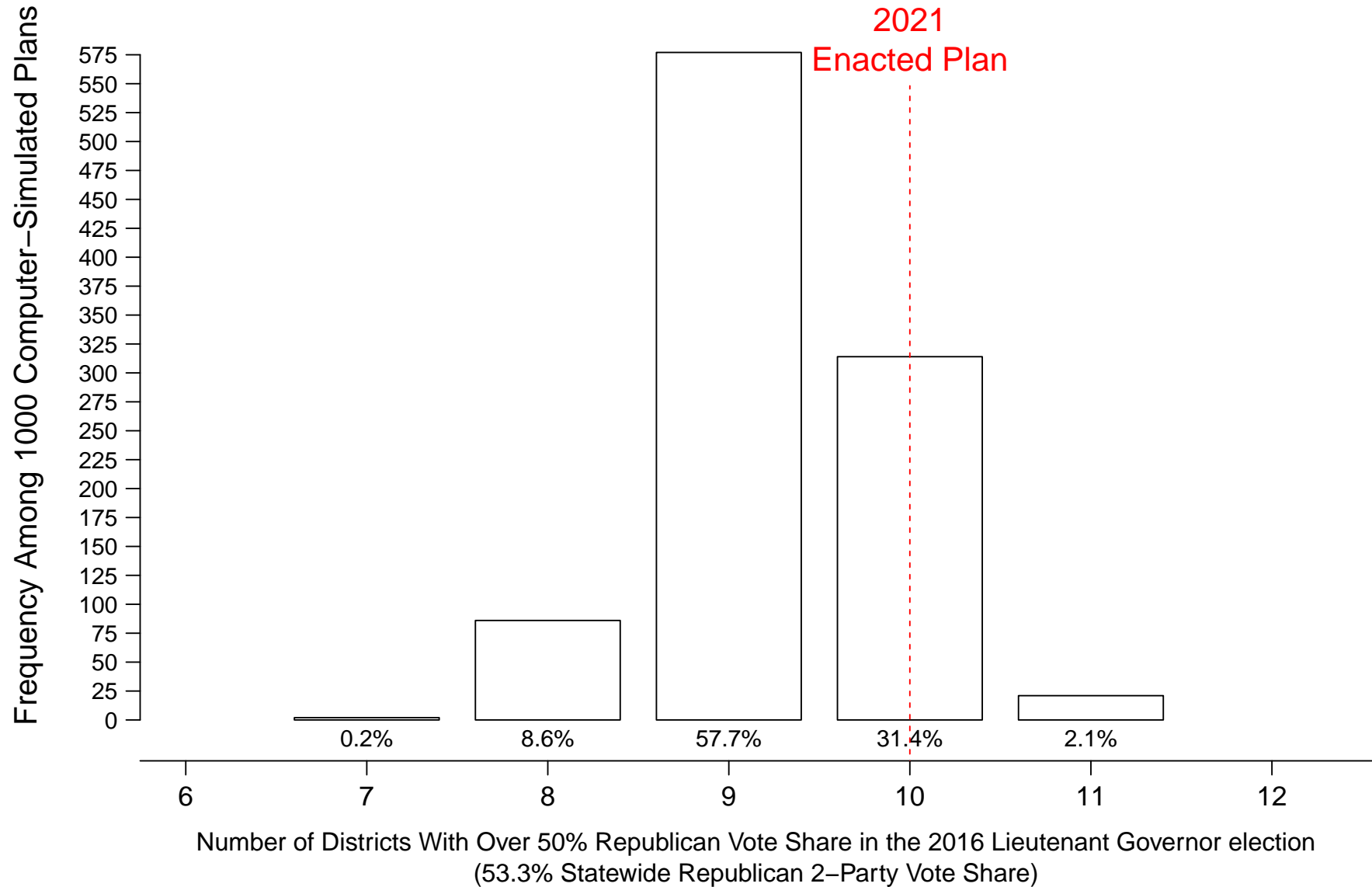


Figure B4: Comparisons of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans
Number of Districts With Over 50% Republican Vote Share in the 2016 US President election
(51.9% Statewide Republican 2–Party Vote Share)

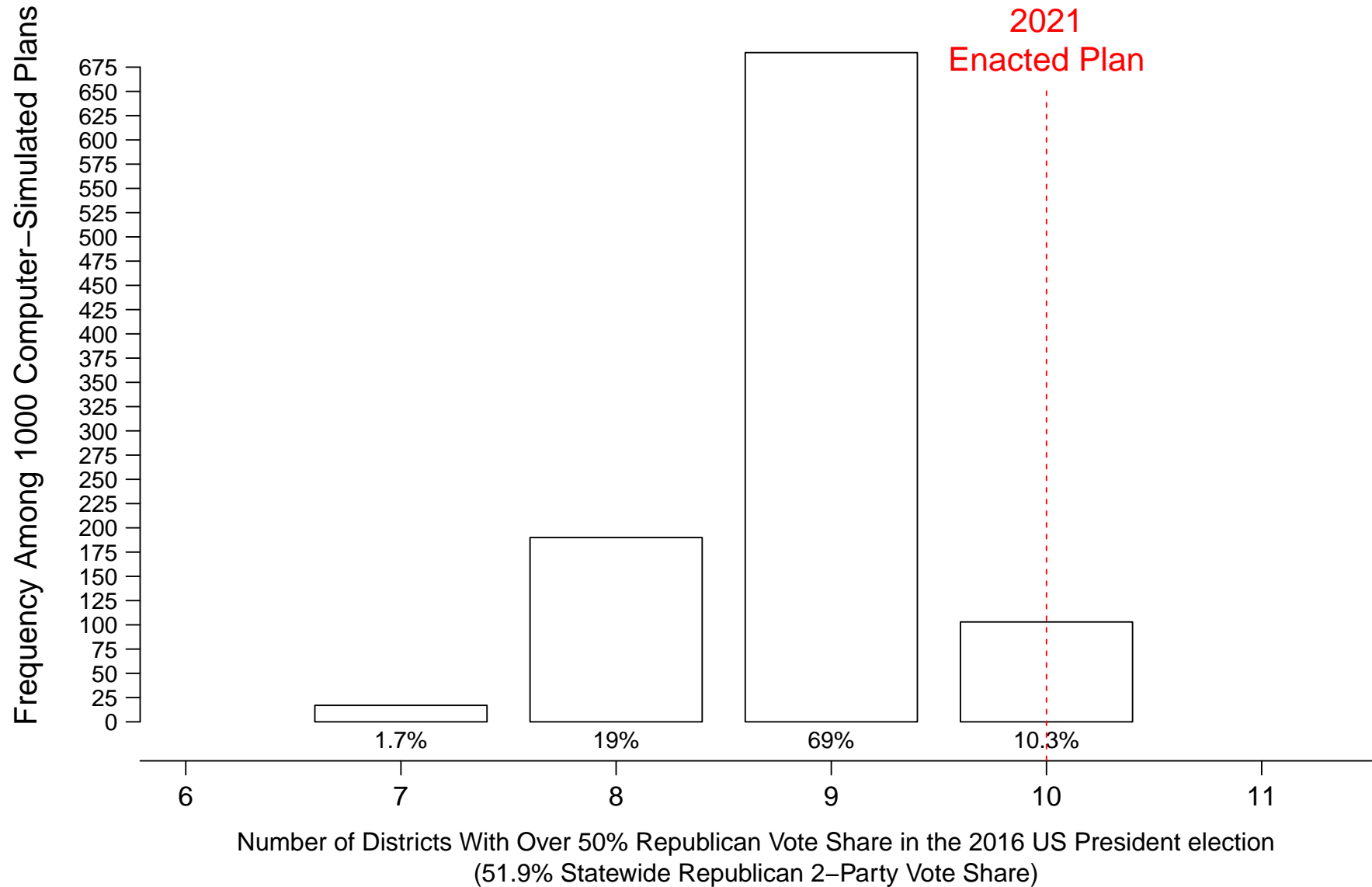


Figure B5: Comparisons of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans
Number of Districts With Over 50% Republican Vote Share in the 2016 US Senator election
(53% Statewide Republican 2–Party Vote Share)

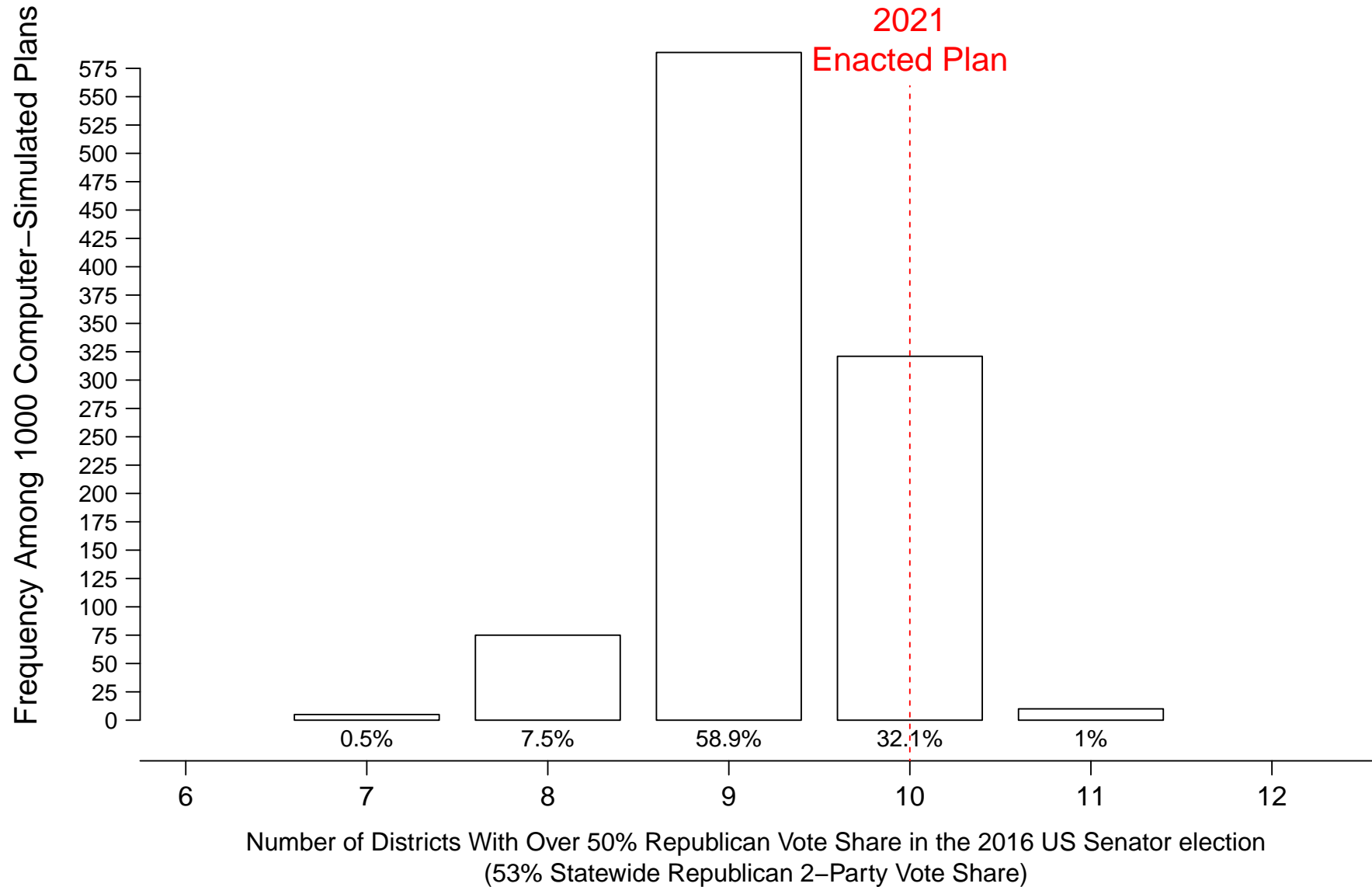


Figure B6: Comparisons of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans
Number of Districts With Over 50% Republican Vote Share in the 2020 Attorney General election
(49.9% Statewide Republican 2–Party Vote Share)

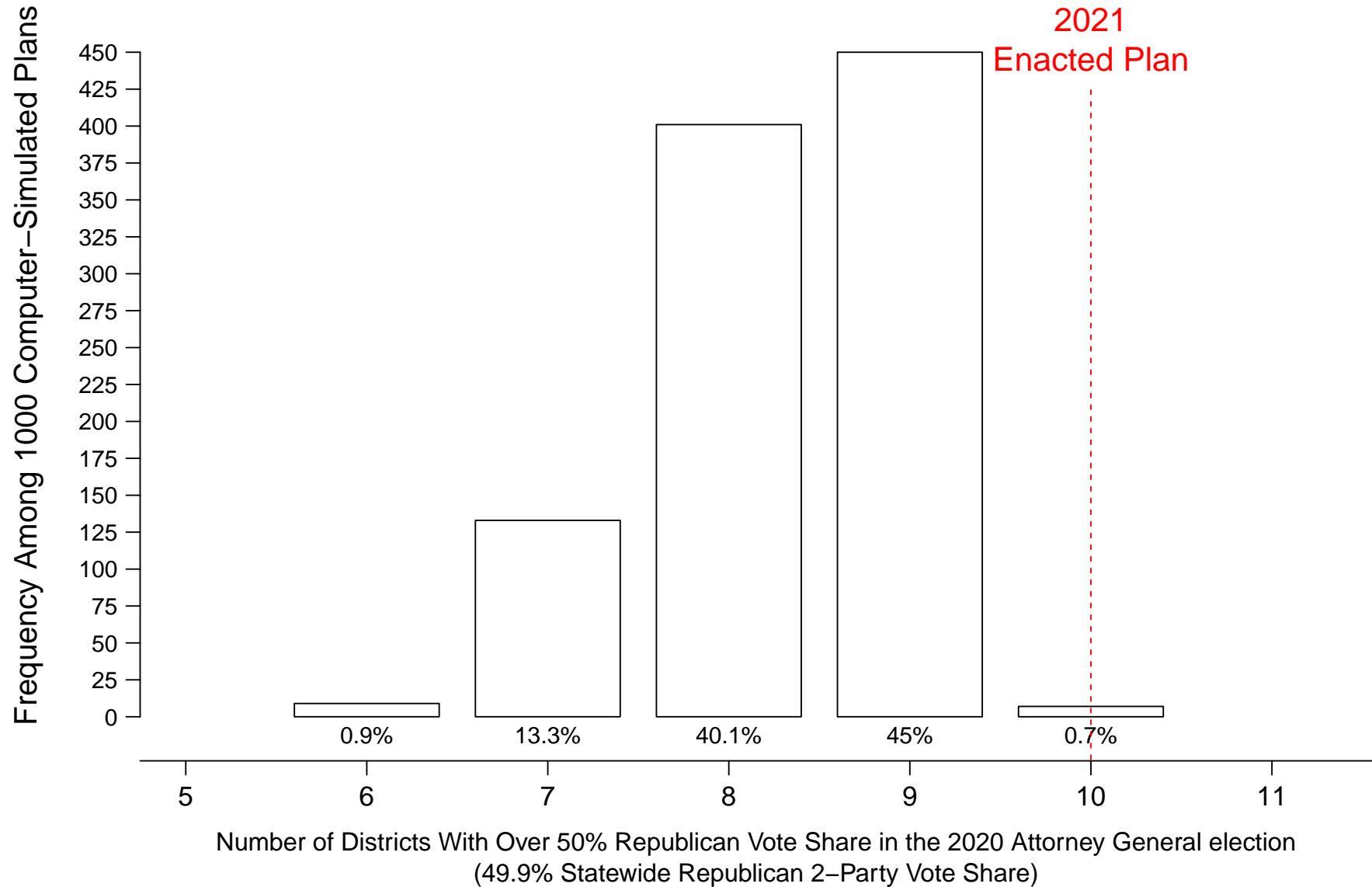


Figure B7: Comparisons of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans
Number of Districts With Over 50% Republican Vote Share in the 2020 Governor election
(47.7% Statewide Republican 2–Party Vote Share)

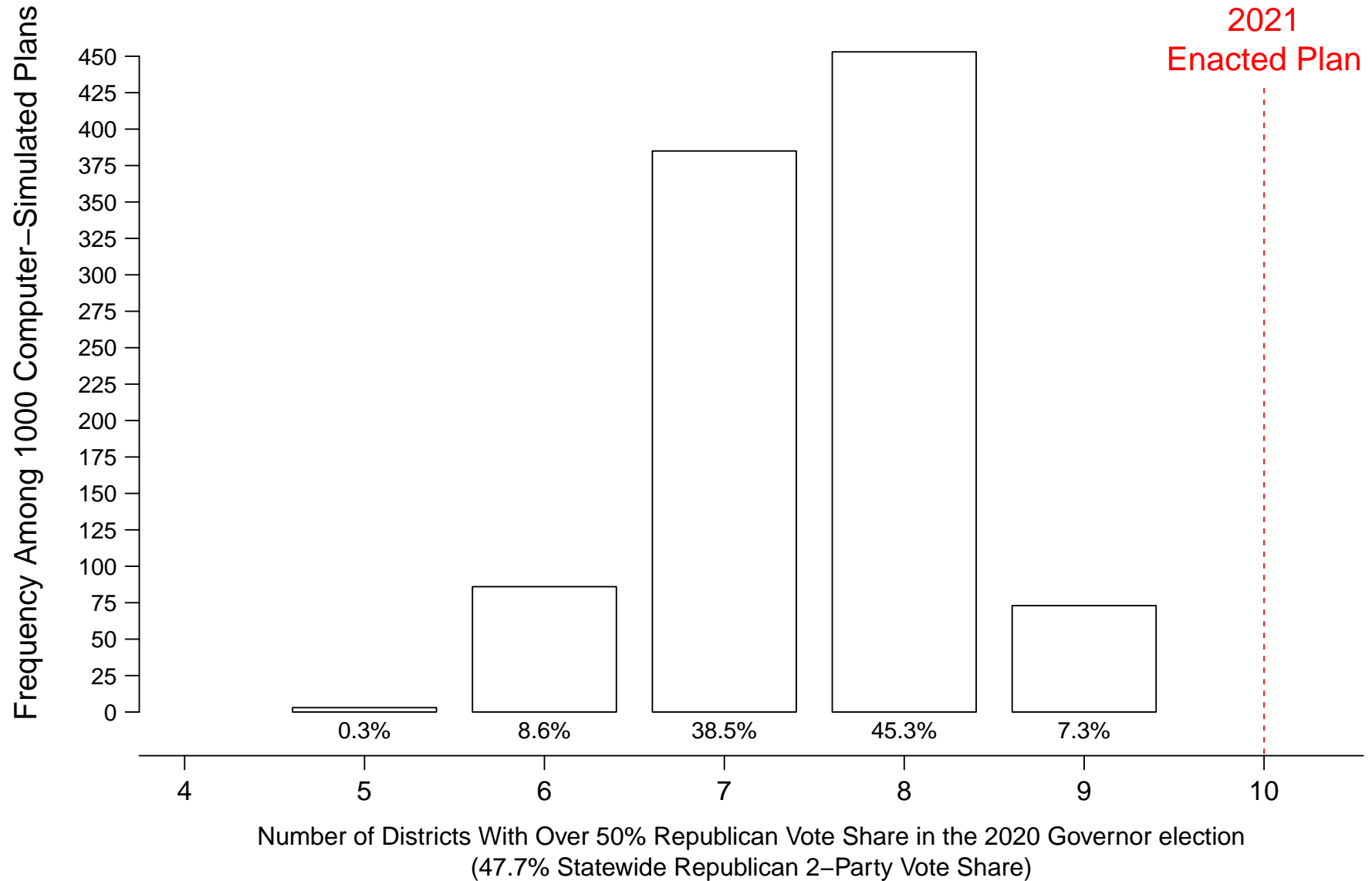


Figure B8: Comparisons of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans
Number of Districts With Over 50% Republican Vote Share in the 2020 Lieutenant Governor election
(51.6% Statewide Republican 2–Party Vote Share)

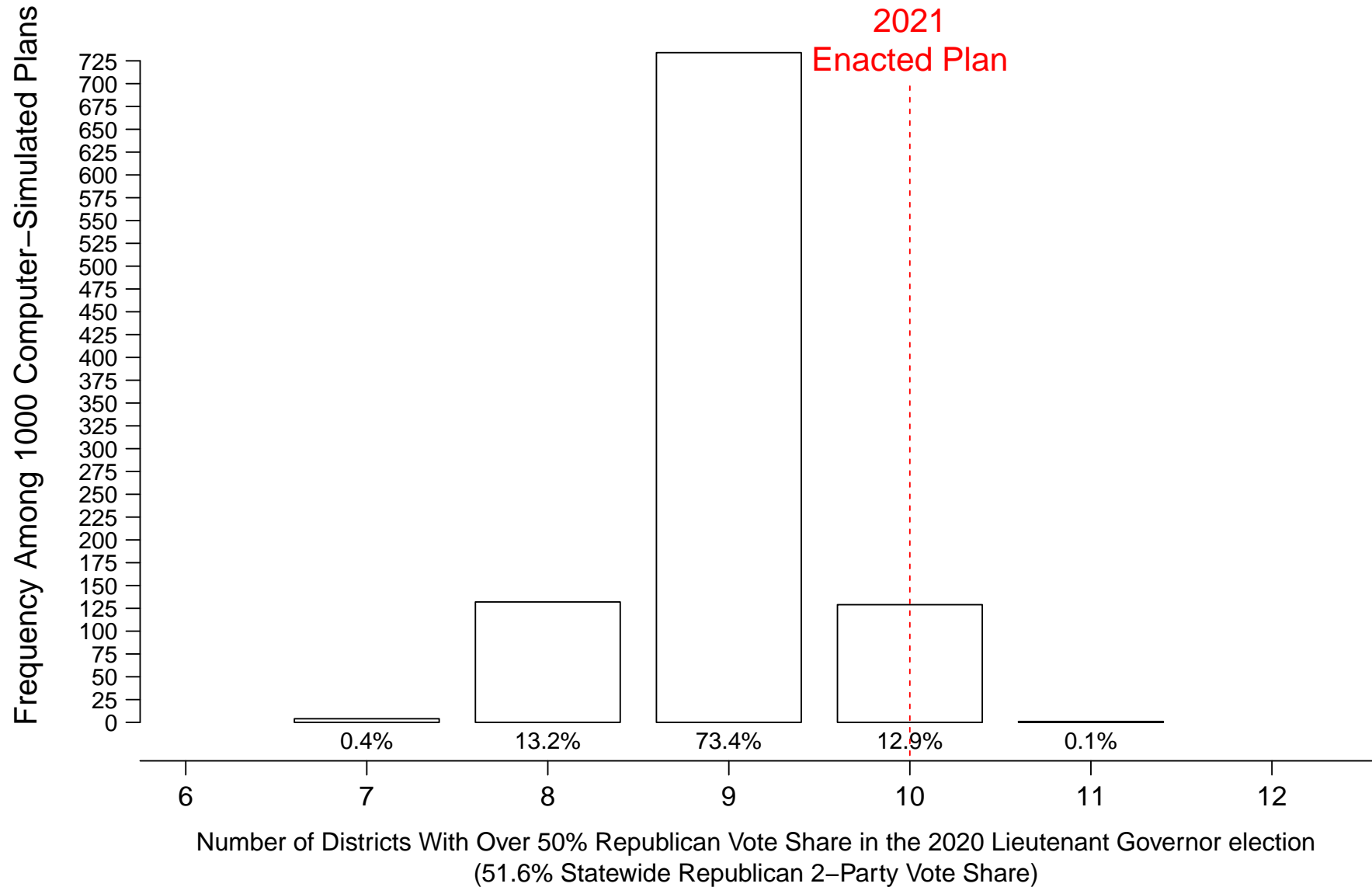
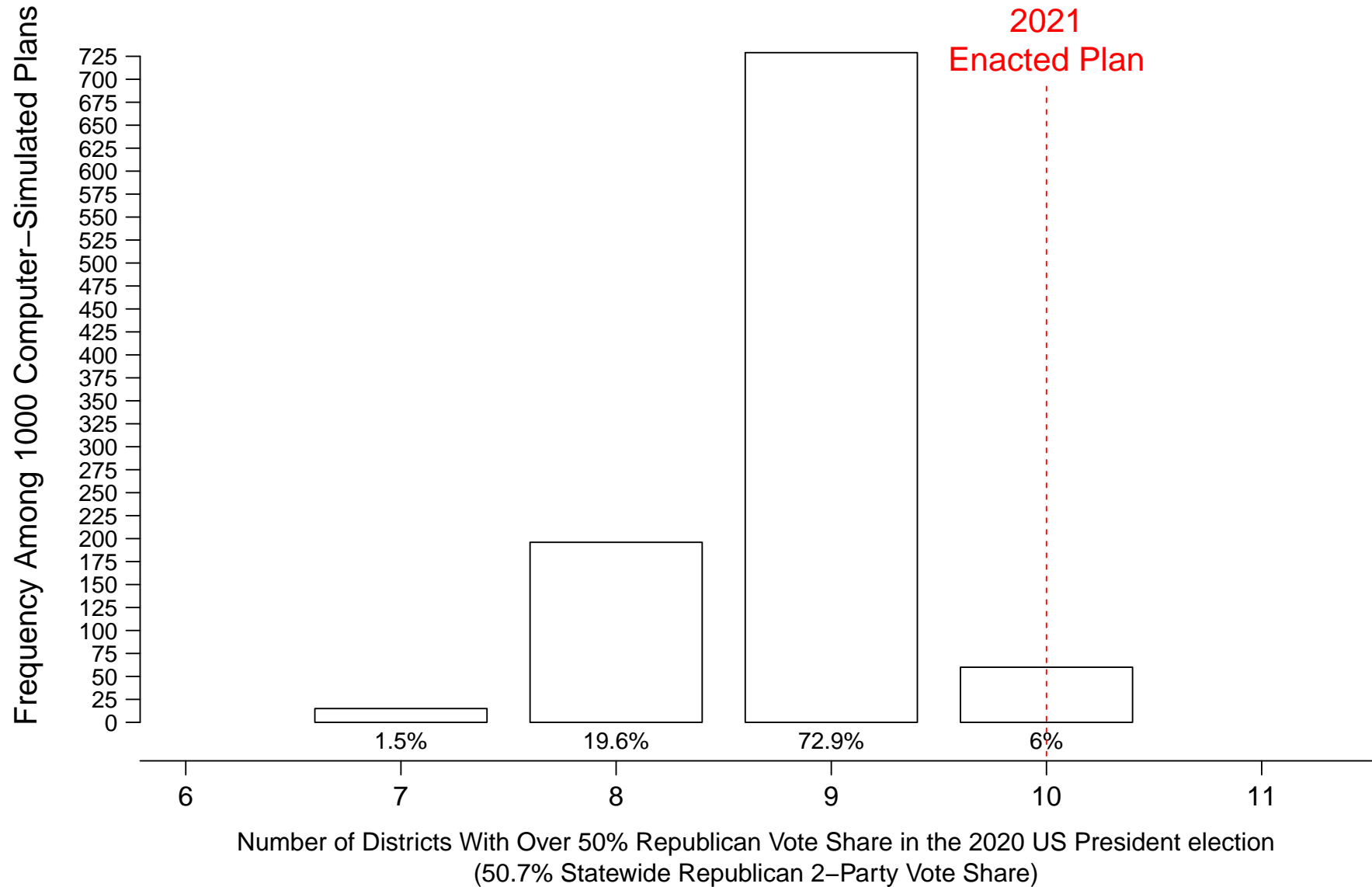
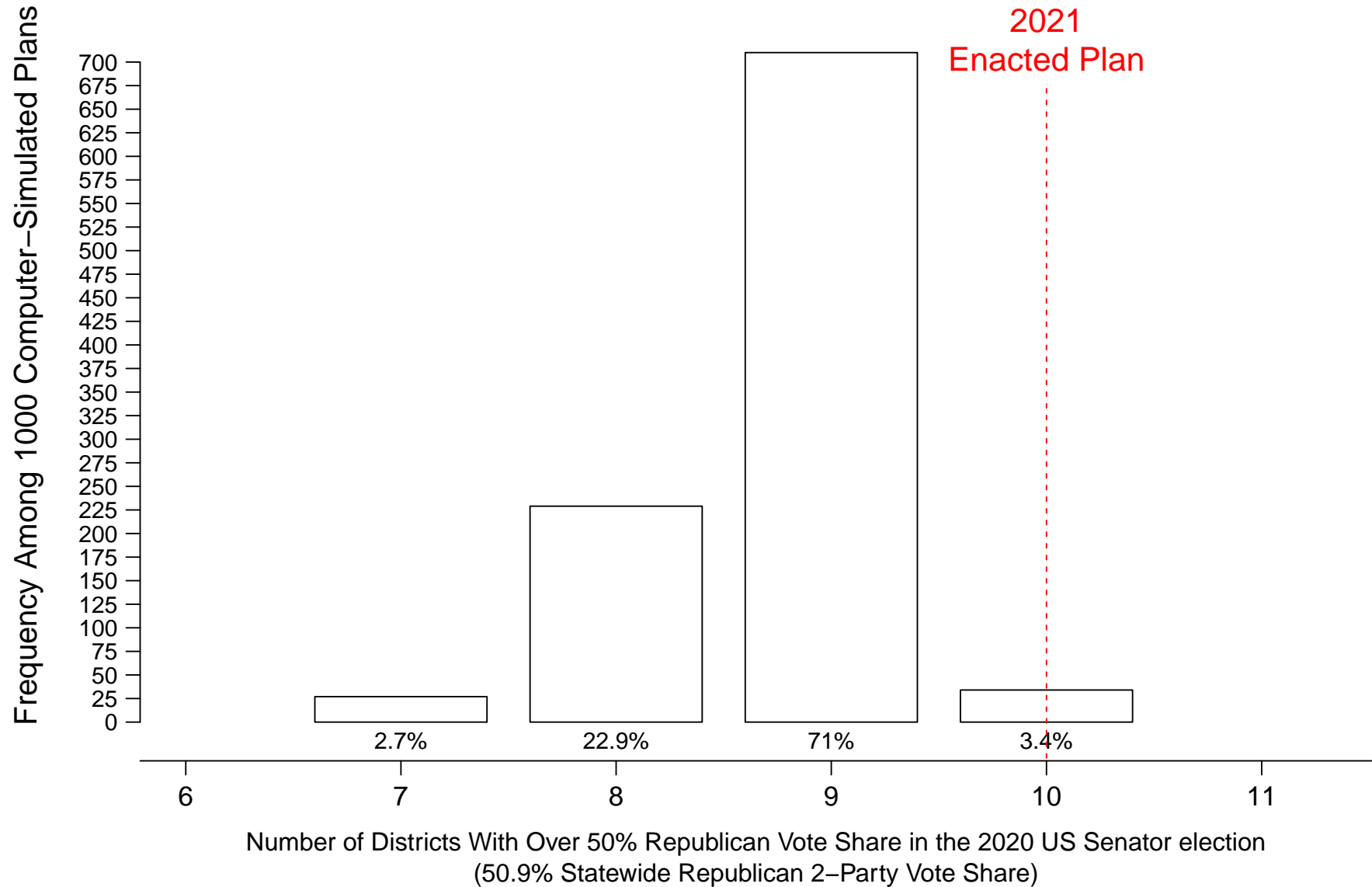


Figure B9: Comparisons of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans
Number of Districts With Over 50% Republican Vote Share in the 2020 US President election
(50.7% Statewide Republican 2–Party Vote Share)



**Figure B10: Comparisons of Enacted SB 740 Plan to 1,000 Computer–Simulated Plans
Number of Districts With Over 50% Republican Vote Share in the 2020 US Senator election
(50.9% Statewide Republican 2–Party Vote Share)**



Expert Report on North Carolina’s Enacted Congressional and General Assembly Districts

Christopher A. Cooper

December 23, 2021

Introduction

My name is Christopher A. Cooper. I have been asked to provide an analysis of the partisan characteristics of North Carolina’s congressional and General Assembly maps, enacted on November 4, 2021. I am conducting this analysis as a private citizen and am not speaking for my employer, nor am I conducting this work on university time, or using university resources.

I am the Robert Lee Madison Distinguished Professor of Political Science and Public Affairs at Western Carolina University, where I have been a tenured or tenure-track professor since 2002. I hold a PhD and MA in Political Science from the University of Tennessee, Knoxville and a BA in Political Science and Sociology from Winthrop University. My academic research focuses on state politics and policy, elections, and southern politics—with particular application to North Carolina. To date, I have published over 50 academic journal articles and book chapters, co-edited one book focused on North Carolina (*The New Politics of The Old North State*), and co-authored one book related to politics in the South, including North Carolina (both books with the University of North Carolina Press). I teach courses on state and local politics, political parties, campaigns, and elections, southern politics, research methods, and election administration. In 2013, I was named the North Carolina Professor of the Year by the Carnegie Foundation for the Advancement of Teaching and I have received Western Carolina University’s highest honors in teaching (Board of Governors Teaching Award), and scholarship (University Scholar). My current curriculum vitae is attached as Attachment A.

Much of my academic and applied research relates to North Carolina politics and policy and I am a frequent source for news media seeking comments about politics in the Old North State. My quotes have appeared in national and international outlets including *The New York Times*, *The Washington Post*, Politico, BBC, NPR’s *All Things Considered*, and *The New Yorker*, as well as in North Carolina-based outlets including *The News and Observer*, *The Charlotte Observer*, *Asheville-Citizen Times*, *Carolina Journal*, *Spectrum News*, and NPR affiliates in Chapel Hill, Charlotte, and Asheville. I have written over 100 op-eds on North Carolina, southern and national elections and politics, including pieces in *The Atlanta Journal-Constitution*, NBC.com, *The News and Observer*, *The Charlotte Observer*, and *Asheville Citizen-Times*, and I regularly give talks about North Carolina politics, North Carolina elections, and the redistricting process to groups throughout the state. I previously served as an expert witness in *Common Cause v. Lewis*, 18-CVS-014001 (N.C. Super. Ct. Sep. 3, 2019).

I am being compensated at a rate of \$300 per hour.

North Carolina is a state defined by competitive two-party politics in terms of its citizens and in its elections for statewide elective offices. Its congressional and state legislative delegations, by contrast, have defied this evidence of competitiveness and moderation and have leaned heavily towards the party in control of the General Assembly, despite the fact that Democrats and Republicans garner similar numbers of statewide votes.

This difference cannot be explained away as a result of where Democrats and Republicans happen to live. As Stanford political geographer Jonathan Rodden demonstrated, North Carolina does not show as much evidence of “natural clustering” as other states. “Due to the presence of a sprawling knowledge-economy corridor, a series of smaller automobile cities with relative low partisan gradients, and the distribution of rural African Americans, Democrats are relatively efficiently distributed in North Carolina at the scale of congressional districts.”¹ Looking across all 50 states, Political Scientists Alex Keena, Michael Latner, Anthony J. McGann, and Charles Anthony Smith come to a similar conclusion at the state legislative level: “It is clear that geographical considerations such as the urban concentration of Democrats cannot explain away partisan gerrymandering. There is strong evidence that it is indeed possible to draw unbiased (or almost unbiased) districting plans, even in states with large and densely clustered city dwellers.”²

As I demonstrate in the analysis that follows, the available evidence indicates that this gap in representation is due to partisan gerrymandering, drawing lines to benefit one party at the expense of the other. While a small deviation from established political patterns is not necessarily evidence of gerrymandering, the differences observed in North Carolina’s political outcomes are large and sustained.

Gerrymandering is generally accepted as a threat to democracy in North Carolina and across the nation. This statement is true regardless of partisanship. For example, a 2018 Elon Poll found that just 10% of registered voters in North Carolina believe the current redistricting system is “mostly fair.”³ A more recent poll found that 72% of North Carolinians believe gerrymandering is “a very serious problem” or “a somewhat serious problem” while only 6% believe it is “not a problem.” The same poll (which, it should be noted, includes question wording that references both Democratic and Republican gerrymandering) found that 74% of North Carolinians “support efforts by the courts to ensure maps are fair and constitutional.”⁴ Yet another recent poll found that 89% of North Carolina voters “oppose drawing voting districts to help one political party or certain politicians win an election.”⁵ A recent op-ed in *The News and Observer* by Republican Carter Wrenn and Democrat Gary Pearce illustrates bi-partisan agreement on the evils of gerrymandering in clear terms. They explain, “We agree that gerrymandering is a major problem that undermines the foundations of our democracy. We agree that districts shouldn’t be drawn to help one political party,

¹ Rodden, Jonathan, *Why Cities Lose* (New York: Basic Books, 2019), 173.

² Keena, Alex, Michael Latner, Anthony J. McGann, and Charles Anthony Smith, *Gerrymandering in the States: Partisanship, Race and the Transformation of American Federalism* (New York: Cambridge University Press, 2021), 86.

³ Elon Poll, “The State of Political Knowledge in North Carolina,” February 12-15, 2018, *available at* <https://www.elon.edu/u/elon-poll/wp-content/uploads/sites/819/2019/02/Elon-Poll-Report-022318.pdf>.

⁴ Public Policy Polling, “North Carolina Survey Results,” December 6-7, 2021, *available at* <https://progressncaction.org/wp-content/uploads/2021/12/NorthCarolinaResults.pdf>.

⁵ RepresentUs, “North Carolina Polling: Voters See Gerrymandering as a Major Problem, Want Reform,” August 9, 2021, *available at* <https://represent.us/wp-content/uploads/2021/08/Rep-US-Polling-Memo-North-Carolina-0821.pdf>.

no more than college basketball games should be rigged to favor one team.”⁶ The preference for fair maps—those not gerrymandered to achieve a partisan advantage—is not a partisan one.

Summary of Key Findings

- North Carolina is, by virtually any measure, a “purple state” with healthy two-party competition at the statewide level. The North Carolina Governor is a Democrat, while the U.S. Senators are Republicans. There are more registered Democrats than Republicans in the state, and in the 2020 election, the two-party vote share difference between Donald Trump and Joe Biden was the smallest of any state that Trump won.
- North Carolina has a history of gerrymandering for partisan gain.⁷ North Carolina’s maps since 2011, in particular, have demonstrated clear partisan bias⁸ that has implications for democracy. Immediately after the 2011 redistricting cycle, North Carolina’s democracy weakened considerably, according to one scholar, moving from a democracy score that placed the Old North State roughly in the middle of the pack to one near the bottom of the country.⁹
- As a result of the 2020 census, North Carolina earned an additional congressional seat because of population growth that occurred mostly in urban areas, which tend to favor Democrats: according to an analysis of U.S. census data by *The News and Observer*, more than 78% of North Carolina’s population growth over the last decade came from the Triangle area and the Charlotte metro area.¹⁰ Despite that fact, the number of anticipated Democratic seats actually *decreases* in the current congressional map, as compared to the last map enacted in late 2019 and used in the 2020 elections. The last map produced 5 Democratic wins and 8 Republican wins; this map is expected to produce 3 Democratic wins, 10 Republican wins and 1 competitive seat.
- In the congressional map, Democratic strongholds Mecklenburg, Guilford, and Wake counties are each divided across three districts, despite the fact that there is no population-based reason to divide them this many times. In the previous congressional map, Mecklenburg was divided into two districts, Wake into two districts, and Guilford fell completely in one district. The strategic splits in the enacted map ensure that large numbers of voters will have no chance of being represented by a member of their own party. These splits will also lead to voter confusion and fractured representational linkages.

⁶ Gary Pearce and Carter Wrenn, “We’re usually on opposite sides of political battles. But we agree on NC voting maps.” *The News and Observer*, October 21, 2021, available at <https://www.newsobserver.com/opinion/article255145572.html>.

⁷ Bitzer, J. Michael, *Redistricting and Gerrymandering in North Carolina: Battlelines in the Tar Heel State* (Palgrave Macmillan, 2021).

⁸ See, e.g., Keena, Alex, Michael Latner Anthony J. McGann, and Charles Anthony Smith, *Gerrymandering in the States: Partisanship, Race and the Transformation of American Federalism* (New York: Cambridge University Press, 2021), 86.

⁹ Grumbach, Jacob M. “Laboratories of Democratic Backsliding.” (Unpublished Manuscript: University of Washington, 2021), available at <https://sites.google.com/view/jakegrumbach/working-papers>. Insights from this manuscript are forthcoming in *Laboratories Against Democracy*, Princeton University Press (<https://press.princeton.edu/books/hardcover/9780691218458/laboratories-against-democracy>).

¹⁰ David Raynor, Tyler Dukes, and Gavin Off, “From population to diversity, see for yourself how NC changed over 10 years.” *The News and Observer*, October 18, 2021, available at <https://www.newsobserver.com/news/local/article253546964.html>.

- The enacted congressional map produces geographic contortions that combine counties in ways that, in some circumstances, have never existed before.
- The double-bunking that occurs in the enacted congressional map advantages the Republican Party. A Republican (Virginia Foxx) and a Democrat (Kathy Manning) are both drawn into in an overwhelmingly Republican district (congressional district 11), thus virtually guaranteeing that the Democrat (Manning) will lose her seat. There are no cases where two Republican incumbents seeking re-election are double-bunked. The map also produces at least one district with no incumbents, but that district (congressional district 4) overwhelmingly favors the Republican Party.
- Despite the application of the *Stephenson v. Bartlett* county clustering rule, the mapmakers had considerable leeway in drawing the vast majority of North Carolina House and Senate districts. The enacted district lines “pack” Democratic leaning voters into a small number of districts, thus producing a few Democratic districts with large electoral margins. The district lines “crack” the remaining Democratic voters across the remaining districts, so that Democratic voters cannot comprise a majority of any of those districts. Conversely, the maps distribute Republican VTDs more efficiently, to translate those Republican votes into a greater number of anticipated seats. These practices ultimately result in large Republican seat advantages in the General Assembly—advantages that far outweigh the Republicans’ share of the aggregate vote between the two parties. These maps are likely to lead to a General Assembly that will not represent the will of the people of the state.
- Neutral, third-party observers have been uniform in their negative assessment of the enacted maps. For example, The Princeton Gerrymandering Project assessed a grade of “F” in partisan fairness and “C” in competitiveness for all three maps. Dave’s Redistricting App (DRA) assesses the congressional map as “very bad” in proportionality and “bad” in terms of competitiveness. While the House and Senate maps fare slightly better in terms of proportionality according to DRA, DRA assesses both maps to be “bad” in terms of competitiveness. Both The Princeton Gerrymandering Project and DRA are nonpartisan and have given similar grades to Democratic gerrymanders in other states.

North Carolina's Partisan Competitiveness

North Carolina has long been known for political moderation and competitive two-party politics. In 1960, Political Scientist V.O. Key noted North Carolina's distinctiveness from the rest of the South, owing to its comparatively competitive two-party politics.¹¹ North Carolina journalist Rob Christensen and Wake Forest University Political Scientist Jack Fleer noted more recently that the state enjoys “two strong and competitive parties.”¹² Work by contemporary observers reinforces the notion that North Carolina is a competitive two-party state where statewide offices are winnable for either major political party.¹³

Two-Party Competition in Election Results

As I have written previously, one way to gauge the state's relative moderation and two-party competitiveness is simply to look at electoral results from races where gerrymandering is not possible—races where people are elected at the state level, rather than by districts that are subject to gerrymandering. The most prominent example of such an election, of course, is the U.S. presidential election.

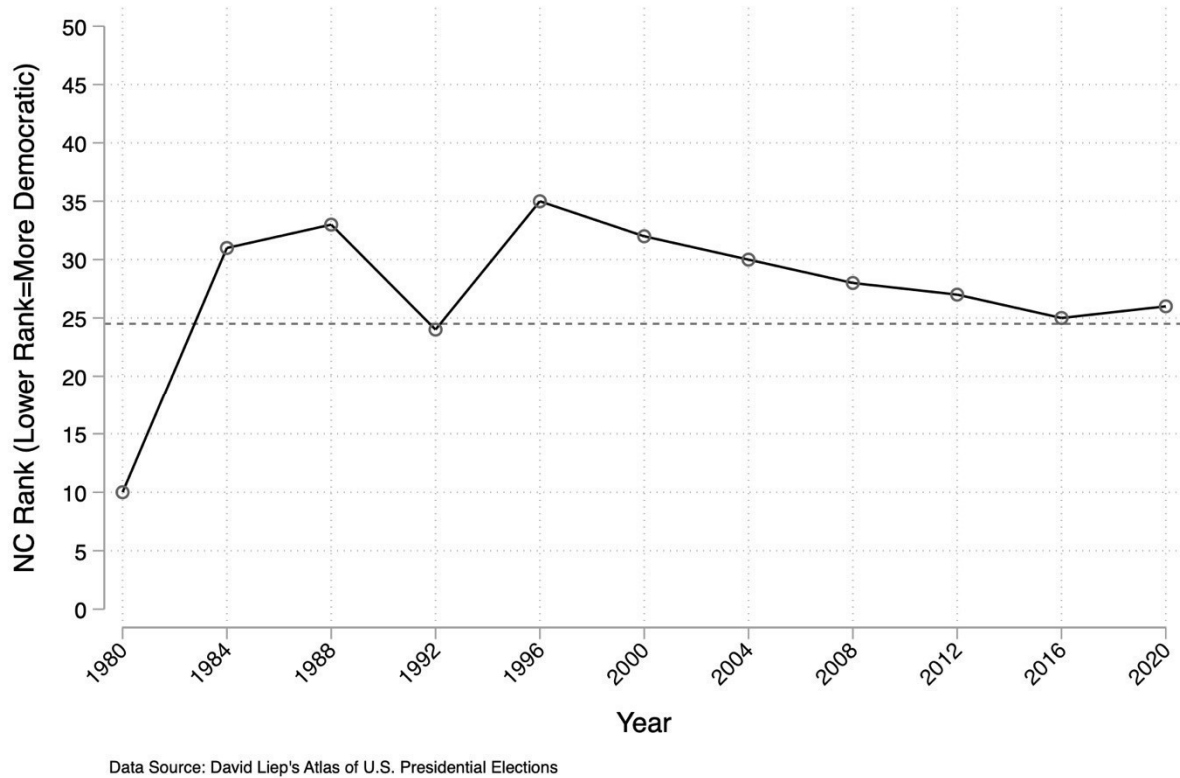
The figure below plots North Carolina's presidential election results as ranked alongside those from other states, ranging from the state where the Democratic candidate received the largest vote share (1) to the state where the Democratic candidate receive the smallest vote share (50). Here, we see that North Carolina is best described as a competitive two-party state that sits roughly in the middle of the country in terms of partisan voting patterns. In 2000, North Carolina had the 32nd highest vote share for the Democratic candidate for president. In 2004, Democratic presidential candidate John Kerry received his 30th highest vote share in North Carolina. In 2008, then-presidential candidate Barack Obama's vote share in North Carolina was 28th highest in the country. In 2012, incumbent President Obama's vote share in North Carolina was 27th highest in the country. In 2016, North Carolina had the 26th highest Democratic vote share in the country and in 2020, it was the 27th highest.

¹¹ See Key, V.O., Jr., *Southern Politics in State and Nation* (Knoxville: University of Tennessee Press, 1960).

¹² Christensen, Rob, and Jack D. Fleer, “North Carolina: Between Helms and Hunt No Majority Emerges,” in Alexander P. Lamis, ed. *Southern Politics in the 1990s* (Baton Rouge: Louisiana State University Press, 1999), 106.

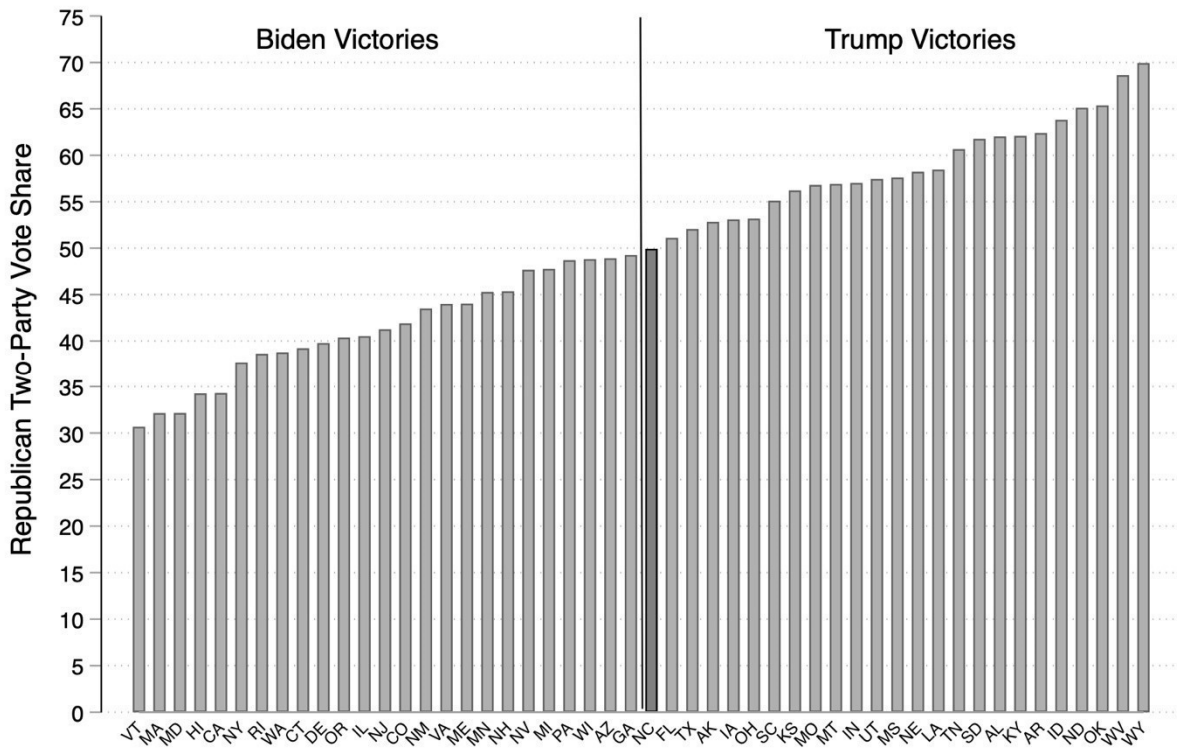
¹³ Bitzer, J. Michael, and Charles Prysby, “North Carolina,” in Charles S. Bullock III, and Mark J. Rozell, eds., *The New Politics of the Old South*, 7th Edition (Rowman and Littlefield, 2021).

Figure 1. North Carolina Rank in Democratic Vote Share for President Among the 50 States



In the 2020 election, North Carolina was perched on the razor's edge between Republican and Democrat—Donald Trump's two-party vote share was the smallest in North Carolina of any state he won in 2020. If any state can be described as “purple” or “competitive” in modern American politics, it is North Carolina.

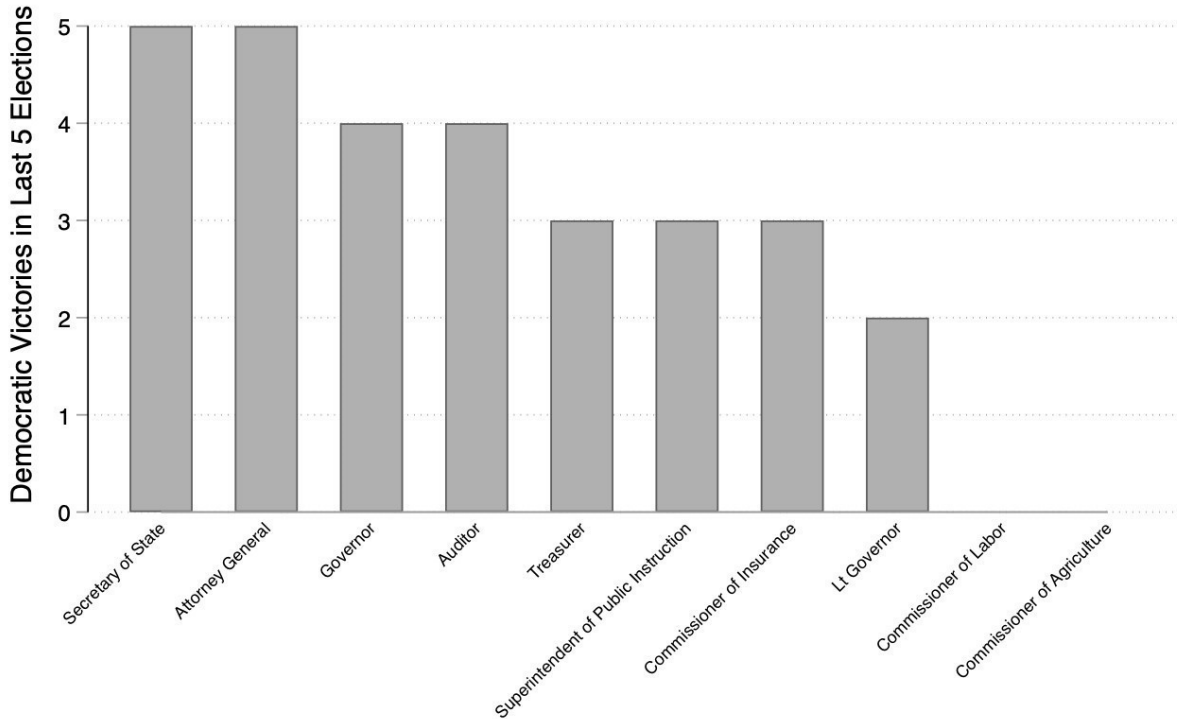
Figure 2. Two-Party Vote Share in the 2020 Presidential Election



Another way to understand North Carolina’s competitiveness is to examine election results at the Council of State—ten members of the Executive branch who vary in prominence but are all elected in partisan quadrennial elections. These include the Governor, Lieutenant Governor, Secretary of State, State Auditor, State Treasurer, Superintendent of Public Instruction, Attorney General, Commissioner of Agriculture, Commissioner of Labor, and Commissioner of Insurance.

The result of these elections over the past five election cycles demonstrates once again that North Carolina enjoys significant partisan competition. Democrats have won 29 out of 50 Council of State elections since 2004.

Figure 3. Results of The Last Five Council of State Elections

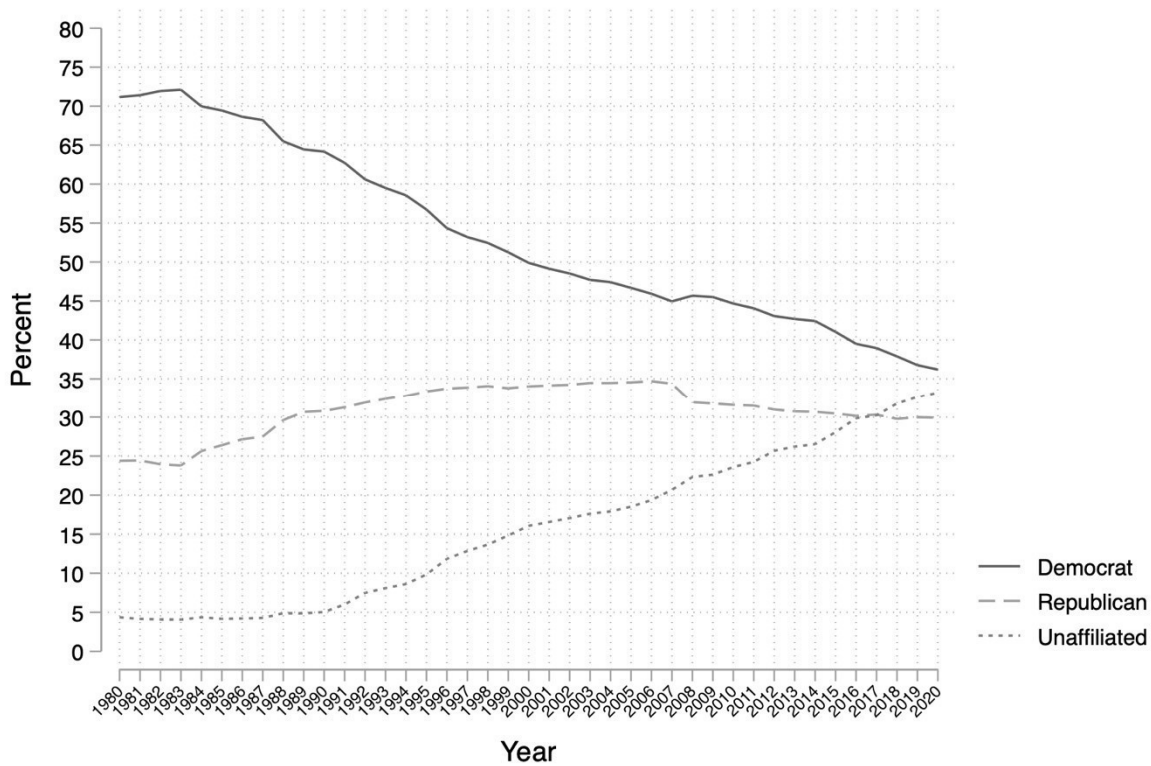


Note: Calculated from NC State Board of Elections data. Council of State elections take place every four years.

Two-Party Competition and Moderation in the Electorate

North Carolina has considerable two-party competition in terms of voter registration. As the figure below indicates, Republican Party identification has never exceeded Democratic Party identification in the history of the state. While this is certainly not a sign of a liberal, Democratic state, it is similarly belies any contention that North Carolina is a conservative, Republican state.

Figure 4. Voter Registration in North Carolina



Partisan identification is, of course, just one indicator of the political lean of a state's citizens. And, given the rise in Unaffiliated voters in North Carolina, it is an increasingly noisy indicator.¹⁴ Existing measures of statewide public opinion, however, come to the same conclusion: North Carolina does not lean heavily towards one party or ideology. One measure of state-level public opinion finds that North Carolina falls near the middle of the distribution of state-level political ideology as the 24th most liberal state in the country.¹⁵ Another widely accepted measure finds that North Carolina is the 25th most liberal state in the country.¹⁶

Legislative Votes and Seats in the Aggregate

Historically, North Carolina's legislative delegation has not reflected these patterns of two-party competition and moderation. As the following three graphs demonstrate, North Carolinians consistently give about half of their two-party vote share to each party, yet the Republicans dominate in terms of legislative representation. This suggests that the representational linkage between voters and North Carolina's legislative representatives is weaker than between the voters and various other elected offices.

¹⁴ Although using partisan identification as an indicator of voter preference can be problematic given that people generally change their voting pattern before changing partisan identification, North Carolina's party registration data is consistent with its moderate statewide voting patterns, as illustrated by the other measures included in this report.

¹⁵ Berry, William D., Evan J. Ringquist, Richard C. Fording, and Russell L. Hanson, "Measuring Citizen and Government Ideology in the American States, 1960-93." *American Journal of Political Science* 42(1998): 327-48. Raw data are available at <https://rcfording.com/state-ideology-data/>.

¹⁶ Tausanovitch, Chris, and Christopher Warshaw, "Measuring Constituent Policy Preference in Congress, State Legislatures, and Cities." *The Journal of Politics* 75(2013): 330-342. See <http://www.americanideologyproject.com> for data.

Figure 5. Comparing Votes and Seats in North Carolina’s Congressional Delegation, 2012-2020

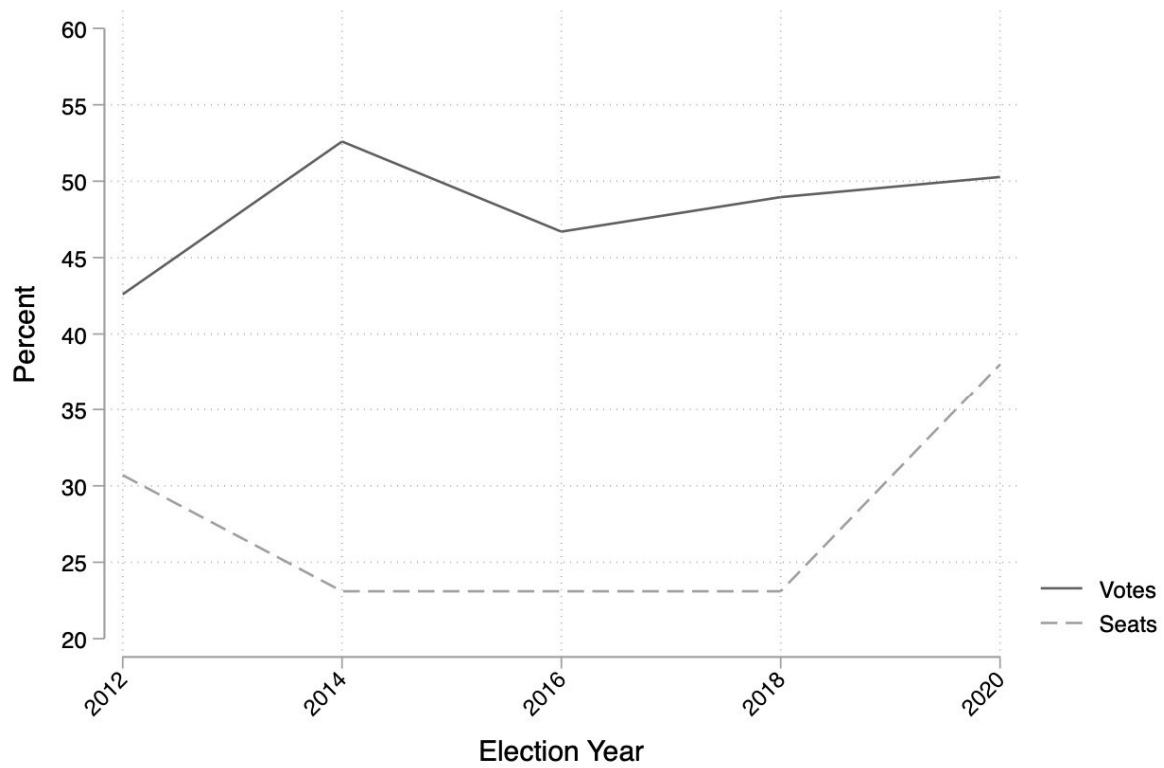


Figure 6. Comparing Votes and Seats in the North Carolina Senate, 2012-2020

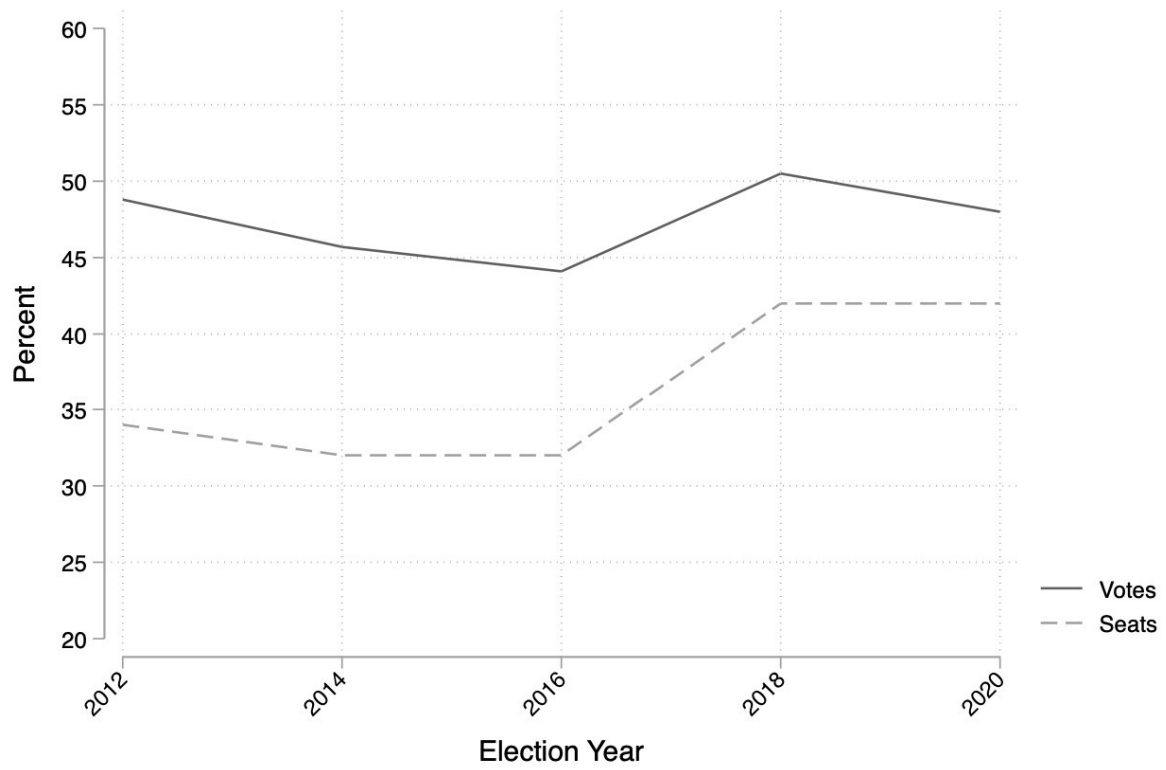
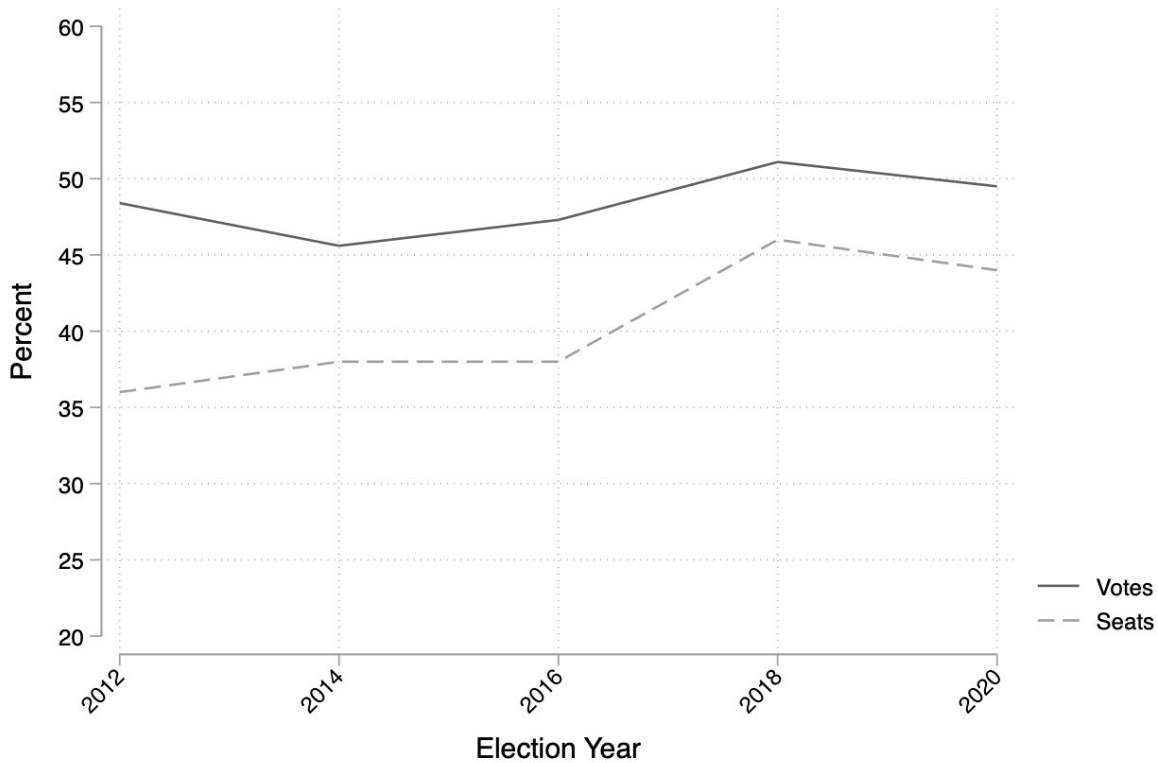


Figure 7. Comparing Votes and Seats in the North Carolina House, 2012-2020



Policy Outcomes

While North Carolina’s statewide electoral outcomes, public opinion estimates, and party registration data all suggest a state that falls near the middle of the ideological and partisan spectrum in terms of citizen policy preferences, the partisanship of North Carolina’s congressional and General Assembly delegations run counter to these measures. Further, available evidence suggests that the policy behavior and ideology of state legislators and members of Congress in North Carolina are at odds with statewide measures of two-party competition and ideological moderation. Estimates of voting patterns at the General Assembly¹⁷ and congressional¹⁸ levels reinforce that both delegations have moved in an increasingly conservative direction, while the aggregate public opinion of the citizenry has remained relatively constant. *See* figures 8 and 9 below.

¹⁷ Data are from Schor, Boris, and Nolan McCarty. 2020. American Legislatures Project, *available at* <https://americanlegislatures.com>.

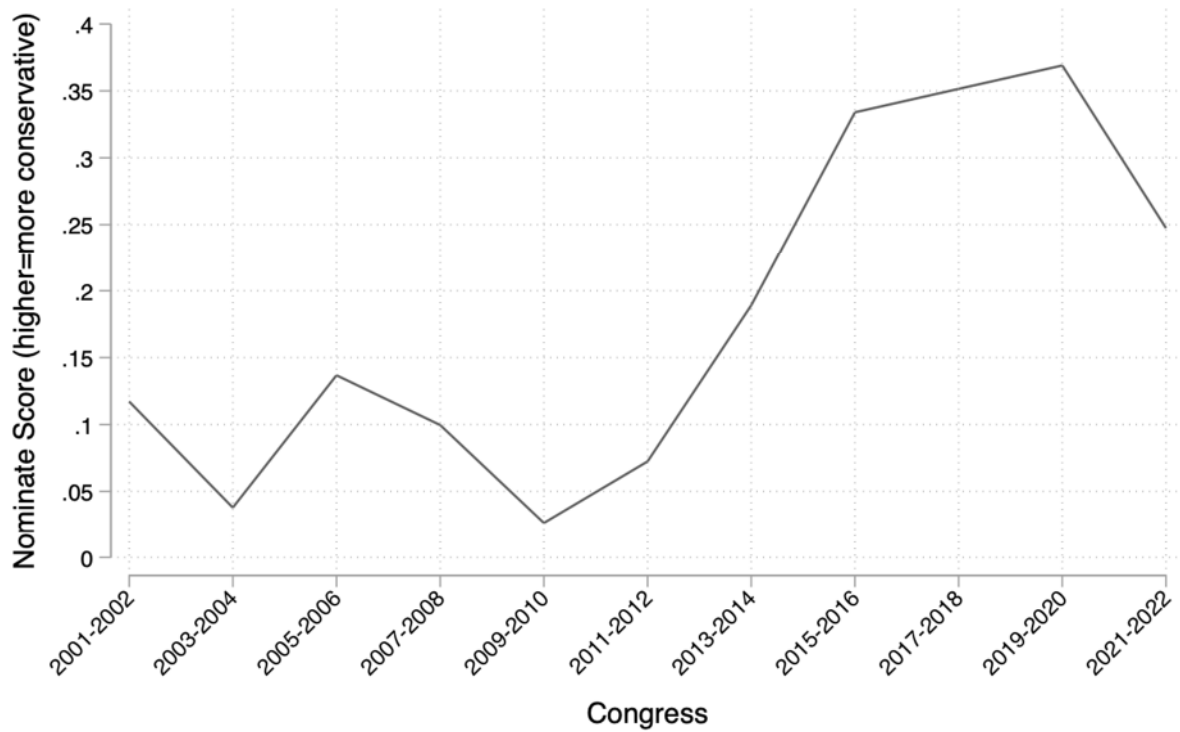
¹⁸ Lewis, Jeffrey B., Keith Poole, Howard Rosenthal, Adam Boche, Aaron Rudkin, and Luke Sonnet (2021). *Voterview: Congressional Roll-Call Votes Database*. <https://voteview.com/>.

Figure 8. Chamber Estimates of North Carolina General Assembly Ideology, 1995-2018



Source: American Legislatures Project (Schor and McCarty 2020)

Figure 9. Nominate scores of North Carolina’s congressional delegation, 2001-2002 Congress through 2021-2022 Congress



Source: Lewis et al. (2021)

In a forthcoming book, Political Scientist Jacob Grumbach finds that North Carolina experienced significant democratic backsliding in recent years—“among the most democratic states in the year 2000, but by 2018, they are close to the bottom.”¹⁹ It is important to note that Grumbach’s measure is one of “small d” democratic backsliding—he does not measure partisanship, but rather a state’s propensity to adhere to basic norms of democracy.

Taken together, these complementary measures of North Carolina voters’ behaviors, ideological preferences, and partisanship indicate that North Carolina is a politically moderate state that enjoys two-party competition for the vast majority of elected offices. Beginning in 2011, however, North Carolina’s congressional and General Assembly delegations have run counter to this trend, both in terms of partisanship and expressed policy preferences.

¹⁹ Grumbach, Jacob M., “Laboratories of Democratic Backsliding,” (Unpublished Manuscript: University of Washington, 2021), available at <https://sites.google.com/view/jakegrumbach/working-papers>. See a graph focusing on North Carolina’s democratic backsliding on pg. 13. Insights from this manuscript are forthcoming in *Laboratories Against Democracy*, Princeton University Press (<https://press.princeton.edu/books/hardcover/9780691218458/laboratories-against-democracy>).

District Analysis

The remainder of this report is devoted to examinations of specific districts (in the case of Congress) and county “clusters” (in the case of the General Assembly). In the text that follows, I refer to the “current” maps as the maps that were used in the 2020 election and the “enacted” maps as the maps that have been approved by the North Carolina General Assembly for use in the 2022 elections. While I conducted all of the analysis that follows and wrote all of the verbiage, the shaded red-and-blue maps were produced by John Holden, a geographic information system (GIS) expert, using a “CCSC” measure of partisanship that I selected and describe below. Mr. Holden also produced the other maps in the following pages that show the effect of the district lines on certain municipalities.

I use a few different metrics in the analysis that follows. The first is the Cook Political Report’s Partisan Voter Index (PVI), a standard metric of the expected “lean” of a congressional district using a composite of past elections. The second is the Civitas Political Index (CPI), a measure of partisan district lean for state legislative districts derived from prior Council of State votes. The CPI places each district on a scale from D+1 (a district that has a slight Democratic tilt) to D+36 (a district with an overwhelming Democratic tilt), with mirrored results on the Republican side indicated with an “R” instead of a “D.” The third is a metric created for this analysis that combines the results of the 2020 Secretary of Labor and Attorney General races, the two closest Council of State races in North Carolina that year, into one measure, which I term the Competitive Council of State Composite (CCSC).²⁰ This measure allows for the use of relatively low-profile elections to get a sense of the “true partisanship” of the district. It is presented below as the raw difference in votes and is used in the shaded red-and-blue maps that follow. From time to time, I mention the percent of the electorate that voted for Donald Trump in the 2020 election to give yet another sense of the partisan lean of the district, county, or cluster.

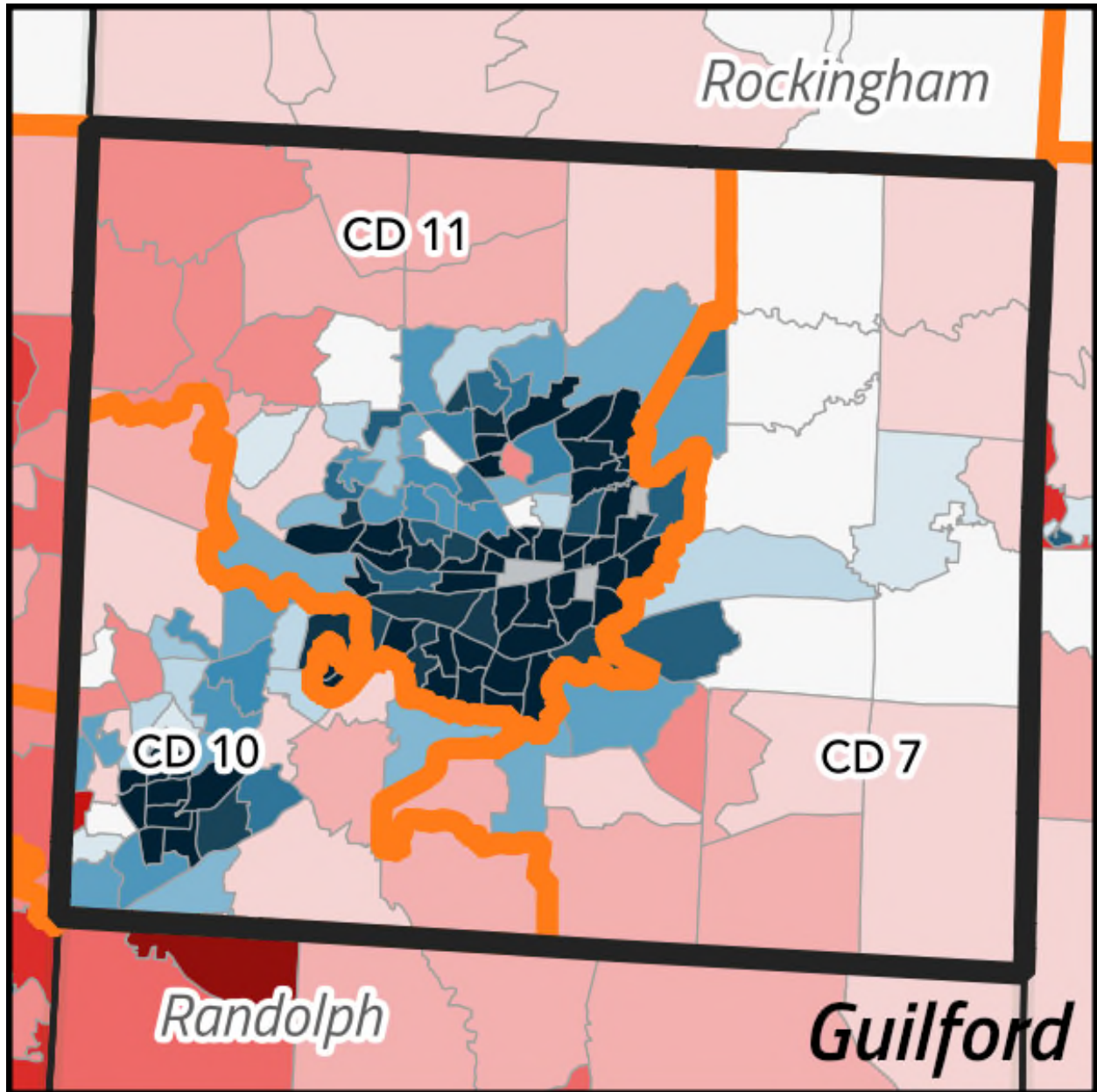
Congressional District Analysis

I begin by showing shaded red-and-blue maps demonstrating the trisection of Wake County, Mecklenburg County, and Guilford County by the congressional district lines (maps 1, 2, and 3 below). These maps show county lines in black, VTD lines in gray, and district lines in orange. The red-and-blue shading represents the relative vote margin using my CCSC—the composite results of the Secretary of Labor and Attorney General races in 2020—in each VTD, with darker blue shading representing larger Democratic vote margins and darker red shading indicating larger Republican vote margins (both normalized by acreage).

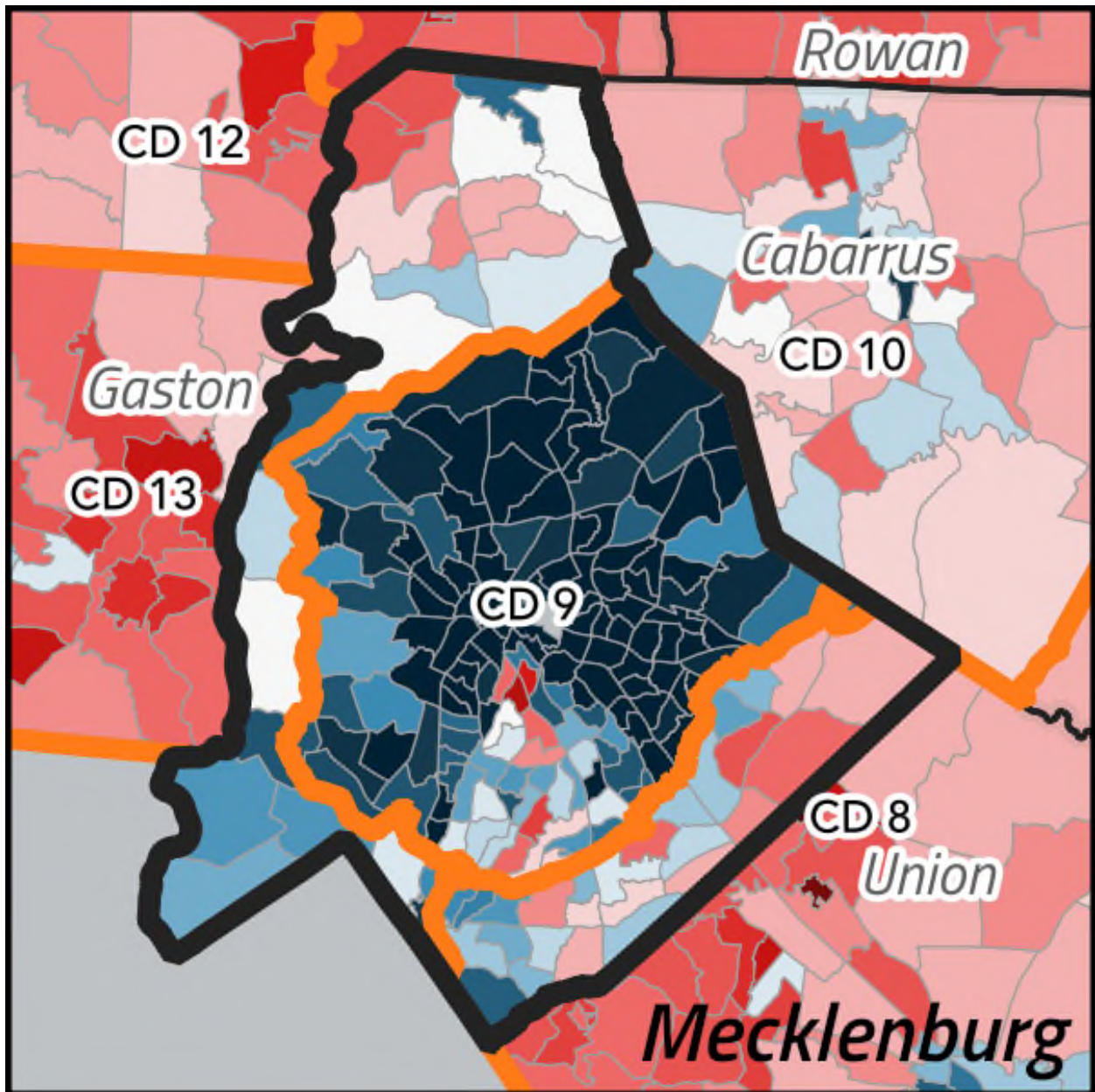
While district-by-district analysis is important, the congressional map is best understood as a single organism, rather than 14 separate entities—as one district moves in one direction, another must respond. This means that the unnecessary division of Mecklenburg, Guilford, and Wake counties across multiple congressional districts, achieved by the cracking and packing of Democratic voters in those counties, has ripple effects throughout the map. Map 4 shows the entirety of the congressional map with red-and-blue CCSC shading.

²⁰ The election data utilized for the CCSC metric, including to generate the red-and-blue shading on the maps that follow, was obtained from the North Carolina State Board of Elections website. See <https://www.ncsbe.gov/results-data/election-results/historical-election-results-data>.

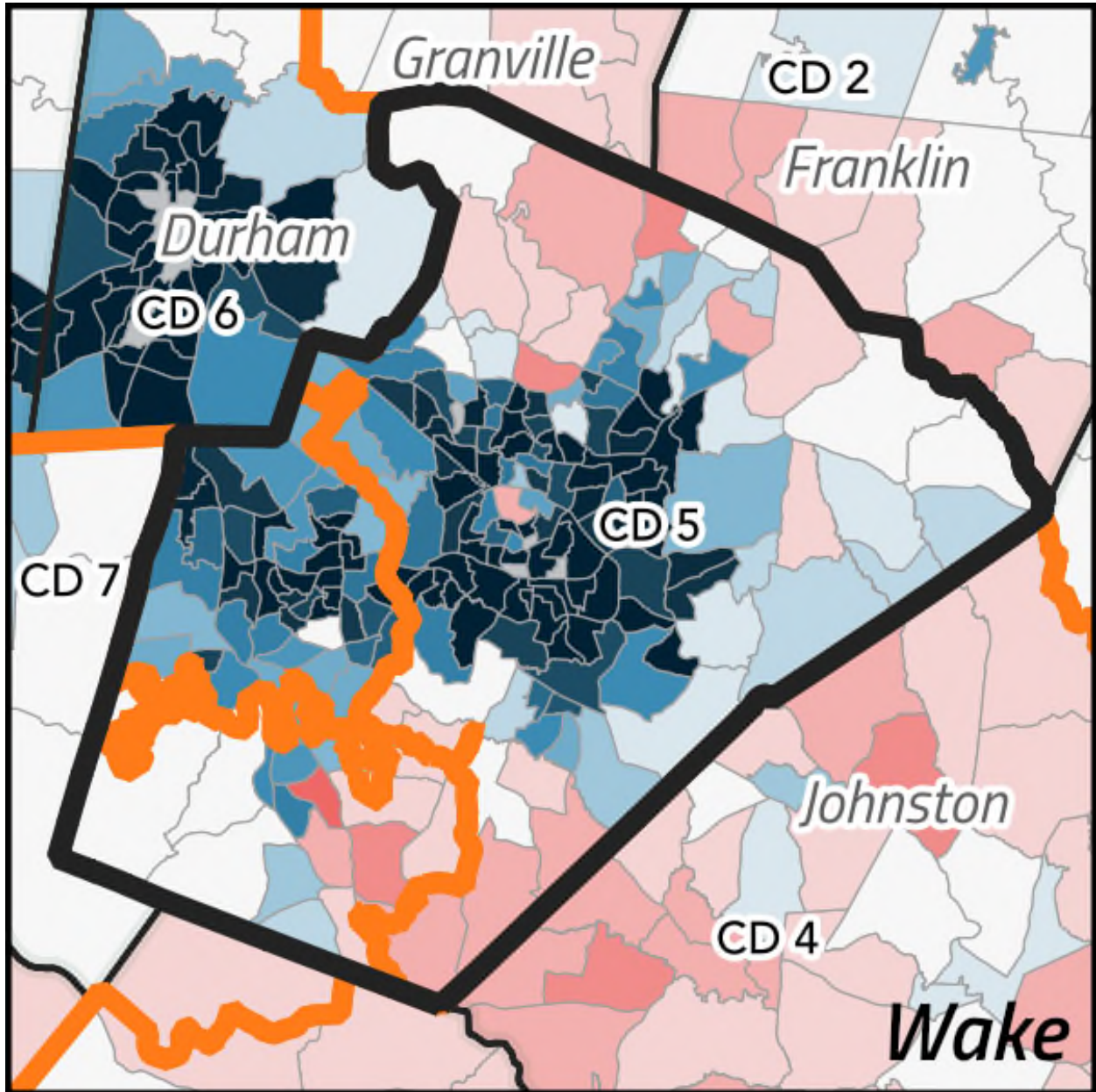
Map 1. Close-up of Guilford County VTD CCSC, split across three districts



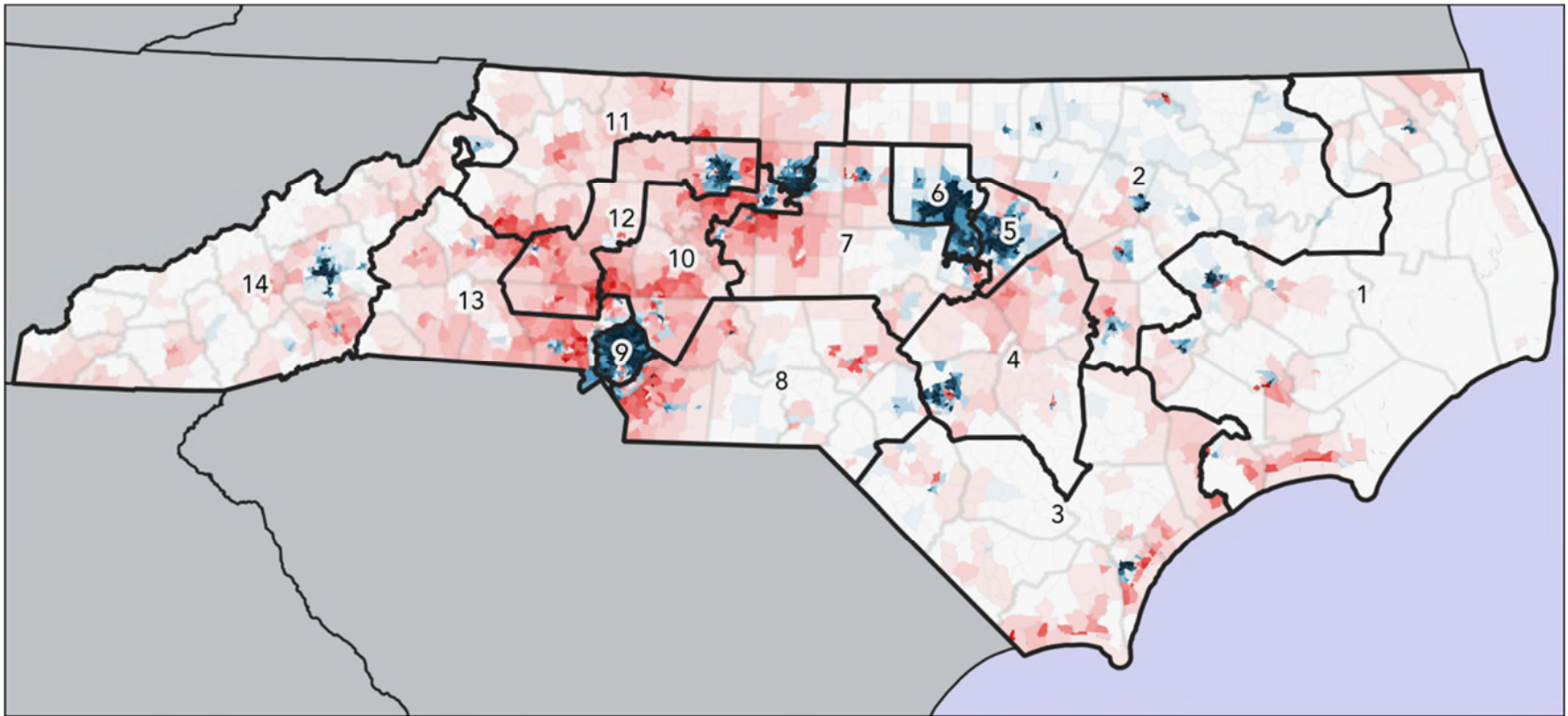
Map 2. Close-up of Mecklenburg County VTD CCSC, split across three districts



Map 3. Close-up of Wake County VTD CCSC, split across three districts



Map 4. Statewide overview of the enacted congressional map



As the table below shows, the PVI, CCSC, and Trump Percentage all tell a similar story: the enacted map will produce 10 Republican seats, 3 Democratic seats, and 1 competitive seat. At most, the enacted map could be expected to elect four Democrats to office in 2022—fewer than in the current map and far below what one would expect based on Democratic representation statewide or the results of other recent statewide elections.

Table 1. Summary Data for Each Enacted Congressional District

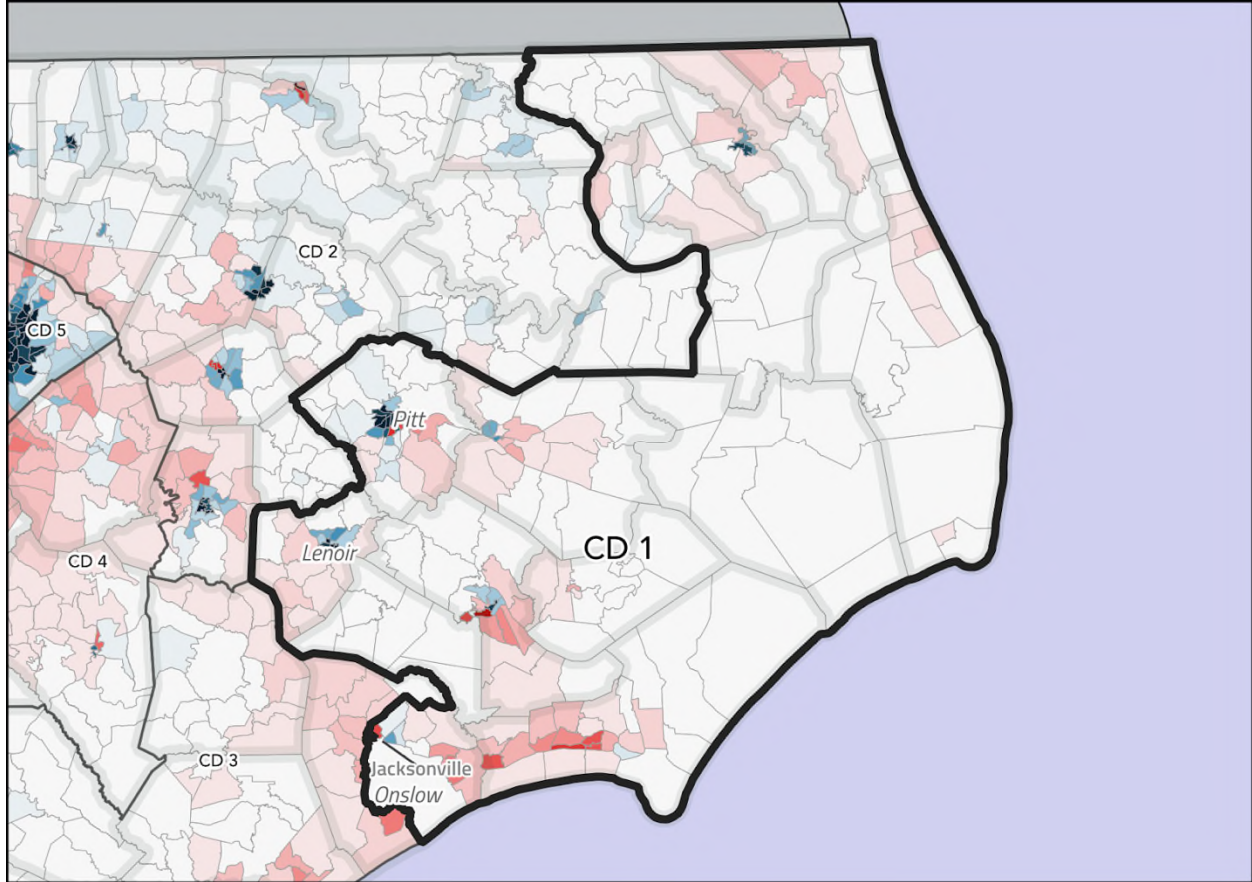
District	PVI	CCSC	Trump Perc
1	R+10	R +98,969	57%
2	Even	D +40,396	48%
3	R+10	R +111,451	58%
4	R+5	R +28,045	53%
5	D+12	D +227,327	34%
6	D+22	D +374,786	25%
7	R+11	R +115,682	57%
8	R+11	R +125,842	57%
9	D+23	D +325,717	25%
10	R+14	R +156,833	60%
11	R+9	R +94,407	57%
12	R+9	R +102,404	56%
13	R+13	R +150,187	60%
14	R+7	R +58,387	53%

NC-1

The enacted 1st congressional district is mostly comprised of the current NC-3, but also includes part of the current NC-1. Most potential congressional districts in this part of North Carolina would likely lean towards the Republican Party, but to create extra advantage for the Republican Party in other parts of the map, the current map brings the Democratic-leaning areas of Pitt County into NC-1, thus removing them from NC-2 and allowing NC-2 to become much more competitive for the Republican Party.

Despite moving the district line westward to include the Democratic portion of Pitt County, the enacted district remains virtually a guaranteed Republican victory with a PVI of R+10 (the current NC-3 is R+14). No Democratic member of Congress in the country represents a district that leans this far towards the Republican Party.

Map 5. VTD CCSC for NC-1



NC-2

The enacted 2nd congressional district includes the core of the current NC-1, along with portions of the current NC-4 and NC-13. The area that largely comprises the new NC-2 is currently represented by Democrat G.K. Butterfield and is considered a D+12 district by the Cook Political Report, making it a safe Democratic seat. Butterfield has the longest uninterrupted tenure of any member of North Carolina’s congressional delegation. Under the enacted map, however, Butterfield’s district changes radically, loses many of its Democratic strongholds (including the aforementioned loss of the Democratic areas in Pitt County) and now picks up enough Republican voters to move the district to “even,” according to the Cook Political Report. For example, NC-2 picks up Caswell County, which does not include a single Democratic-leaning VTD, according to the 2020 Attorney General/Secretary of Labor CCSC in the map shown below. The 2020 Presidential vote share and CCSC score reinforce that this is an extremely competitive district. This is an enormous shift for what was formerly a Democratic stronghold.

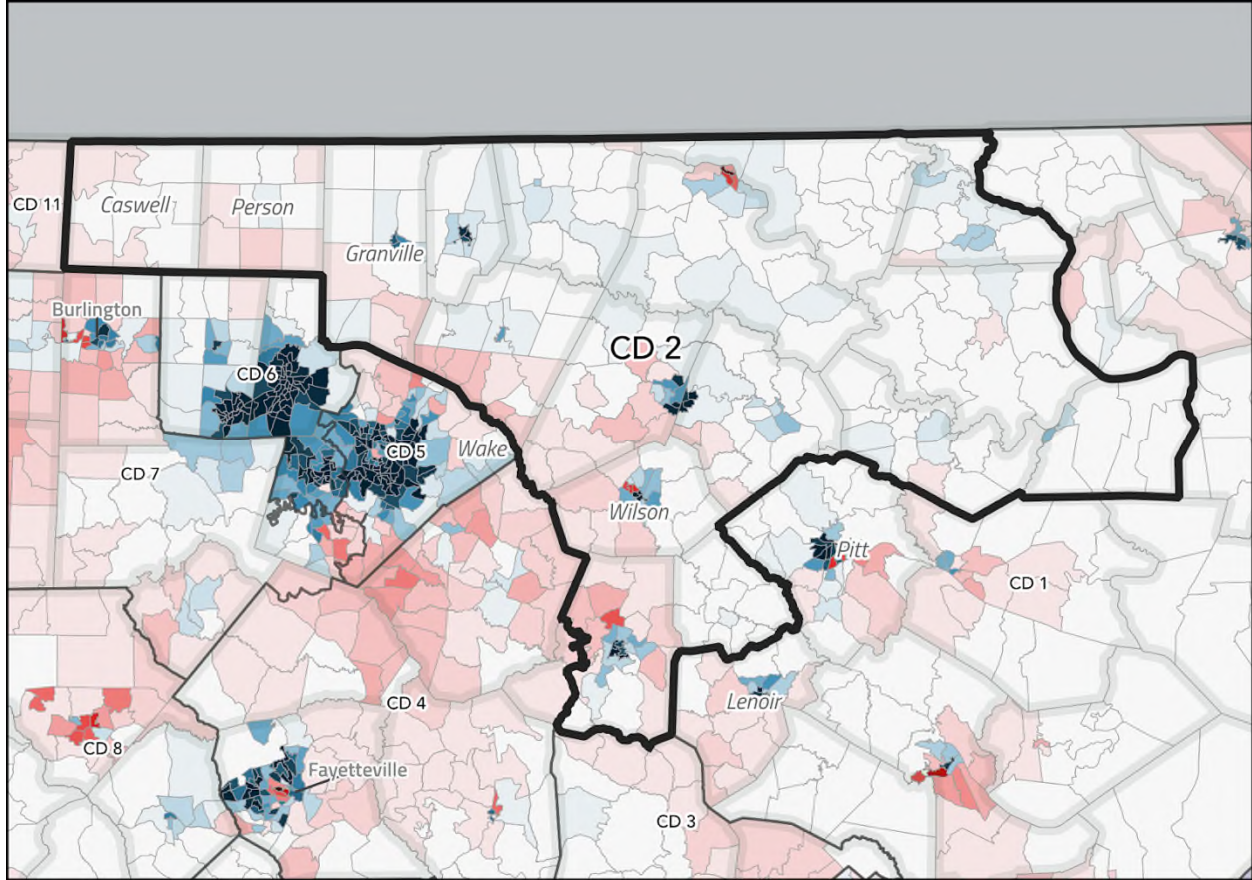
In addition to producing a clear partisan shift, the district is difficult to understand from a communities of interest perspective. The enacted district no longer includes any of Pitt County, nor does it include the campus of East Carolina University, which provided much of the economic engine of the district. The district now stretches from the Albemarle Sound to the Raleigh-Durham-Chapel Hill metropolitan area and eventually terminates in Caswell County, just northeast of Greensboro. Notably, Washington County and Caswell County have never been paired together in a congressional map in the history of North Carolina, further illustrating how little these counties have in common.

At a micro-level, the changes will split communities in important ways. For example, the cut-out in Wayne County, just west of Goldsboro, splits the students and families in Westwood Elementary School (which is located in NC-2) into two separate districts (NC-2 and NC-4). At one point, NC-2 passes through a narrow cut-off between the Neuse River to Old Smithfield Road that is less than one-third of a mile wide.

After the maps were enacted, G.K. Butterfield announced that he will not seek re-election,²¹ making the district even more likely to shift to the Republican Party. If the Republicans take over this seat, it will be the first time that this part of North Carolina has been represented by a Republican since the late 19th Century.

²¹ Bryan Anderson, “Democrat Rep. Butterfield to Retire, New District is a Toss-Up,” *Associate Press News*, available at <https://apnews.com/article/elections-voting-north-carolina-voting-rights-redistricting-e221c0732f457b2273f54ef102424eca>.

Map 6. VTD CCSC for NC-2



NC-3

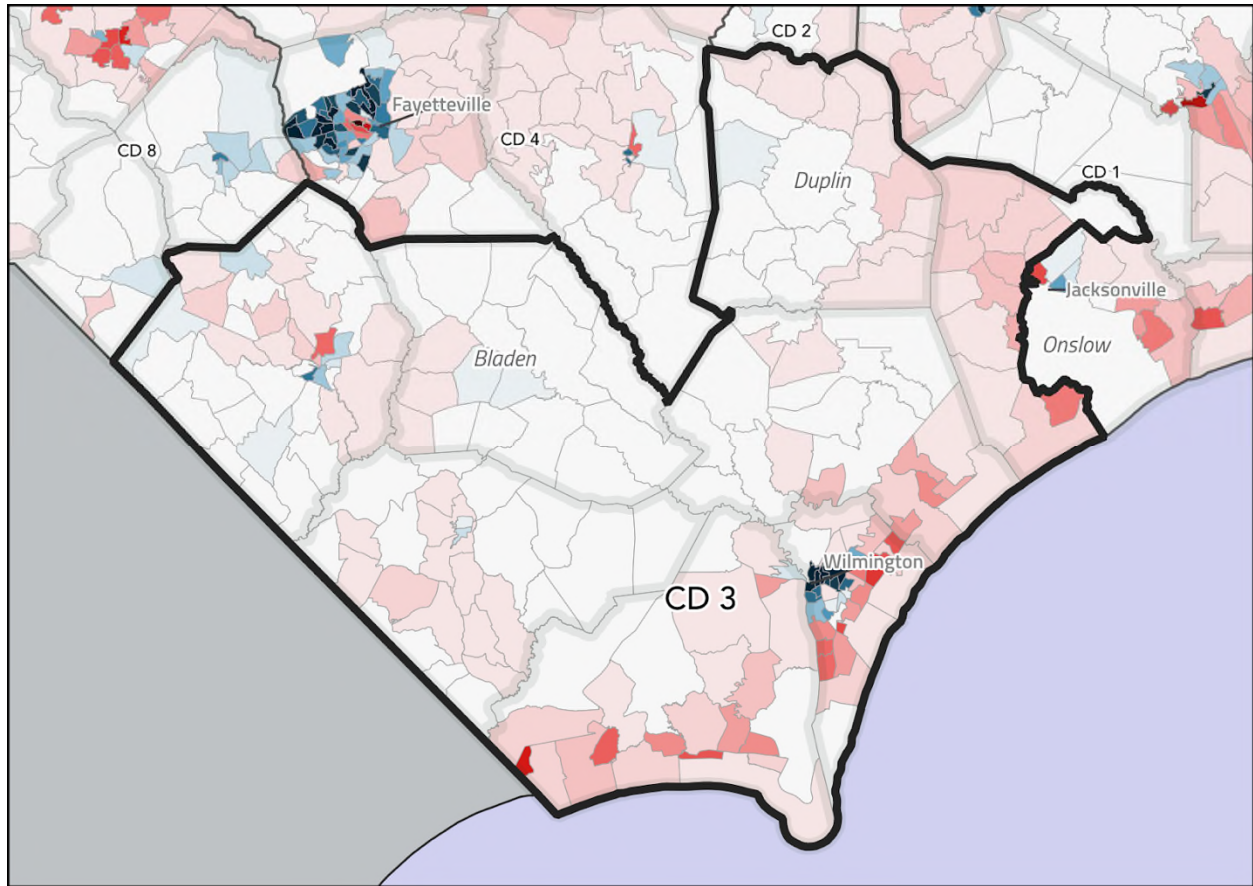
The enacted 3rd congressional district is mostly carved out of the current 7th congressional district, but also includes portions of the current 3rd and 9th districts. The current 7th district is considered R+11 by the Cook Political Report.

As enacted, this district once again denies North Carolina’s Sandhills a consistent district of their own, despite repeated calls during the redistricting process,²² and instead places portions of the Sandhills with the coastal enclave in and around Wilmington. The enacted map also creates an odd appendage in Onslow County that, as described in the section on NC-1, makes little sense from a communities of interest perspective.

The enacted district will almost certainly elect a Republican. It is slightly less Republican than the current NC-7 but still is considered R+10 by the Cook Political Report. It favored the Republicans by over 110,000 votes in the 2020 Attorney General/Secretary of Labor CCSC, and Donald Trump won the district with 58% of the vote. It is currently represented by Republican David Rouzer and is expected to remain in Republican hands.

²² See, e.g., Dreilinger, Danielle, “1 woman, 1 North Carolina address, 5 congressional districts. As North Carolina prepares to add a 14th congressional seat, Sandhills residents asked: why can’t it be theirs? *Fayetteville Observer*. November 5, 2021.

Map 7. VTD CCSC for NC-3



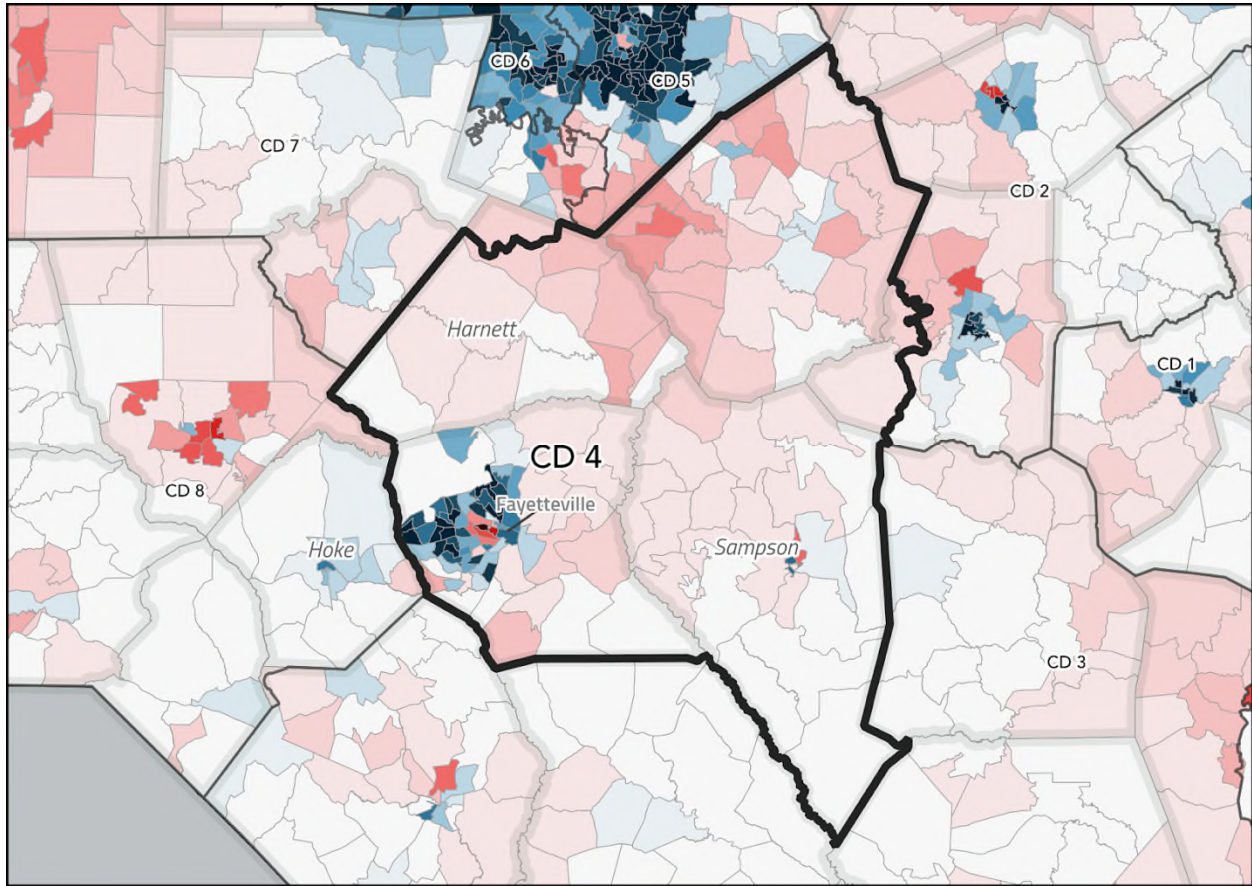
NC-4

The enacted 4th congressional district is carved out of a pocket of North Carolina that includes Johnston County and a portion of Harnett County, both of which are adjacent to Wake County, as well as portions of the Sandhills. The district is pieced together out of leftover portions from current districts 7 and 8, which were R+11 and R+6, respectively. It combines the Democratic-leaning area of Fayetteville with those areas to create a Republican-leaning district.

In addition to the carve out of Republican-leaning VTDs in Wayne County referenced above, this district takes a series of confusing jogs in the northwest part of Harnett County. A citizen driving southwest on Cokesbury Road would begin in NC-7, then rest on the line between NC-7 and NC-4, then into NC-4, then back on the line between the two, just before Cokesbury turns into Kipling Road whereupon the driver would move back into NC-4.

This district, which has no incumbent, is considered an R+5 district by the Cook Political Report, gave 53% of its vote share to Donald Trump in 2020, and gave an advantage to Republicans of about 28,000 votes in the 2020 Attorney General/Secretary of Labor CCSC.

Map 8. VTD CCSC for NC-4

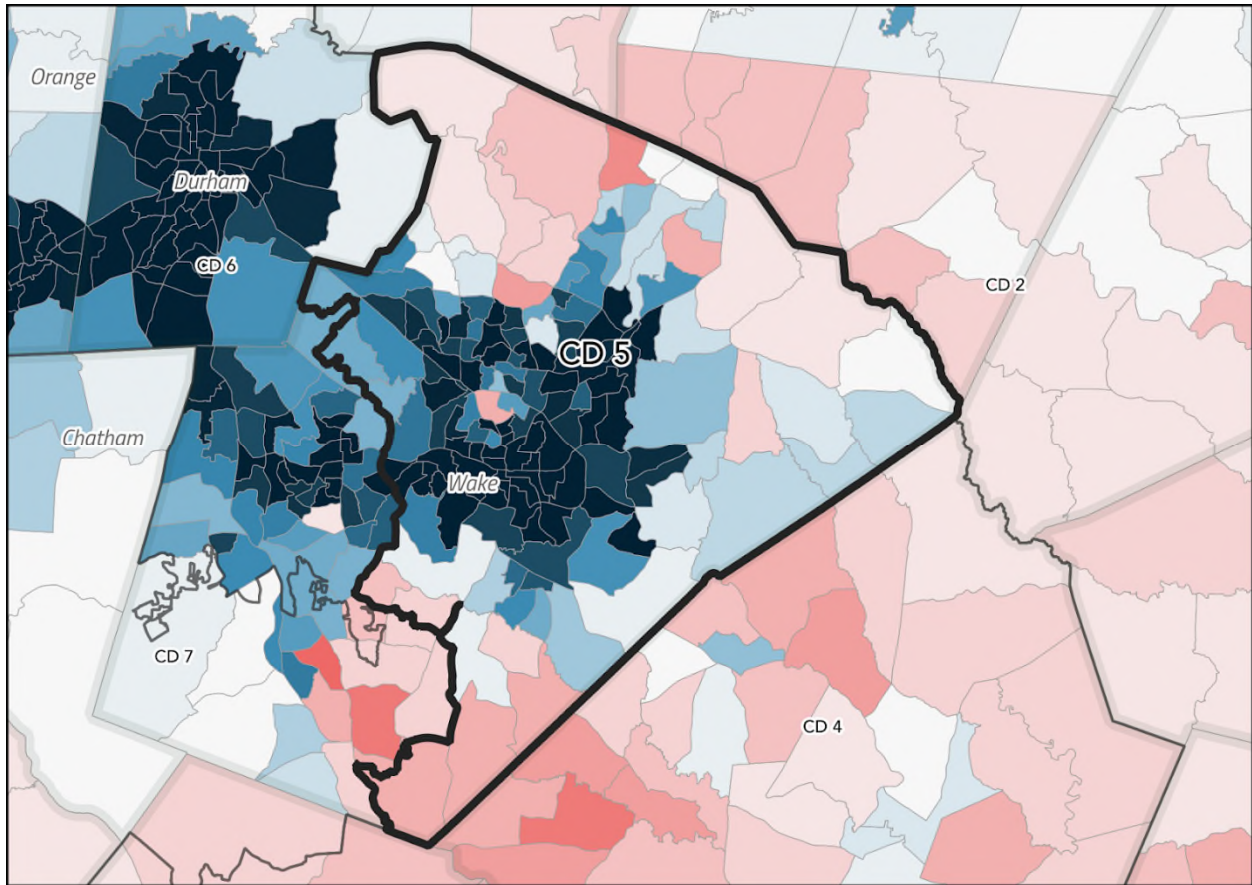


NC-5

The enacted map cracks Democrats in Wake County into three districts (NC-5, NC-6, and NC-7). Unlike NC-6 and NC-7, NC-5 is situated completely within Wake County and is made up of portions of current NC-2 and NC-4, districts that were D+12 and D+16. The effects of this are to pack Democratic voters into one district, thus increasing the probability that Republicans can win at least one of the adjacent districts. The enacted district is rated by the Cook Political Report as D+12, the CCSC shows a Democratic advantage of over 227,000 votes, and Donald Trump won just 34% of the vote.

This map clearly splits communities of interest. In one particularly egregious example, a small vein runs up Fayetteville Road by McCullers Crossroads in Fuquay-Varina, where the vein itself is in NC-7 and the areas on either side of it are in NC-5.

Map 9. VTD CCSC for NC-5

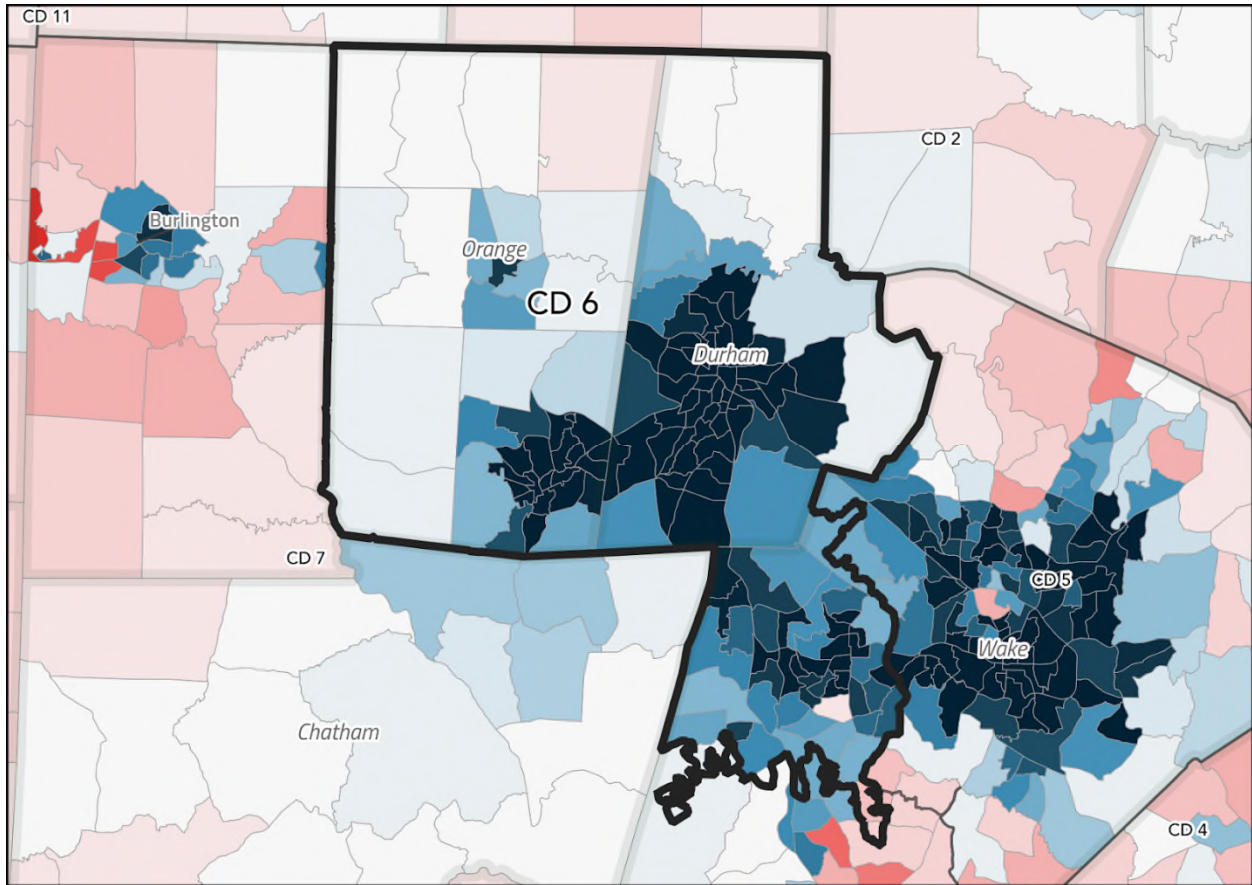


NC-6

The 6th district packs all of Orange and Durham counties and part of Wake County together into one overwhelmingly Democratic district, which is created out of portions of the current NC-4 and NC-2 (D+16 and D+12, respectively). As the map below demonstrates, the enacted NC-6 only includes four marginally Republican VTDs, according to the 2020 Attorney General/Secretary of Labor CCSC. Cook Political Report estimates this to be a D+22 district, Democrats had more than a 374,000 vote advantage in the CCSC and Donald Trump won only 25% of the vote in 2020. This district packs a greater proportion of Democratic voters in a single district than any district from the previous map. This district, like NC-5, includes Wake County, which is divided across three districts in the enacted map. The packing of Democrats in this district enables adjacent districts, in particular NC-7, to be drawn in ways that make it easier for Republican candidates to win.

The contours of this district bordering NC-7, on the southern end, split communities of interest in almost comical ways. In one example, a person traveling south on New Hill Olive Chapel Road would, in a matter of a few miles, move from NC-7 to the line between NC-6 and NC-7, back into NC-7, through NC-6, back into NC-7, back to the border between the two, back into NC-7, back to the border between the two, then back into NC-7. The contours of these lines are confusing to voters, and, as the map demonstrates, serve to pack as many Democratic precincts as possible into NC-6.

Map 10. VTD CCSC for NC-6

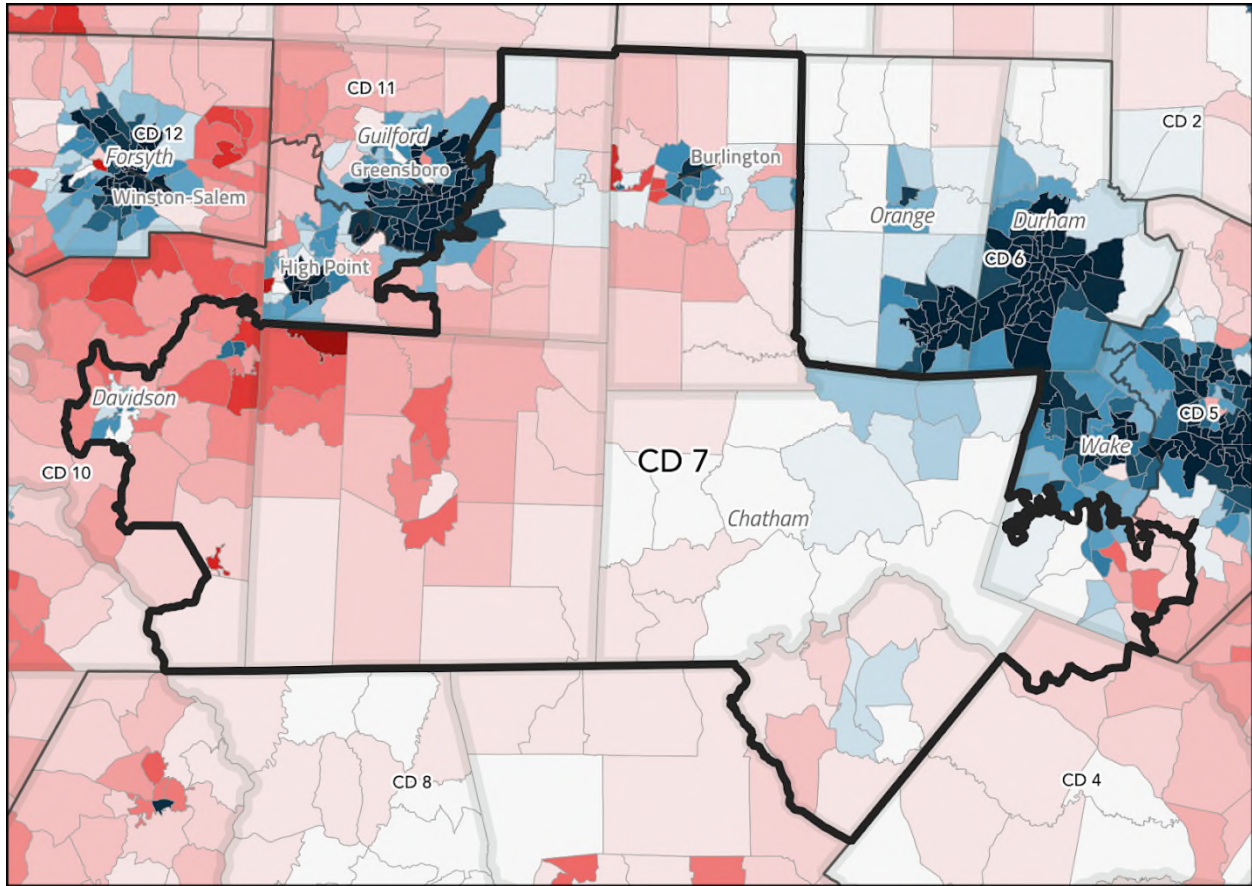


NC-7

The enacted 7th district includes the Republican-leaning Randolph, Alamance, Chatham, and Lee counties as well as portions of Guilford, Wake, and Davidson counties. It is carved out of current districts 13, 6, 4, and 2. As it is drawn, NC-7 splits both Guilford and Wake counties (each of which is divided three times in the map as a whole). Despite including portions of two of the most Democratic counties in North Carolina, the district studiously avoids the Democratic-leaning areas of both counties. The eastern portion of the district in Wake County, near Apex, takes the unusual and confusing contours described in the description of NC-6 above.

The enacted NC-7 is considered R + 11 by the Cook Political Report, it gave Republicans a 115,682 vote advantage in the CCSC, and Donald Trump won 57% of the vote in this district. A Democratic candidate has virtually no chance of victory in the enacted 7th.

Map 11. VTD CCSC for NC-7

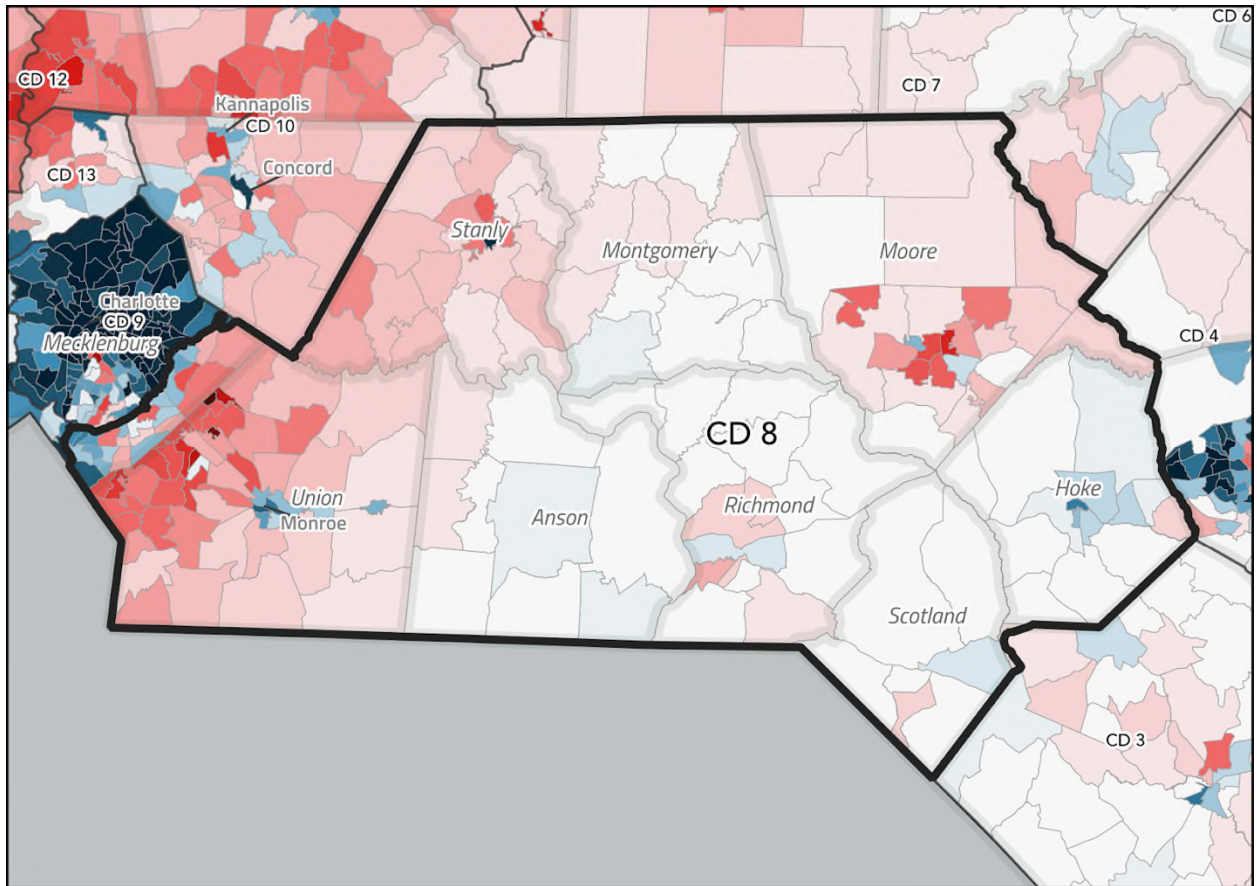


NC-8

The 8th district stretches from the Sandhills into Mecklenburg County and includes portions of the current 9th, 12th, and 8th districts. The core of the district comes from the current 9th district, which is R+6. The enacted NC-8 includes the entirety of Scotland, Hoke, Moore, Montgomery, Richmond, Anson, Union, and Stanley counties as well as the southern and eastern edge of Mecklenburg County. Although it includes portions of Mecklenburg County, one of the most Democratic-leaning areas in the state, as well as Democratic municipalities in Union, Anson, and Hoke, the 8th district is unlikely to elect a Democrat under any reasonable scenario. The enacted map stops just shy of the some of the darkest blue VTDs in Mecklenburg County.

The Cook Political Report calls the enacted NC-8 an R+11 district, the CCSC shows that the Republican candidate garnered over 115,000 more votes than the Democratic candidates for the two closest Council of State races, and Donald Trump won approximately 57% of the vote in the 2020 election.

Map 12. VTD CCSC for NC-8



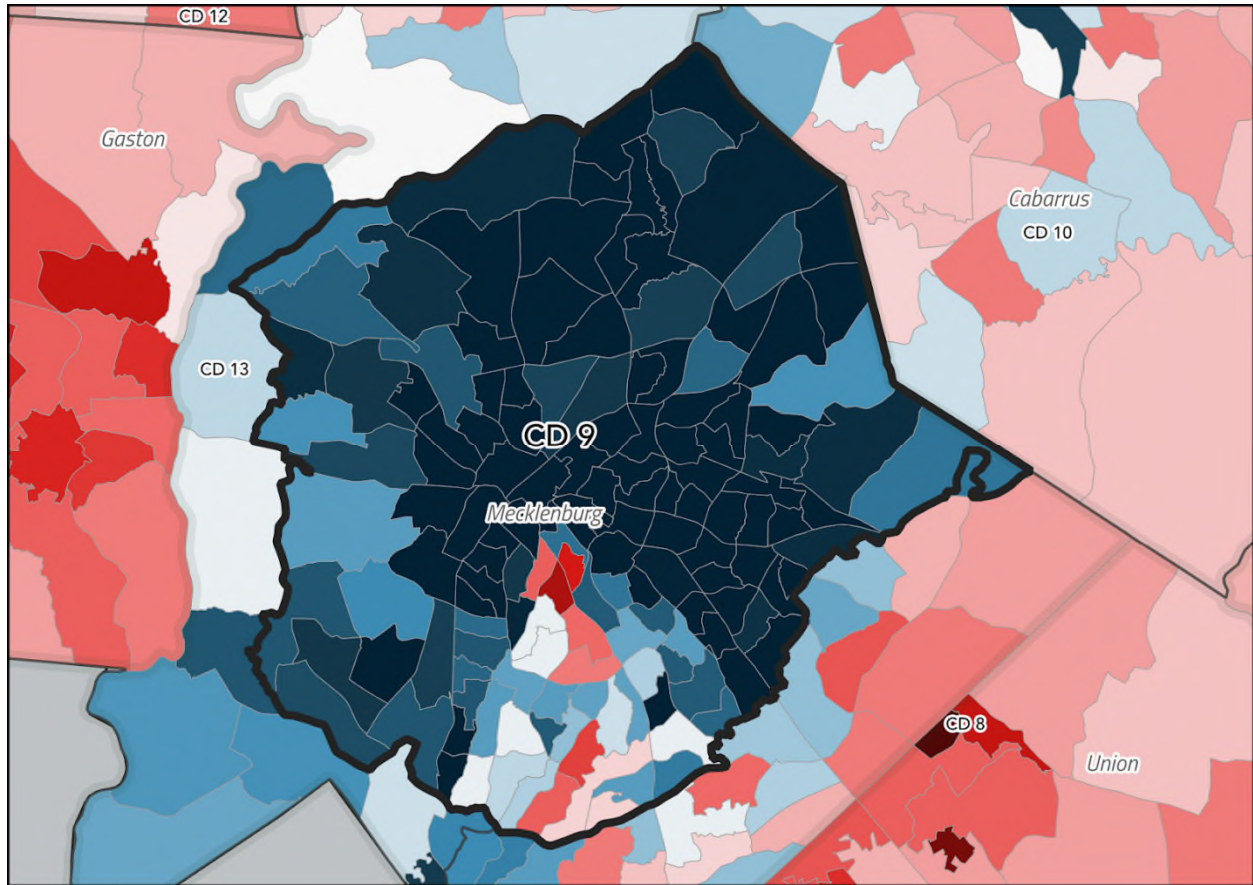
NC-9

The core of the enacted 9th congressional district comes from the current NC-12, but it also includes portions of the current NC-9. The result is the most packed district in the enacted map. The Cook Political Report rates the enacted NC-9 as a D+23 district, meaning that it leans more heavily towards the Democratic Party than any district in the last map. Donald Trump won just 25% of the vote in this district in the 2020 Presidential election and the CCSC indicates that the Democrats won over 325,000 more votes than the Republicans in the two closest Council of State races in 2020.

As with all examples of packing, the key to understanding this district is its effects on the surrounding districts. By ensuring that the Democratic candidate in NC-9 wins by an overwhelming margin, Republican voters will be more efficiently distributed across other districts, where they can have a greater affect on the outcome than they would otherwise. This ensures that neighboring NC-8, for example, will not be competitive. This also has the effect of ensuring that Republican voters in NC-9 have no chance of securing representation from a member of their own party.

The geographic contortions of this district are most apparent on its western edge, where a mere eight miles separates the western edge of NC-9 and the Mecklenburg County line.

Map 13. VTD CCSC for NC-9

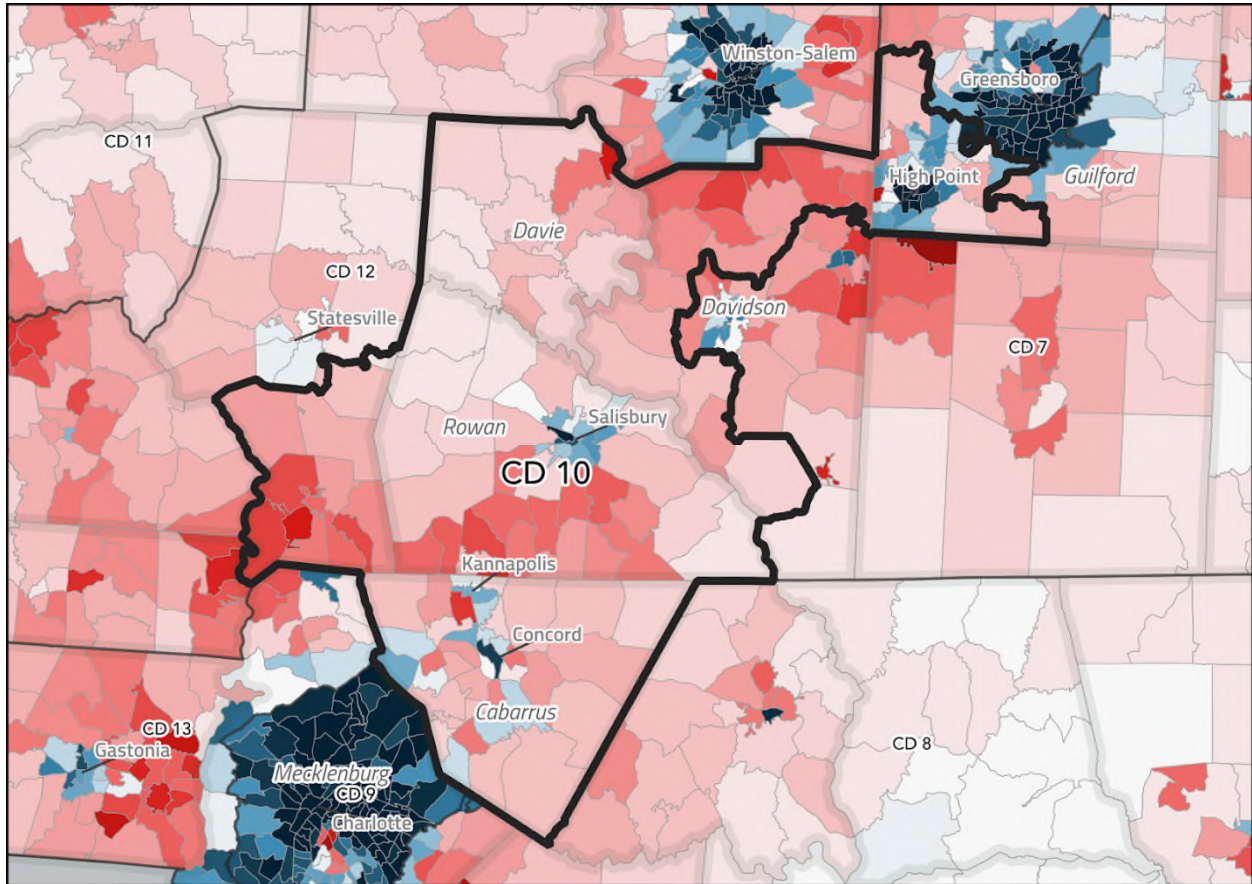


NC-10

The enacted NC-10 includes all of Rowan, Cabarrus, and Davie counties and parts of Iredell, Davidson, and Guilford counties. It is drawn out of portions of the current 10th, 9th, 6th, and 13th districts. Despite the inclusion of carefully curated portions of Democratic Guilford County, this district is a safe Republican seat and effectively removes any possibility that Democratic voters in High Point, Salisbury, Kannapolis, Concord, and elsewhere in Cabarrus can elect a member of their own political party. The Cook Political Report rates this district as R+14, the CCSC indicates that Republicans won more than 156,000 additional votes in the two key council of state races, and Donald Trump won over 60% of the Presidential vote in the enacted district.

NC-10 includes High Point, while NC-11 includes most of Greensboro and NC-12 contains Winston-Salem, meaning that the enacted map splits all three points of North Carolina's Piedmont Triad into separate congressional districts that favor Republicans. In the current map, this community of interest is together in NC-6, represented by Democrat Kathy Manning.

Map 14. VTD CCSC for NC-10



NC-11

The enacted 11th congressional district is carved out of the current 5th, 10th, and 6th districts. This map places a portion of Guilford County, including the City of Greensboro, in a district with Rockingham, Stokes, Surry, Alleghany, Ashe, Wilkes, Caldwell, and Alexander counties as well as a tiny boot-shaped sliver of Watauga County.

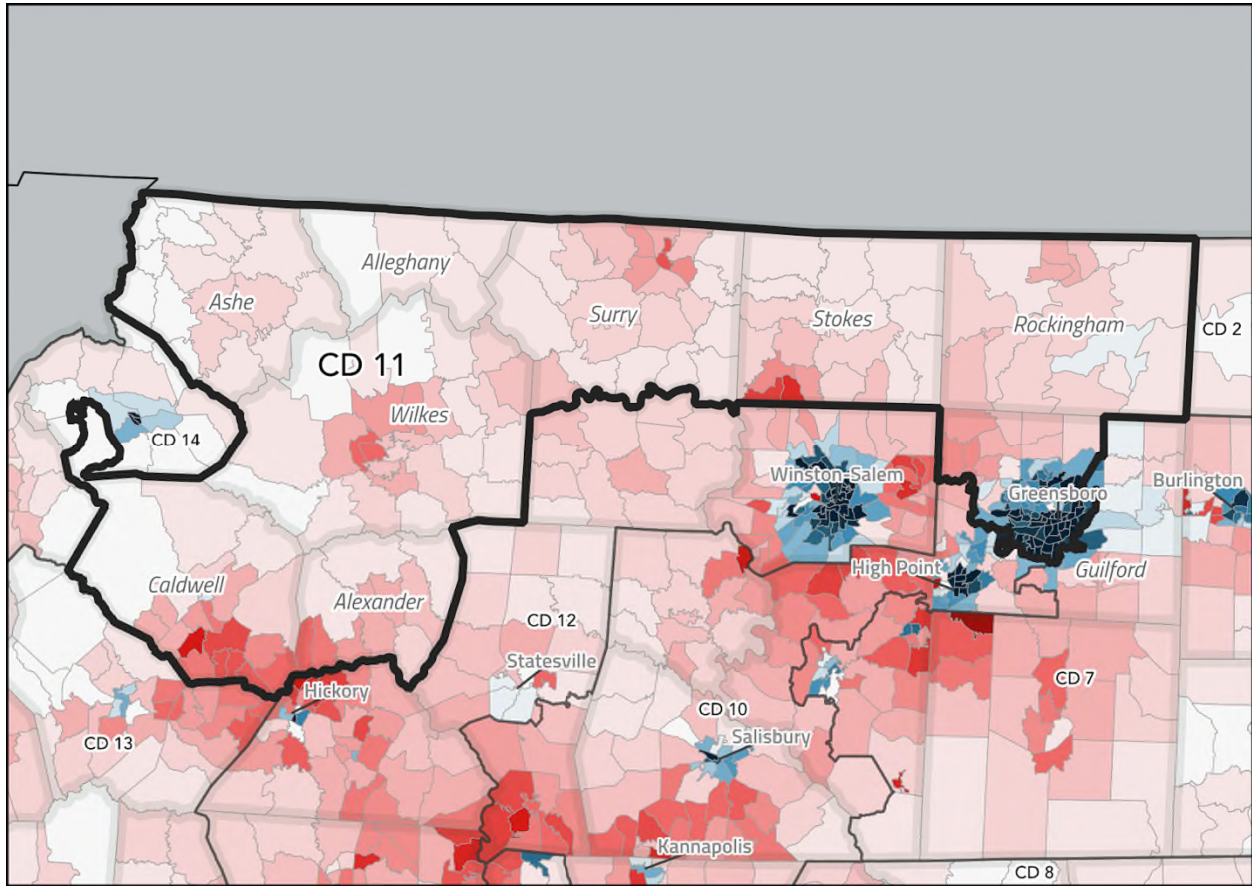
As discussed elsewhere, the enacted map splits Guilford County across three districts (the 10th, 11th, and 7th) and puts all three points of the Piedmont Triad in separate districts. By placing most of Greensboro in this overwhelmingly Republican district, the map ensures that the City of Greensboro, among the most Democratic and racially diverse cities in the state of North Carolina, will not be represented by a Democrat.

The enacted district is rated by Cook as R+9, 57% of the district voted for Donald Trump in the 2020 election, and Republicans held a 94,000 vote lead in the two closest Council of State elections. No Democrat in the current Congress represents a district that leans this heavily Republican.

It is difficult to imagine any sense in which some of the locations in this district have shared community interests. Geographically, NC-11 spans radically different parts of the state. Greensboro is firmly in the Piedmont, resting at under 900 feet elevation. Watauga and Ashe counties, by comparison, reside in the high country, with elevations that consistently run above 5,500 feet. The corners of the district have different area codes, are served by different media markets, and share virtually no characteristics in common other than the fact that they are both within North Carolina. In the history of North Carolina, Caldwell and Rockingham counties have never shared a congressional representative.

In addition to its geographic span, the enacted district stands out for its double-bunking of Republican Virginia Foxx and Democrat Kathy Manning. To shoe-horn Foxx into the new district, the mapmakers carved out a tiny sliver of Watauga County to allow her house to fall into the redrawn district. This passage is so narrow, in fact, that it is connected by a stretch of land that is roughly three miles wide and requires a traverse of the Daniel Boone Scout Trail.

Map 15. VTD CCSC for NC-11

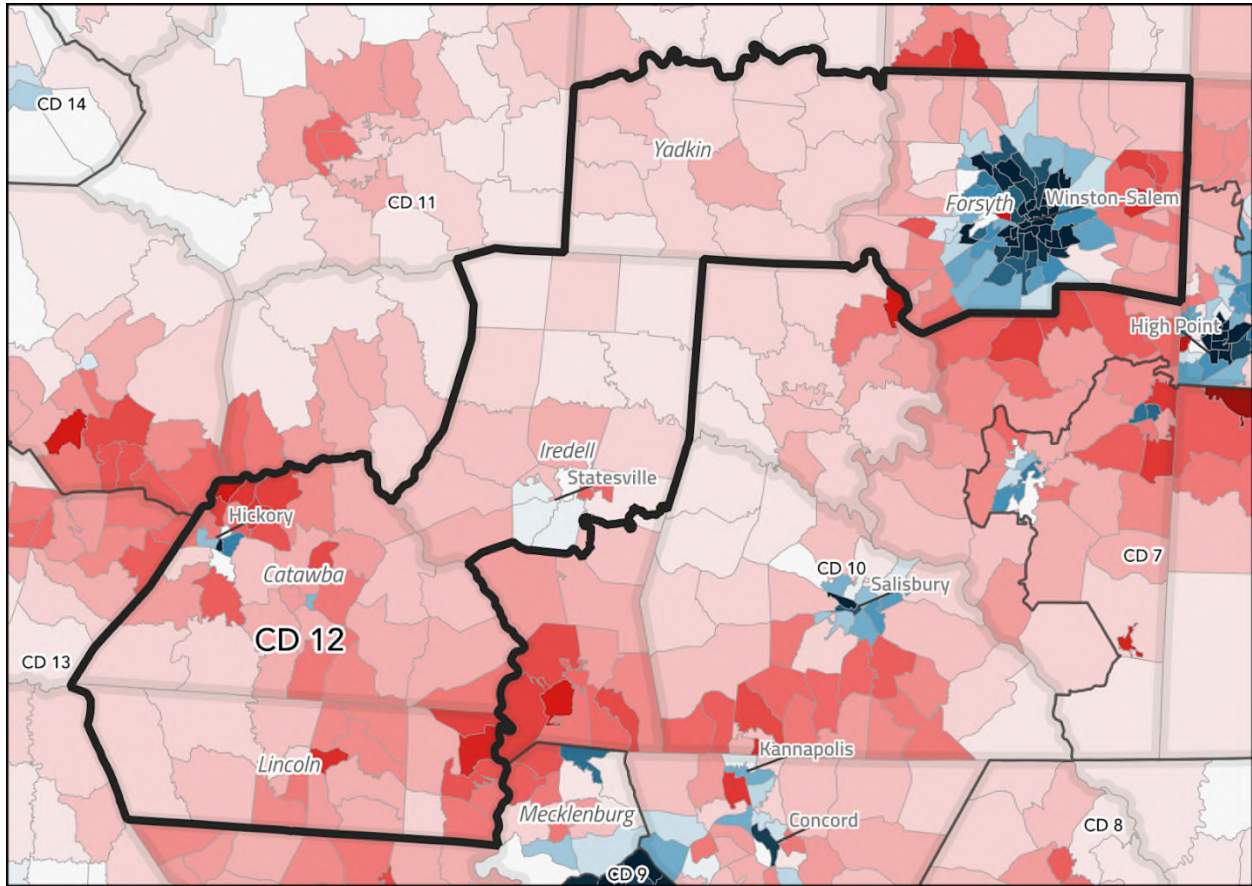


NC-12

The 12th congressional district stretches from Lincoln County at the southwestern corner, through Catawba, the northern part of Iredell, Yadkin, and Forsyth counties. As the map below makes clear, by including Winston-Salem with this overwhelmingly red swath of geography and walling it off from Democratic voters in High Point, the enacted map ensures that Republican Congressman Patrick McHenry, who lives at the southeast corner of this district, will maintain his seat and the Democratic voters in Winston-Salem will have virtually no chance to elect a member of their own party.

The Cook Political Report rates this district as R+9, Republicans had over a 100,000 vote margin in the two closest Council of State races, and Donald Trump won over 56% of the vote in this district.

Map 16. VTD CCSC for NC-12



NC-13

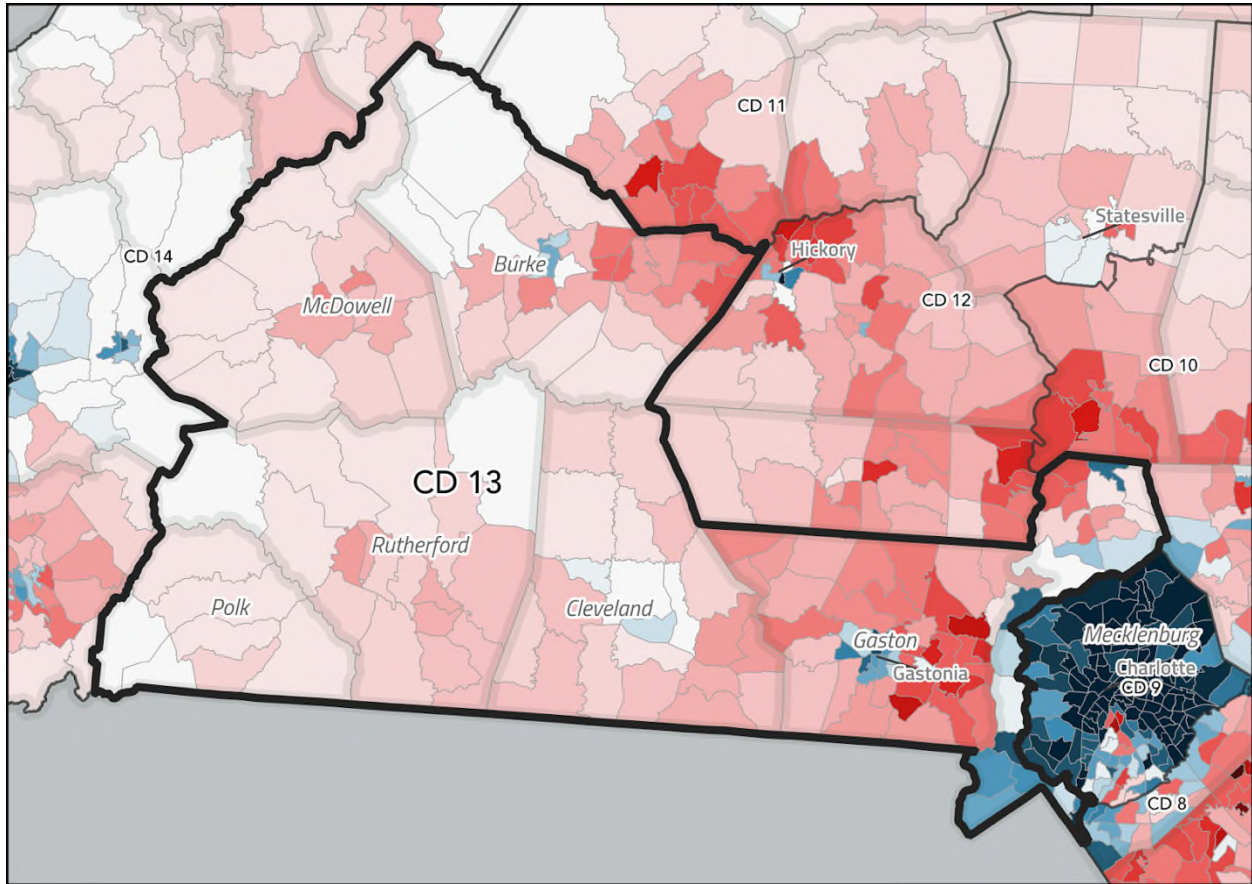
The 13th congressional district is carved out of portions of the current 11th, 5th, 12th, and 10th districts. As the map that follows demonstrates, the district includes Polk, Rutherford, McDowell, Burke, Cleveland, and Gaston counties, as well as part of Mecklenburg County.

The district was generally understood to be created for Republican Speaker of the House Tim Moore who lives in Cleveland County—*The Raleigh News and Observer* and *Charlotte Observer*'s editorial board even referred to it as “Moore’s designer district.”²³ Republican Madison Cawthorn recently announced that he will run in the 13th, and Moore soon noted that he would stay in the General Assembly. While the specifics of the candidates have changed, the fact that this is a Republican district that will elect a Republican candidate has not. This district was rated by the Cook Political Report as R+13, has a CCSC of R+150,187 votes, and gave 60% of its votes to Donald Trump in 2020.

As mentioned in the discussion of NC-9, the narrow passageway that is necessary to squeeze NC-13 into Mecklenburg County only consists of a few miles at one point—stretching from a Food Lion to the Mecklenburg County line. The enacted district also creates unusual pairings of counties that share little in common. For example, Polk and Mecklenburg counties have never resided in the same district.

²³ “Try not to Laugh at What Madison Cawthorn Just Did to NC Republicans,” *Charlotte Observer*, November 13, 2021, <https://www.charlotteobserver.com/opinion/article255769626.html>.

Map 17. VTD CCSC for NC-13

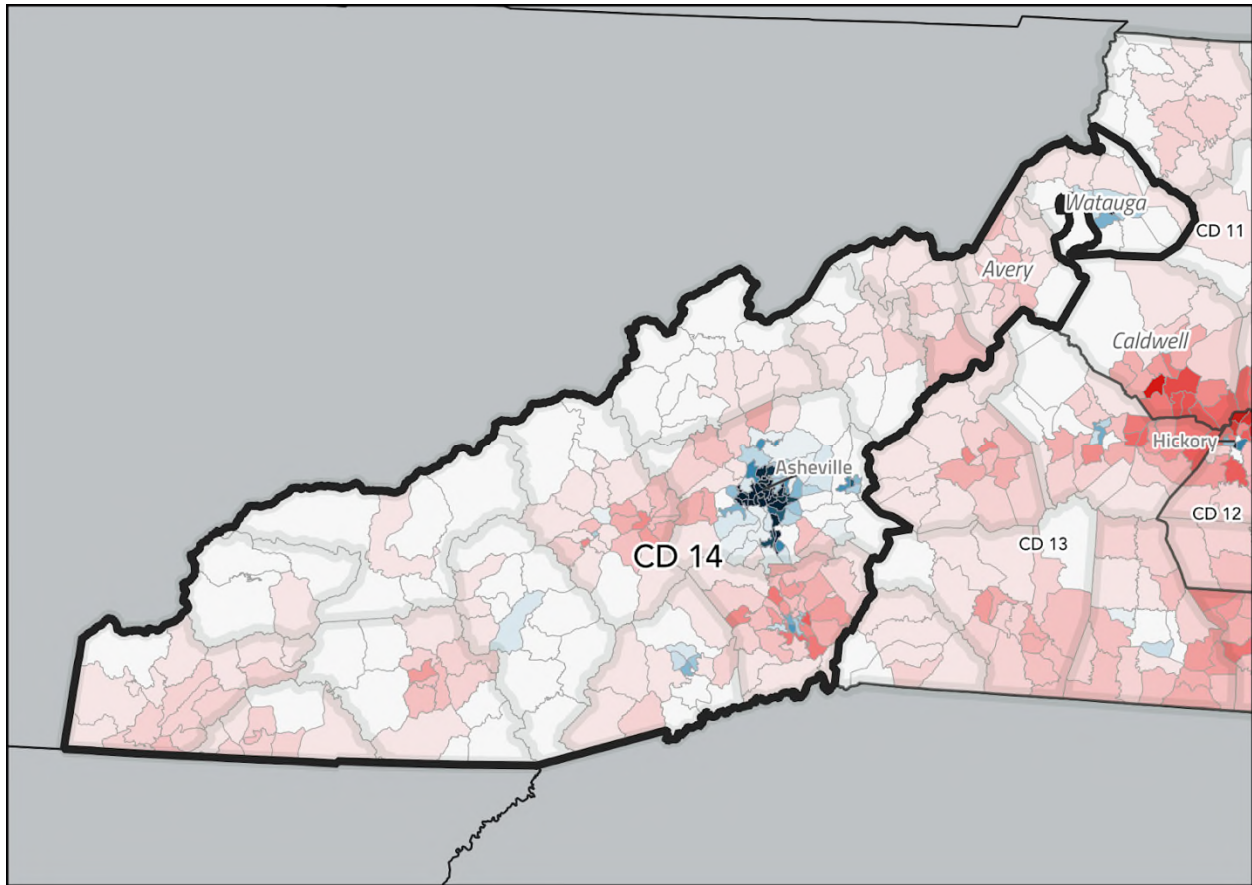


NC-14

The enacted 14th district includes most of the current 11th district as well as part of Watauga County, which previously sat in the 5th district. The current 11th district also lost the Republican strongholds of Polk and McDowell counties, as well as part of Rutherford County, which are now in the 13th district. These changes shifted the enacted NC-14 slightly in the Democratic direction (from a PVI of R+9 to R+7), although not enough to give a Democratic candidate a reasonable chance of victory. No Democrat in Congress represents a district that has a PVI score that leans this heavily towards the Republican Party. As a result, the 14th is expected to stay squarely in Republican hands.

Geographically, the 14th is a sprawling district that includes three media markets. Traversing the district from its western end in Murphy to its northeastern corner in Stony Fork would take approximately four hours. Perhaps because of the geographic incompatibility, Watauga County has not been in a district with the western end of the state since 1871—before Graham and Swain counties were even in existence. Adequately representing this massive swath of geography would be difficult for any member of Congress—Republican or Democrat.

Map 18. VTD CCSC for NC-14



General Assembly District Maps

Unlike the Congressional maps, the North Carolina House and Senate maps are minimally constrained by the *Stephenson* county clustering rule. This requires that in order to ensure relative population equality, “all counties get assigned to a distinct ‘group’ or ‘cluster,’ which can consist of either a single county or a number of adjacent counties.”²⁴ Some districts, therefore, are contained in single district clusters that cannot be altered. For the remaining districts, however, mapmakers may have one or more types of discretion. There were four different groupings of counties where mapmakers were left to choose between more than one optimal cluster in the Senate map (yielding a total of 16 different potential county cluster maps) and three such county groupings in the House map (yielding a total of eight different potential county cluster maps).²⁵ And in all clusters where the population allowed for more than one district, the mapmakers had discretion over how to draw lines *within* the cluster.

In all, the General Assembly district maps benefit the Republican Party.

²⁴ Blake Esselstyn, “A ‘Stephenson’ explainer,” September 2019, *available at* <https://frontwater.maps.arcgis.com/apps/Cascade/index.html?appid=a408ed66ea0944308e85fe60e6e940aa>.

²⁵ *See* Christopher Cooper, Blake Esselstyn, Gregory Herschlag, Jonathan Mattingly, and Rebecca Tippet, “NC General Assembly County Clusterings from the 2020 Census,” *available at* <https://sites.duke.edu/quantifyinggerrymandering/files/2021/08/countyClusters2020.pdf>.

Senate Districts

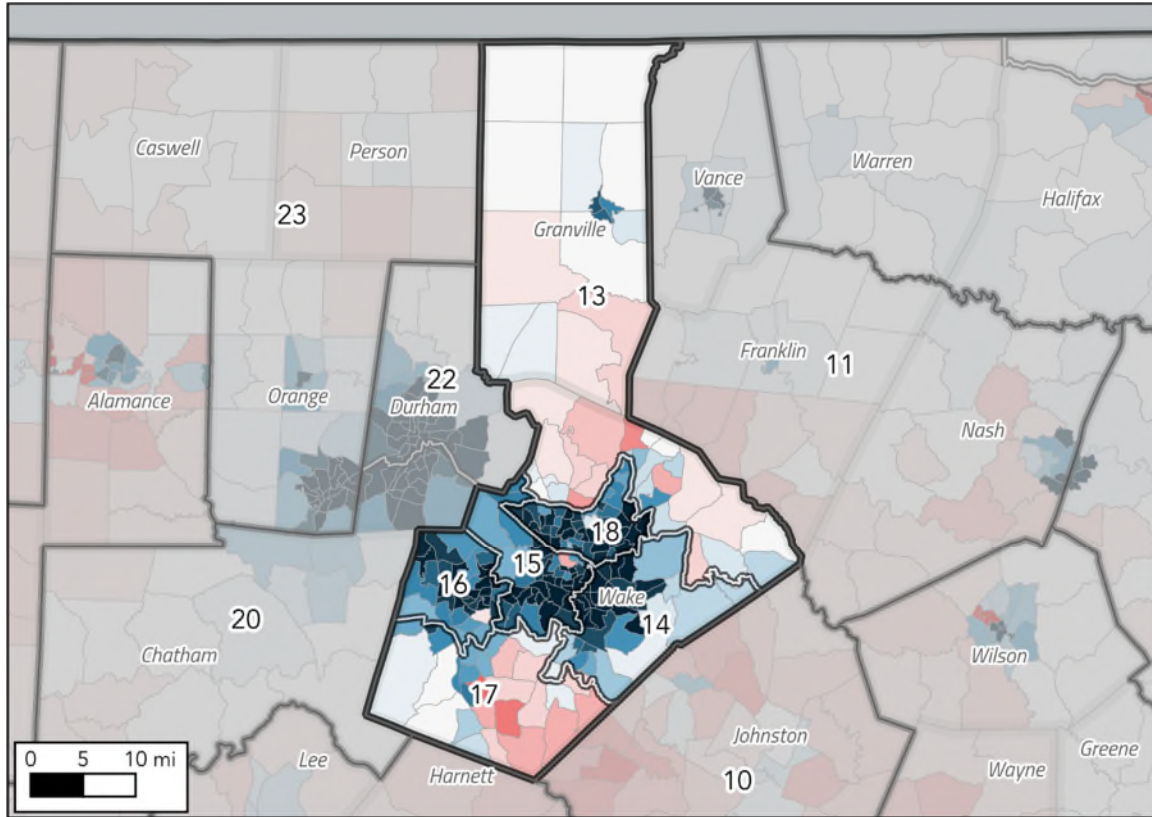
SDs 13, 14, 15, 16, 17, and 18: Granville and Wake County Cluster

Senate districts 13, 14, 15, 16, 17, and 18 are located in a cluster with Wake and Granville counties. Wake County gave 63.5% of its two-party vote share to Joe Biden in 2020. Wake County voters also supported the Democratic candidate for every statewide office and there are no Republicans on the Wake County Commission. On the other hand, Granville County is one of the most purple counties in North Carolina, supporting Donald Trump for President and Democrat Roy Cooper for Governor in 2020.

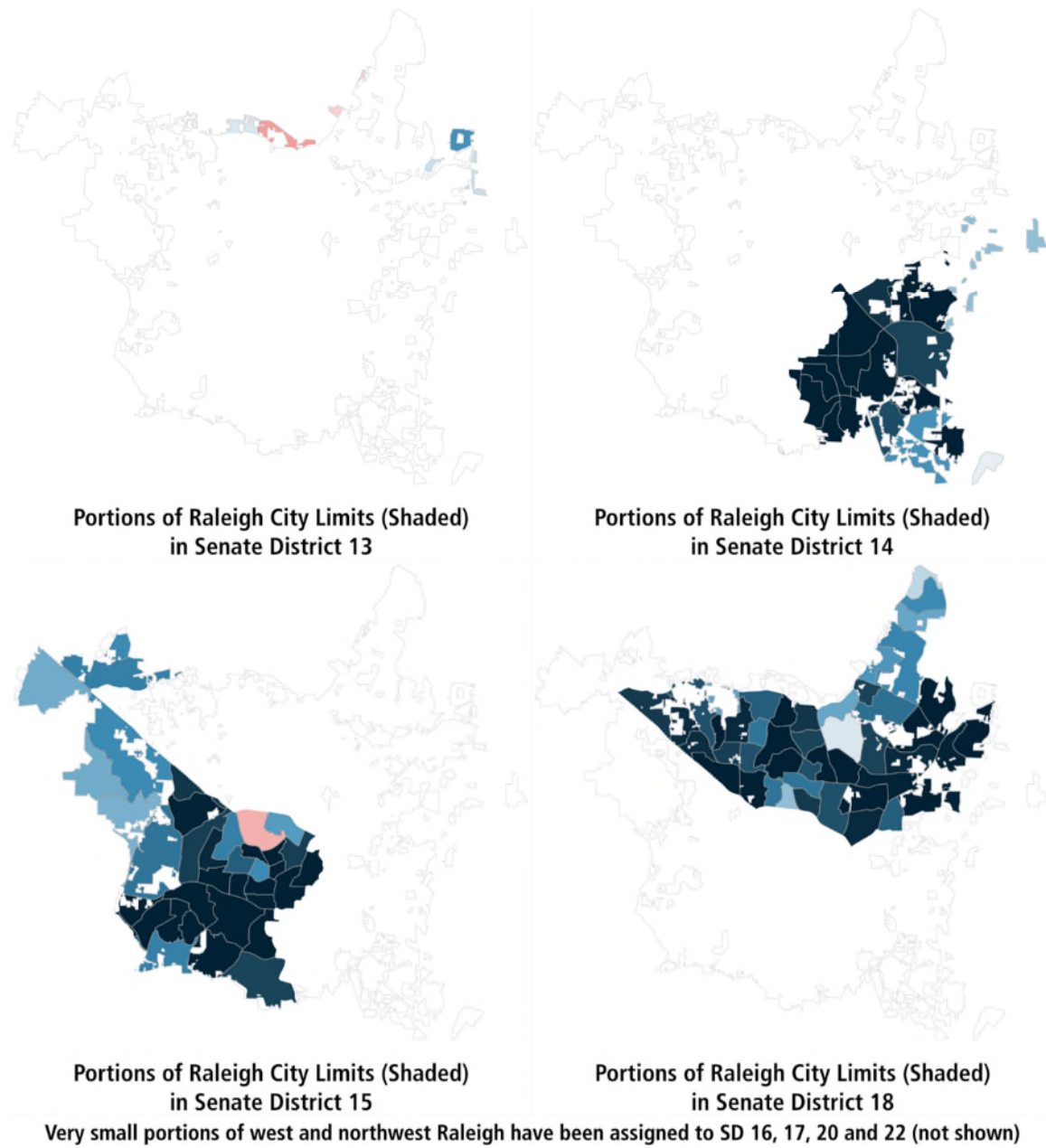
The enacted map packs Democratic VTDs in SDs 14, 15, 16, and 18 (according to the CPI, D+24, D+19, D+16, and D+15, with CCSC scores of D+93,699, D+81,915, D+59,594, and D+68,225, respectively), creating an artificially competitive SD-17 and SD-13 (both of which have a CPI score of 0, indicating no lean and a CCSC score of D+ 3,574 and R+3,686 votes, respectively). SD-13 is created by including all of Granville County and pairing it with Republican VTDs on the northern and northeastern portions of Wake County, avoiding the blue VTDs in North Raleigh, which are left in SD-18 by creating a horn-shaped section that juts up into SD-13.

The second map in this series (Map 20) demonstrates the ways in which the City of Raleigh is strategically divided across four Senate districts.

Map 19. VTD CCSC for the Granville and Wake County Cluster



Map 20. Map of Raleigh Municipal Splits

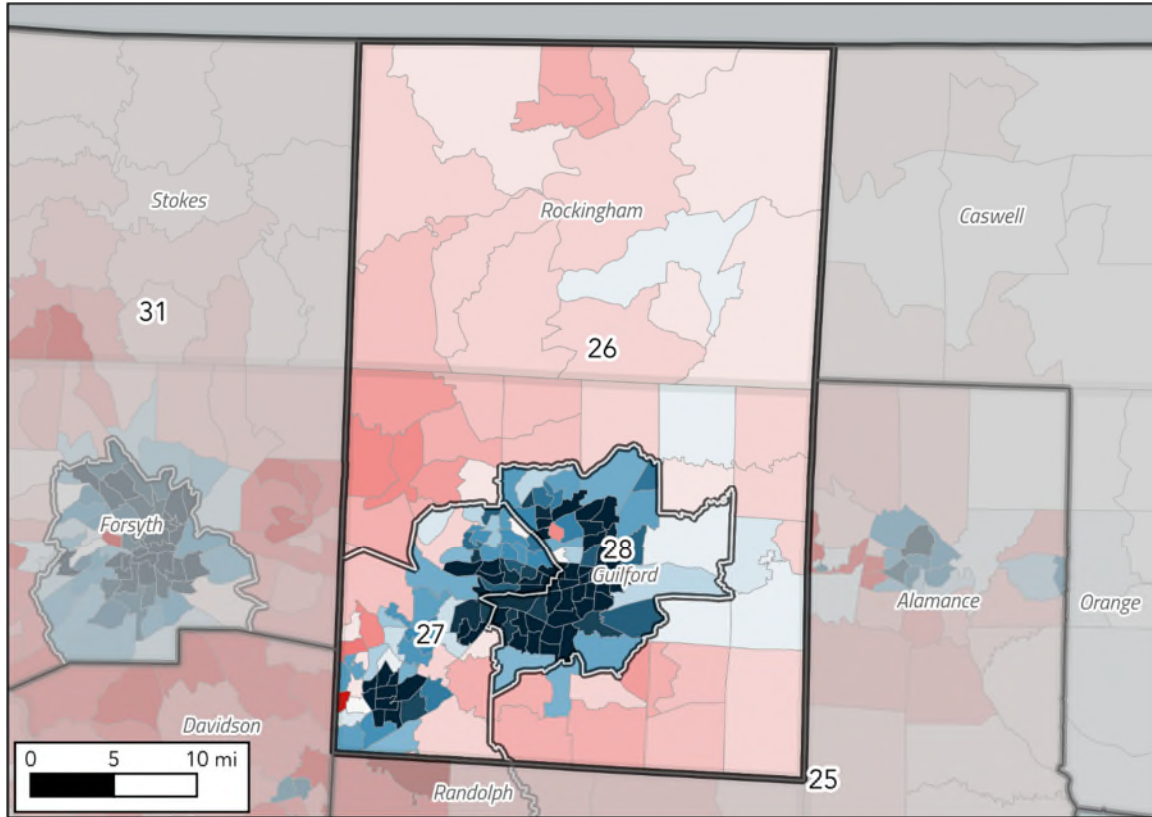


SDs 26, 27, and 28: Guilford and Rockingham County Cluster

Senate districts 26, 27, and 28 are located in a county cluster with Rockingham and Guilford counties. Rockingham County leans heavily towards the Republican Party whereas Guilford is among the most Democratic counties in North Carolina. In 2020, Guilford gave 61.7% of its vote share for President to Joe Biden, the 8th highest in the state. Guilford voters also voted for the Democratic candidate by overwhelming margins in every race decided at the county level in 2020.

The enacted map packs Democrats in SD-27 and SD-28. SD-27 is estimated to be D+12 by the CPI and has a D+50,846 CCSC score; whereas SD-28 is D+27 and has a D+104,632 advantage according to the CCSC. SD-26, on the other hand, includes all of Rockingham County and then extends southwest into Guilford County until it meets the Piedmont Triad International Airport, and east and south until it meets the eastern and southern borders of the county. SD-26's sprawling C-shape allows for a safe Republican (R+11, R+54,396) district by connecting the northern and southern portions of this cluster together.

Map 21. VTD CCSC for the Guilford and Rockingham County Cluster

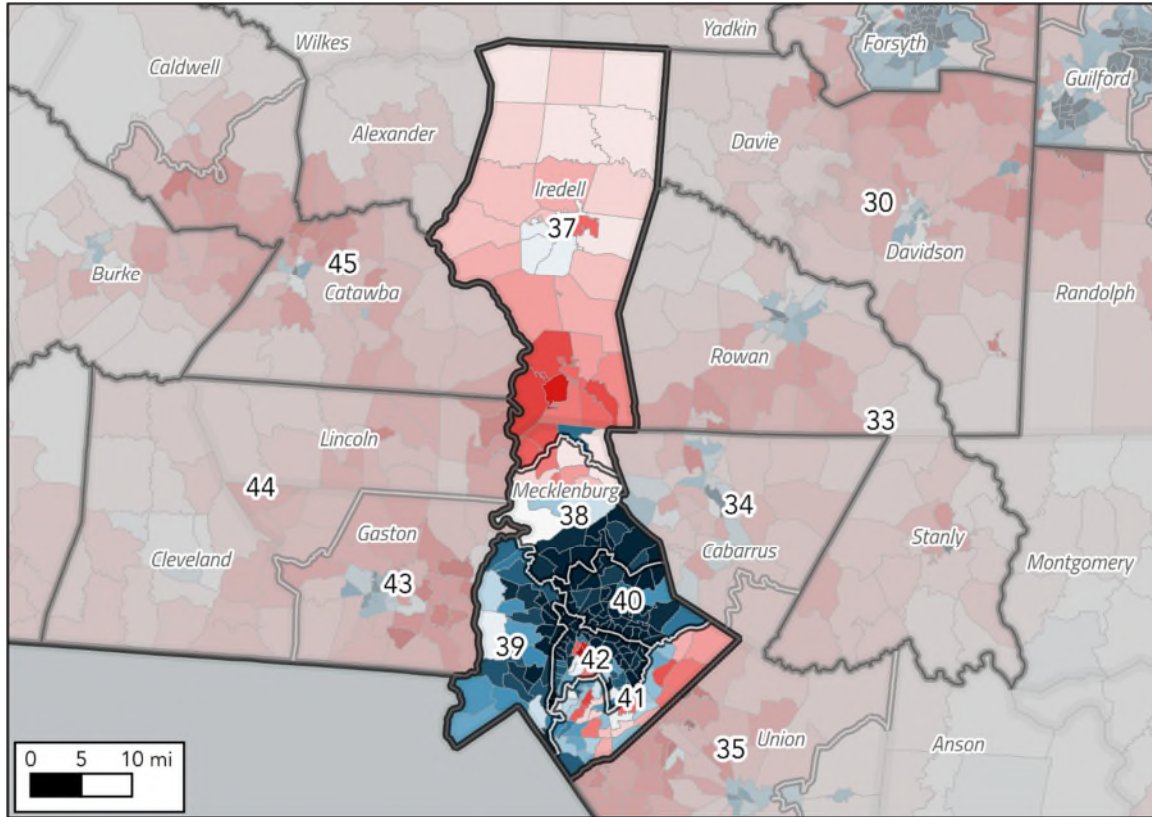


SDs 37, 38, 39, 40, 41, and 42: Iredell and Mecklenburg County Cluster

Senate districts 37, 38, 39, 40, 41, and 42 are located in a grouping that includes Iredell and Mecklenburg counties. Mecklenburg County is the second most populous and among the most Democratic counties in North Carolina. In the 2020 Presidential election, only two other North Carolina counties gave a larger proportion of their two-party vote share to Joe Biden. Every member of Mecklenburg’s current state legislative delegation is a Democrat, all nine county commissioners are Democrats, and Democratic candidates received the plurality of the votes in every county-wide contest. It is clearly a Democratic stronghold, and is trending even more so in that direction.

As you can see below, the enacted map packs Democratic voters into SDs 39 and 40; neither includes a single Republican VTD and they are heavily Democratic based on CPI (D+23 and D+33, respectively) and the CCSC scores (D+71,497 and D+90,354, respectively). SDs 38 and 42 are also considered “Safe Democratic” seats (D+17, D+71,597 and D+15, D+65,179, respectively). SD-41, however, is considered a “Toss-up” seat (D+1, D+5,474) and SD-37 is a “Safe Republican” seat (R+13, 64,380). By packing Mecklenburg’s Democratic voters in SDs 38, 39, 40, and 42, the mapmakers allowed for SD-41, in the south of Mecklenburg County, to be artificially competitive, while still ensuring that SD-37 remains a safely Republican district. SD-37 is also notable because it double-bunks Democrat Natasha Marcus and Republican Vickie Sawyer into the same district; Marcus’ home rests approximately one mile from the border with SD-38.

Map 22. VTD CCSC for the Iredell and Mecklenburg County Cluster

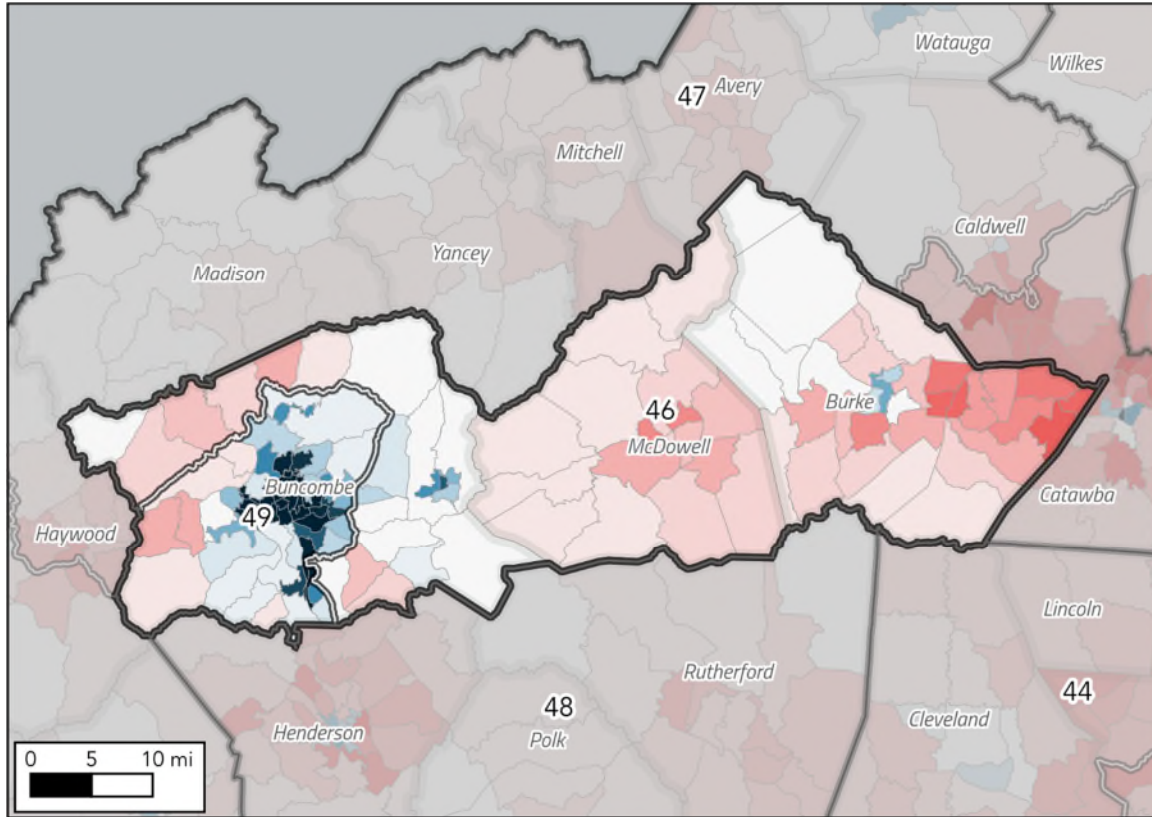


SDs 46 and 49: Buncombe, Burke, and McDowell County Cluster

Senate districts 46 and 49 are located in a county cluster with Buncombe, Burke, and McDowell counties. The map-drawers had considerable discretion here, however, as they could have instead paired Buncombe County with Henderson County, a much more natural fit since northern Henderson County, in particular, has become a bedroom community of Asheville (in Buncombe), and has considerable shared natural interests. Instead, Buncombe is paired with McDowell and Burke counties. It would take someone an hour and 45 minutes to pass from Sandy Mush on the west side this cluster to Hickory on the east side, and would almost certainly necessitate driving through both Senate districts. The enacted map also separates Asheville from the Asheville Watershed.

The effect of this choice is to pack Democratic voters in SD-49 (D+16), leaving the geographically expansive SD-46 to favor the Republican Party (R+13). By pairing Henderson with Polk and Rutherford counties in the cluster to the south, the map also creates a district heavily favored for the Republican Party in that cluster, SD-48. After the maps were enacted, incumbent Republican Chuck Edwards (currently in the Senate district covering Buncombe, Henderson, and Transylvania counties) announced he would be running for Congress and Republican State House Representative Tim Moffitt (whose current House district is in Henderson County) announced he would be running for Edwards' vacated Senate seat.

Map 23. VTD CCSC for the Buncombe, Burke, and McDowell County Cluster

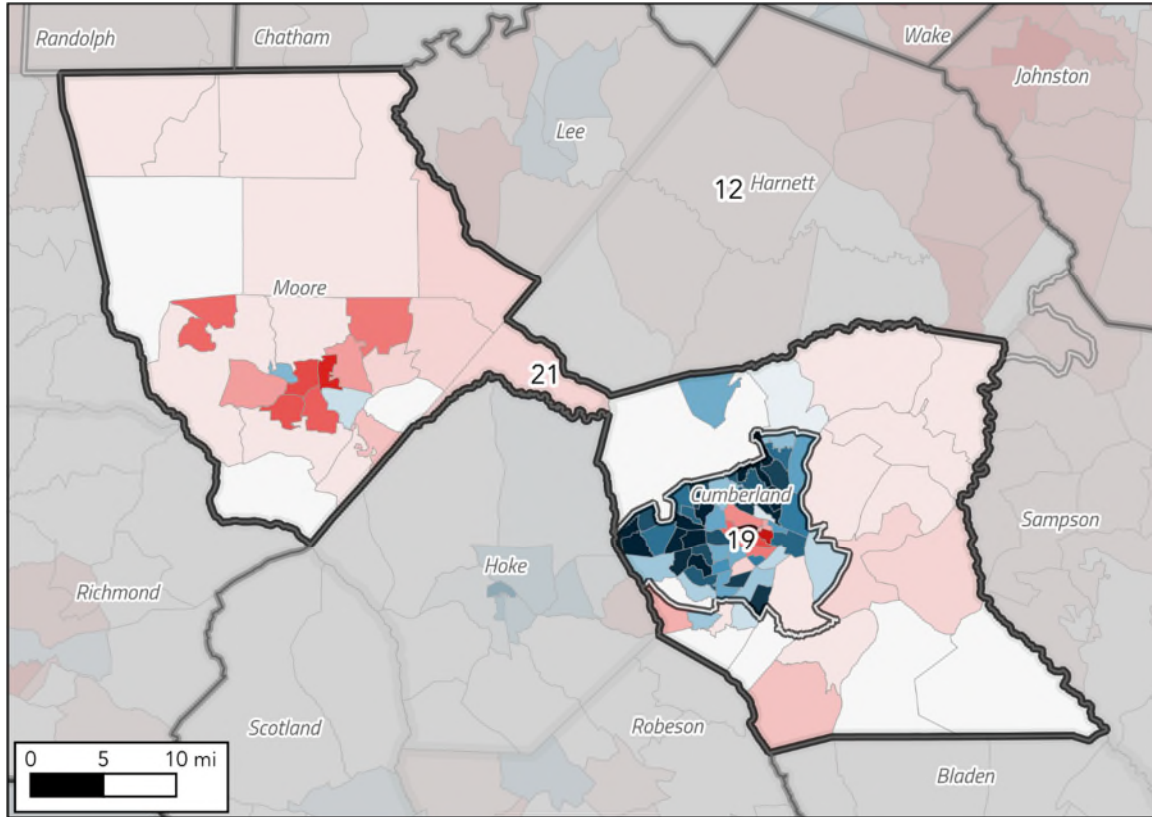


SDs 19 and 21: Cumberland and Moore County Cluster

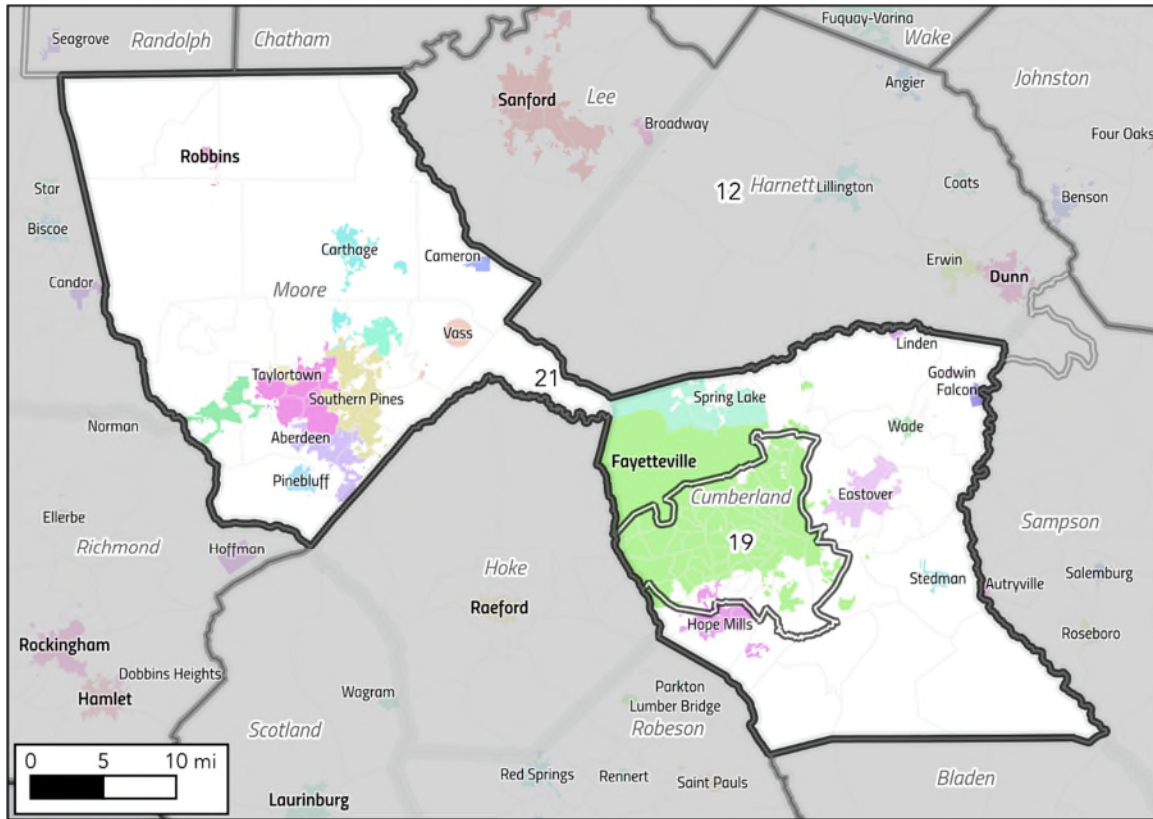
Senate districts 19 and 21 are located in a county cluster with Cumberland and Moore counties. The enacted map packs Democratic voters in and around Fayetteville into SD-19, a district that is rated D+17 by the CPI and advantaged the Democratic Party by 64,539 votes in the CCSC. SD-21 is then left to favor the Republican Party by R+9 and 41,391 votes.

As demonstrated in Map 25, the enacted map splits Fayetteville and Hope Mills across two districts and, as Map 24's red-and-blue shading displays, the district boundaries are careful to separate off Democratic voters and VTDs in SD-19 from adjacent Republican VTDs.

Map 24. VTD CCSC for the Cumberland and Moore County Cluster



Map 25. Municipal Splits for the Cumberland and Moore County Cluster



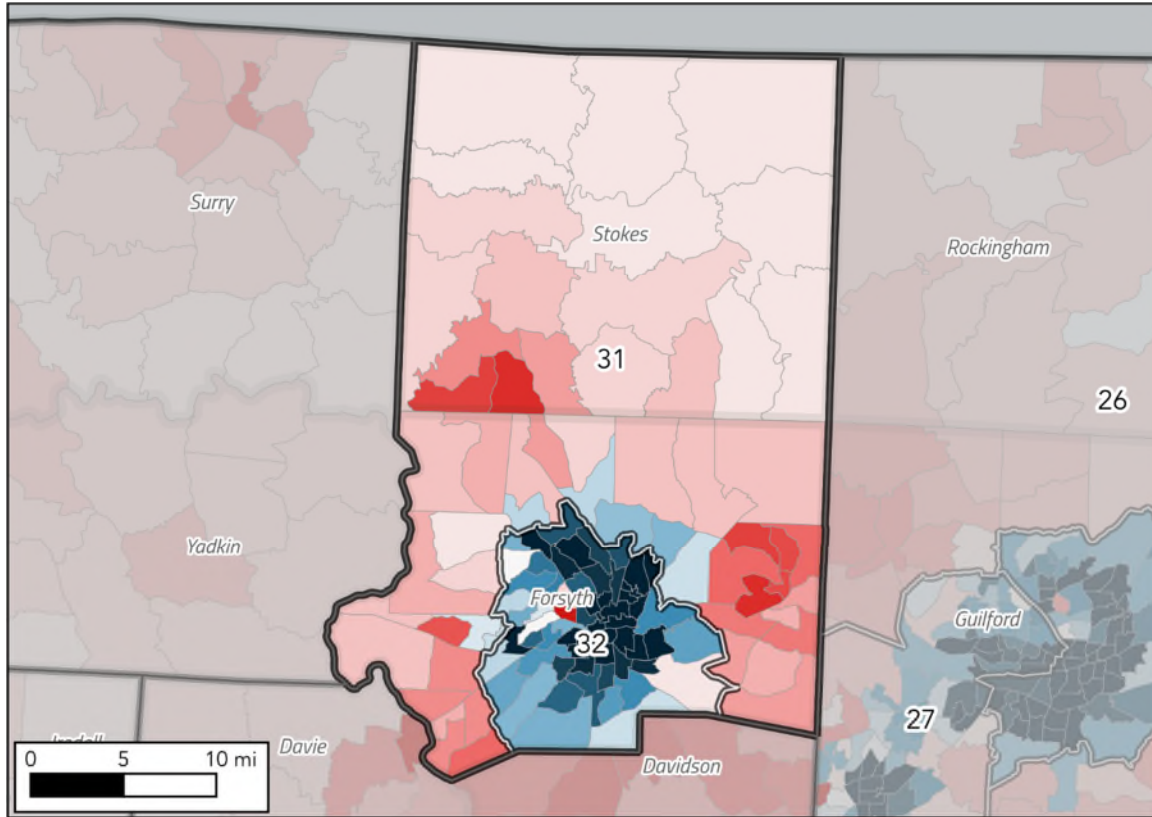
SDs 31 and 32: Forsyth and Stokes County Cluster

Senate districts 31 and 32 are located in a county cluster with Forsyth and Stokes counties. A few choices created the partisan effects of this cluster. First was the choice of the cluster, itself. The mapmakers had a choice about whether to pair Forsyth with Stokes or with Yadkin to the west. Yadkin has a lower Republican vote advantage per the CCSC. Therefore the decision to pair Forsyth with Stokes, instead, helped tip the scales towards a Republican advantage. The decisions made within the cluster reinforced that advantage.

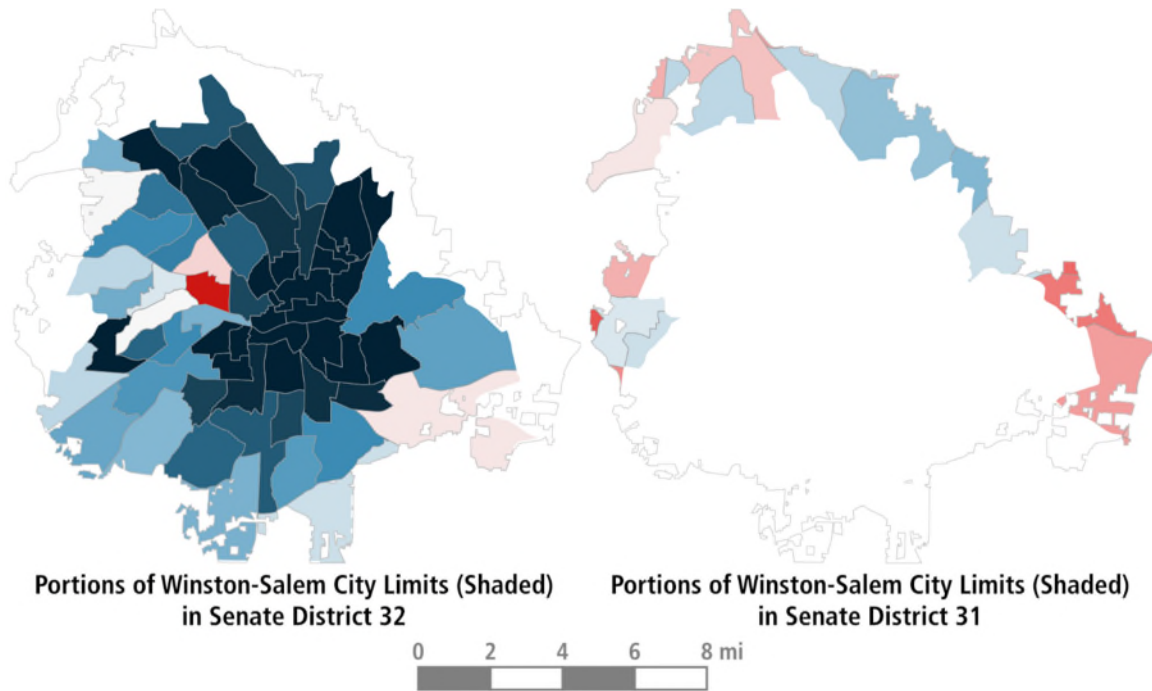
In a now familiar pattern, the enacted map packs Democratic voters in SD-32 (D+20, D+77,058) and leaves the remaining district in the cluster squarely in Republican hands. SD-31 favors the Republican Party by R+11; the CCSC favors the Republican Party by 58,073 votes.

Map 27 displays the strategic split in Winston-Salem with the most Democratic VTDs in that city packed into SD-32 while Republican SD-31 captures the more Republican VTDs on the city's edges.

Map 26. VTD CCSC for the Forsyth and Stokes County Cluster



Map 27. Map of Winston-Salem Municipal Splits

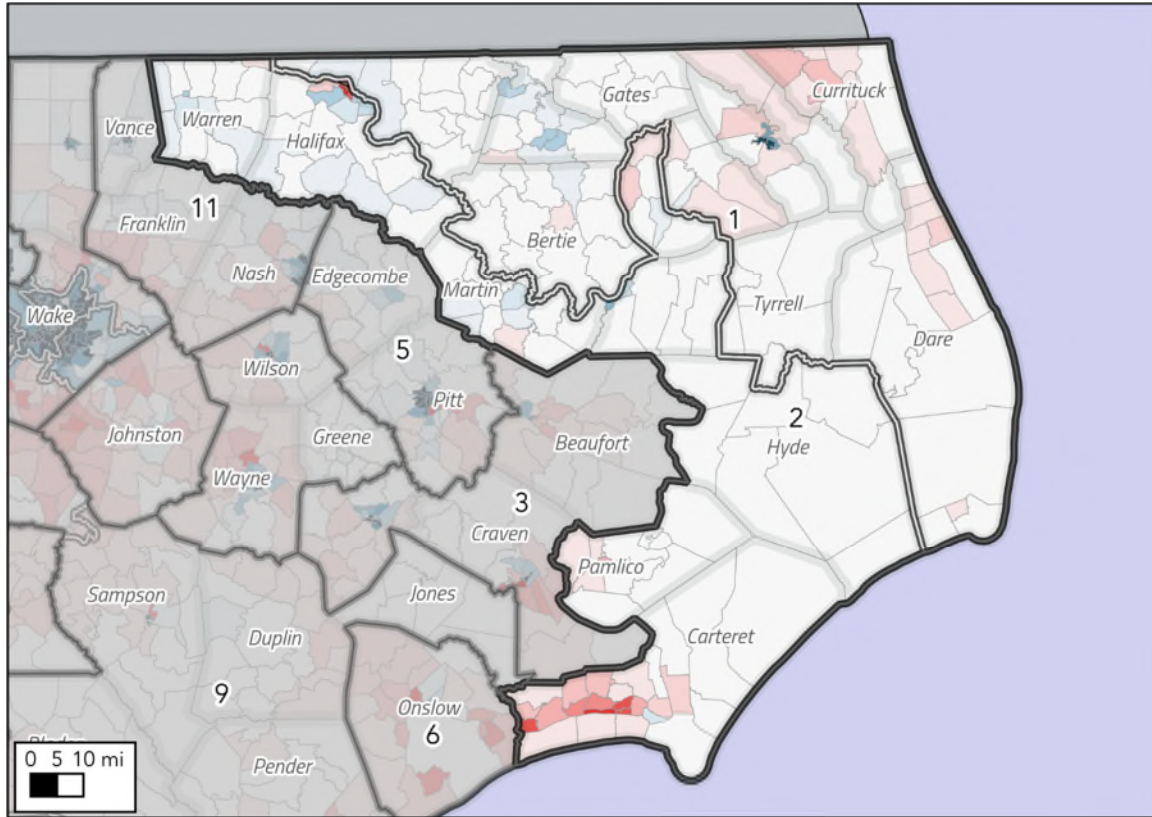


SDs 1 and 2: Northeastern County Clusters

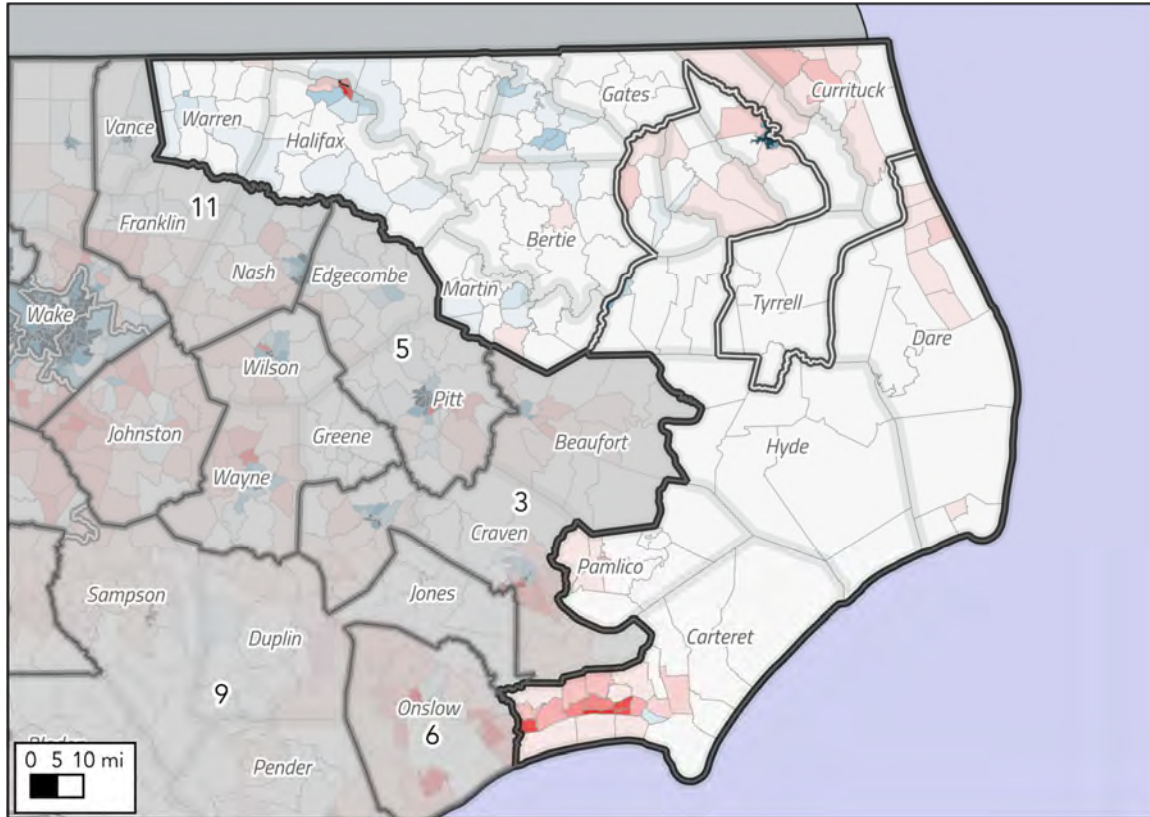
Senate districts 1 and 2 are located in two adjacent county clusters that contain Bertie, Halifax, Hertford, Northampton, and Warren counties. Many of these counties are among the most racially diverse in the state.

The mapmakers had one consequential choice to make here—the choice of which counties would be included within each cluster (the size of each cluster is such that the clusters can contain only one district, each). The choice of cluster helped tilt the scales in the direction of the Republican Party, as evidenced in Maps 28 and 29 below. If the map-drawers had chosen the alternative county cluster configuration (Map 29), the result would have been much more likely to favor the Democratic Party in one district (with a projected CCSC score of D+10,270) and the Republican Party in the other district (with a projected CCSC score of R+49,916). Instead, the enacted map pairs more Republican voters together resulting in two districts that lean towards the Republican Party (SD-1: R+2, R+16,350; SD-2: R+4, R+23,296), despite the competitiveness of most of the VTDs in this cluster.

Map 28. VTD CCSC for the Northeastern County Clusters



Map 29. Potential Northeastern County Clusters That Were Not Selected



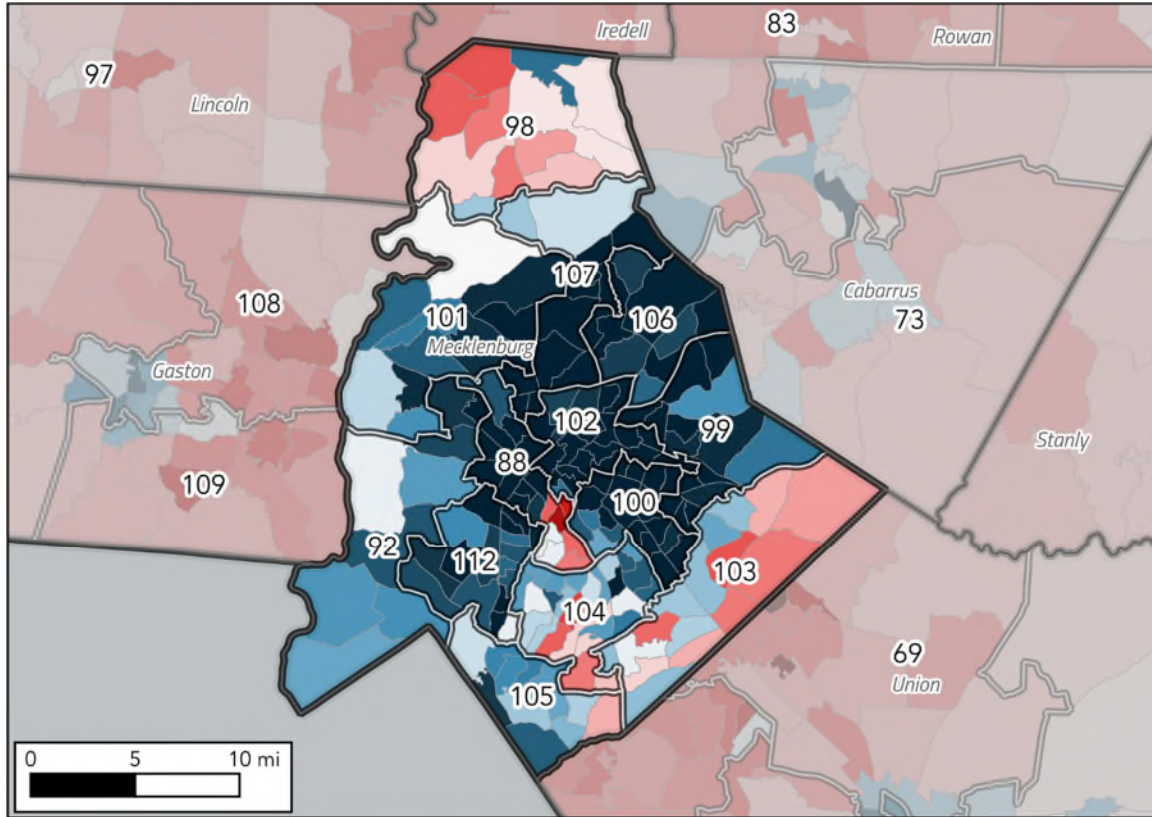
House Districts

HDs 88, 92, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, and 112: Mecklenburg County Cluster

Mecklenburg County is the home of Charlotte as well as six other municipalities. As noted above, Mecklenburg County is dominated by Democratic voters and is becoming even more so as the county continues to grow in population.

The enacted map places no Republican VTDs in HDs 92, 99, 100, 101, 102, 106, 107, and 112, leaving every Republican-leaning VTD in HDs 88, 103, 104, and 105. This arrangement provides Republican candidates the greatest probability of victory possible in this sea of blue. In particular, HDs 98 and 103 are carved out of the pockets of Republican voters in the north and southeast portions of the county so as to be particularly favorable to Republicans. HD-98 is rated by CPI as R+5 and HD-103 is rated as even, with CCSC scores of R+4,359 and R+2,645, respectively.

Map 30. VTD CCSC for the Mecklenburg County Cluster



HDs 11, 21, 33, 34, 35, 36, 37, 38, 39, 40, 41, and 49: Wake County Cluster

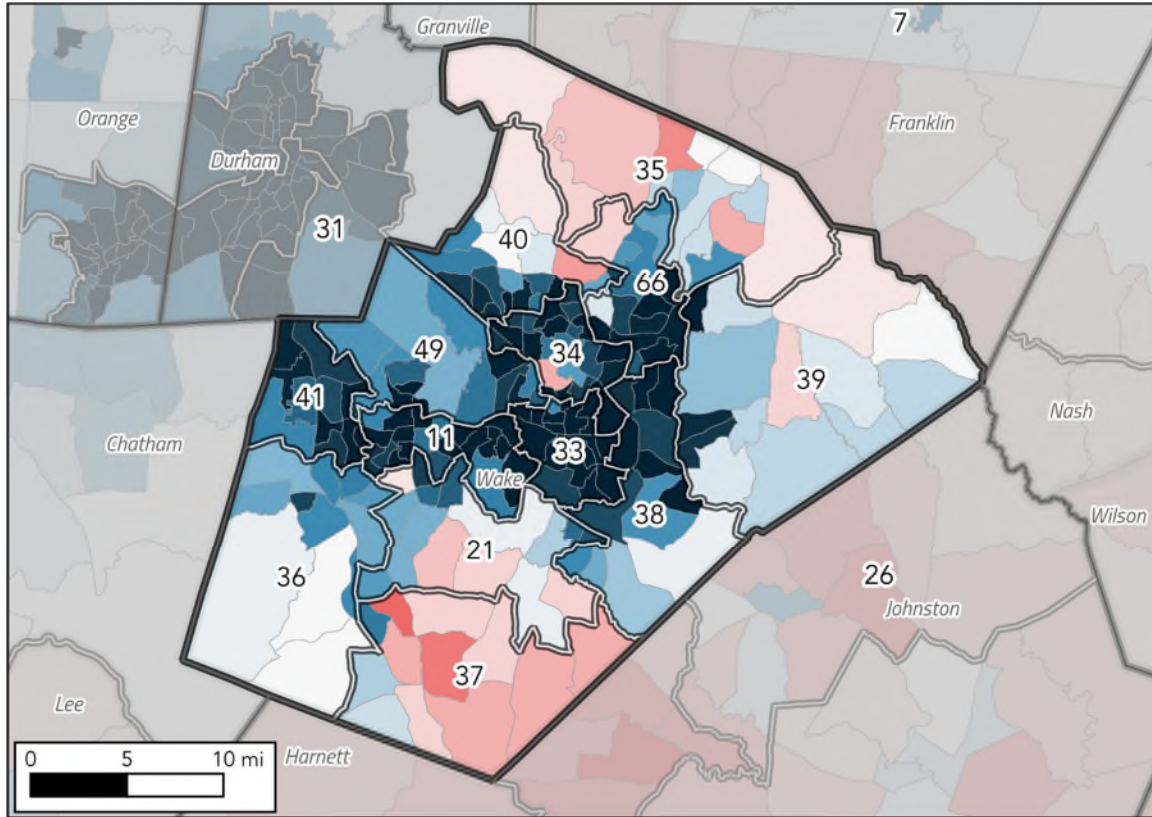
House districts 11, 21, 33, 34, 35, 36, 37, 38, 39, 40, 41, and 49 are located in the Democratic stronghold of Wake County, which includes Raleigh and 11 other municipalities. As noted above, Wake County gave 63.5% of its two-party vote share to Joe Biden in 2020 and supported Democratic candidates for every statewide office. There are no Republicans on the county commission.

The enacted map packs Democrats into as few districts as possible, creating contorted districts that, in the case of HDs 11, 33, 36, 38, 41, and 49, include no Republican VTDs. This leaves HD-37 as a Republican leaning district, which will benefit the Republican candidate Erin Pare, who narrowly defeated a Democrat in the last election. These district boundaries also increase the probability that a Republican can defeat the Democratic incumbent Terence Everitt in HD-35, in the northern portion of Wake County. HD-37 is rated as R+3 by the CPI and has a R+6,400 score; HD-35 is rate as R+1 by the CPI and has a R+2,264 CCSC score.

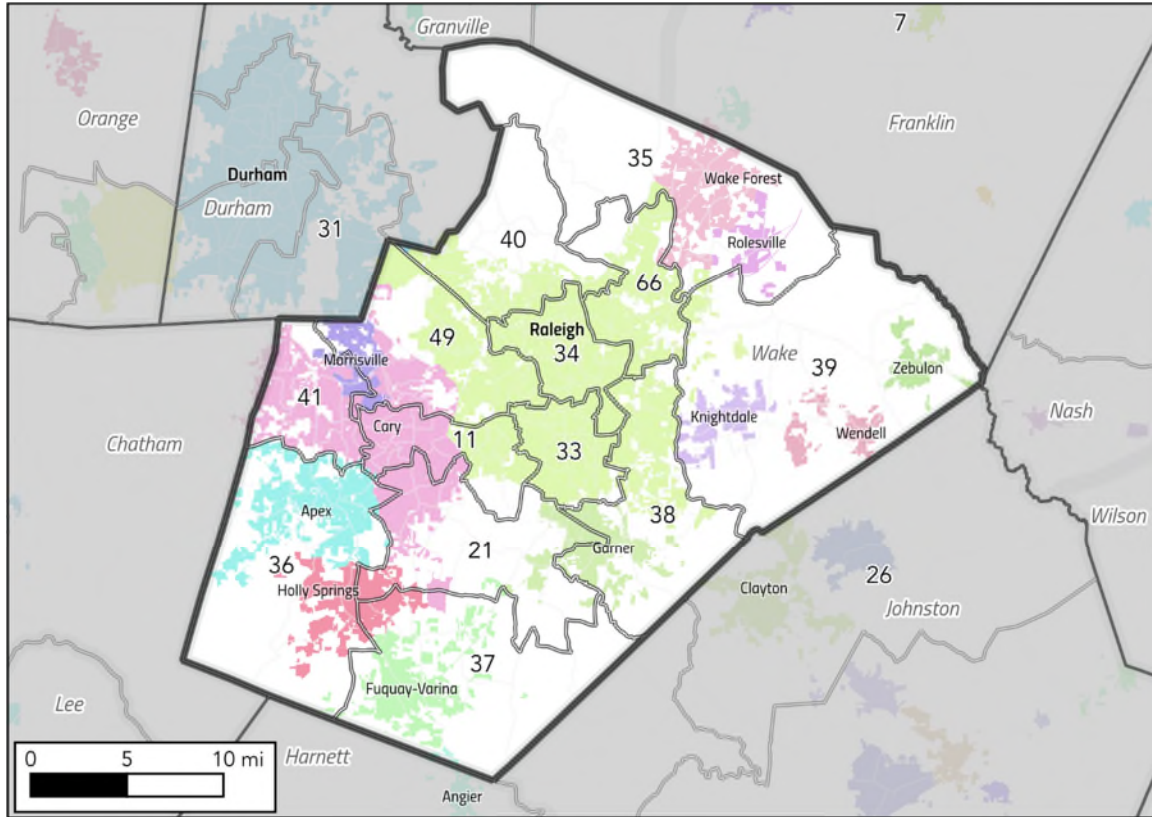
The partisan effects of small decisions are particularly apparent in the spike that juts up from HD-66 into HD-35, keeping the Democratic VTDs in that spike fenced off from the more Republican-leaning VTDs in HD-35. If the district lines took a slightly different jog here, it would increase the probability of Everitt securing re-election.

As Map 32 indicates, the enacted map also splits a number of cities both large (Raleigh, shaded in light green, split across nine districts; Cary, shaded in pink, split across four districts) and small (Garner, Fuquay-Varina, Apex, Holly Springs, and Morrisville). The district boundaries appear calculated to provide a partisan advantage for Republican candidates rather than adhere to any municipal boundaries.

Map 31. VTD CCSC for the Wake County Cluster



Map 32. Municipal Splits in the Wake County Cluster

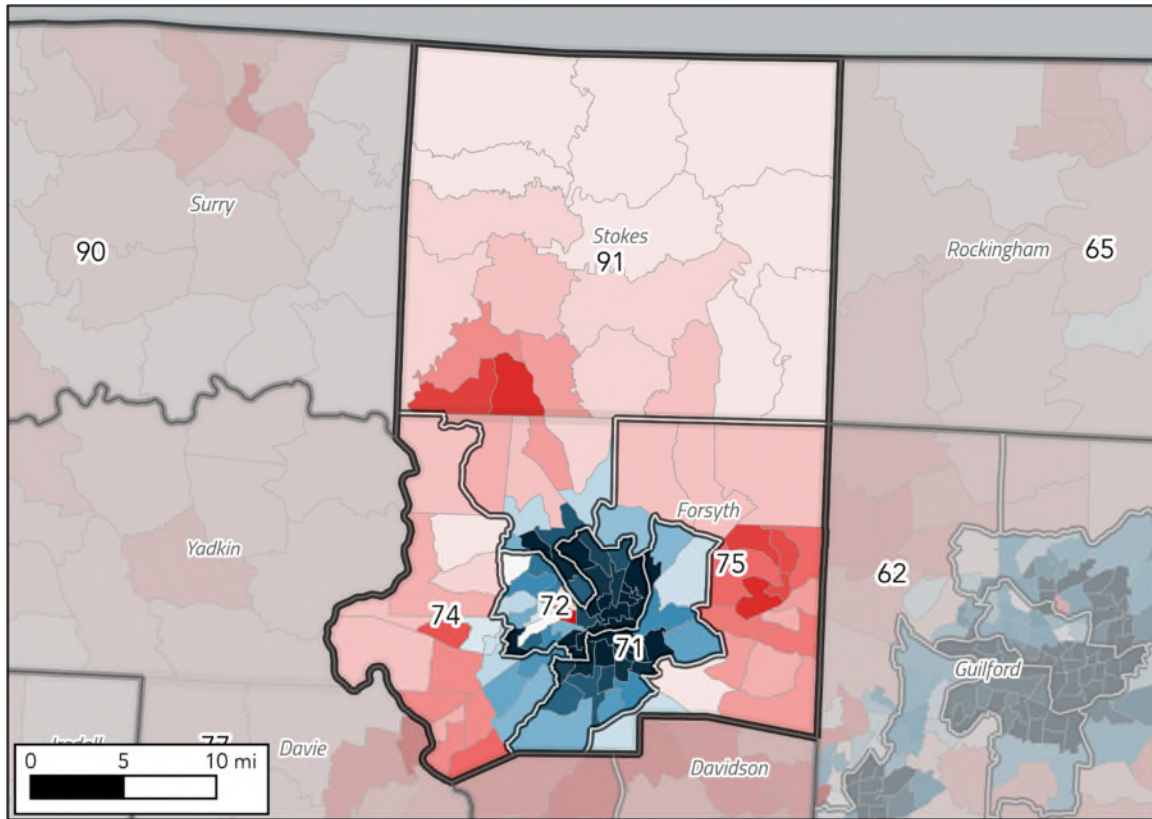


HDs 71, 72, 74, 75, and 91: Forsyth and Stokes County Cluster

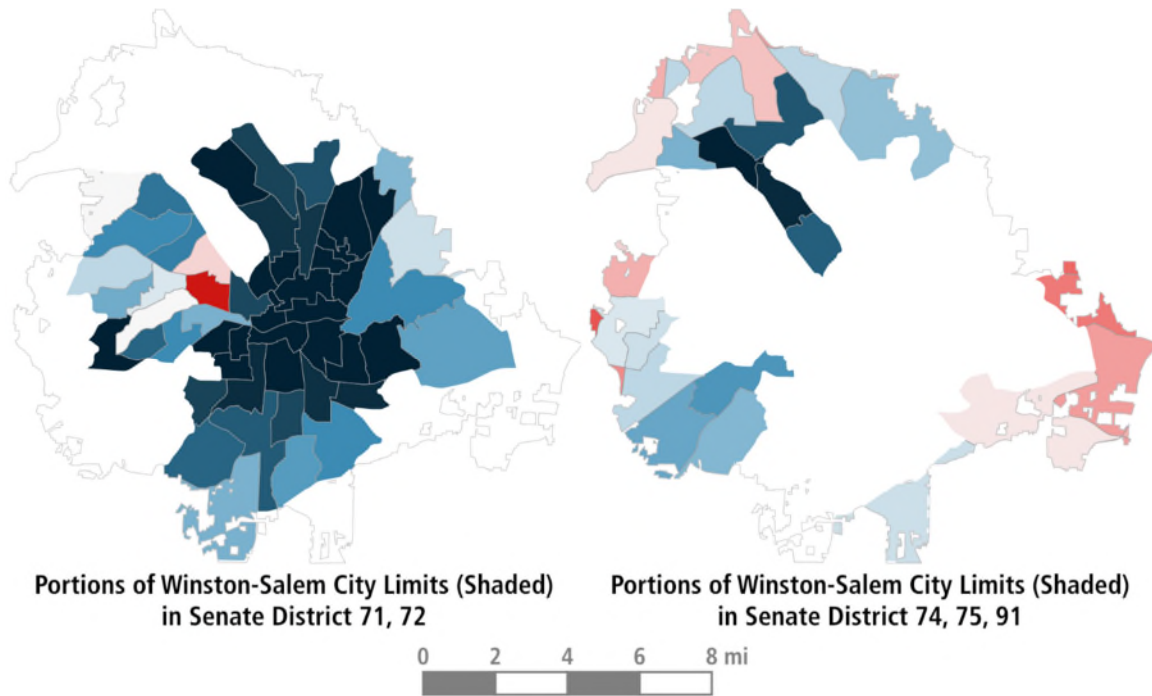
House districts 71, 72, 74, 75, and 91 are located in Forsyth and Stokes counties. The enacted map splits Winston-Salem across all five districts in this cluster and packs Democratic voters into HDs 71 and 72 (HD-71 does not include a single Republican VTD), leaving HD-75 and HD-91 almost certain to elect a Republican and HD-74 as a Republican leaning district (with a CPI score of R+3 and a CCSC score of R+7,846).

The splits of Winston-Salem do not make sense without reference to the anticipated voting behavior of the VTDs arranged into each district. For example, HD-91 includes all of Republican-leaning Stokes County, but instead of joining Stokes with a broader expanse of northern Forsyth County to create a more compact district, HD-91 juts down into the center of Winston-Salem, picking up some of the most Democratic VTDs in the cluster (which include Bethabara Moravian Church, Arts Council Theatre, and Mision Hispana VTDs—43.8% of the population in the latter VTD identifies as black and 29.5% identifies as Hispanic), ensuring that Democratic voters in the core of Winston-Salem have essentially no chance at electing a member of their own party, and dividing a major North Carolina city unnecessarily. But this arrangement does allow HD-74, to the west, and HD-75, to the east, to lean in favor of Republican candidates, despite their proximity to the deep pocket of Democratic voters in the city that those districts overlap with on their outer edges.

Map 33. VTD CCSC for the Forsyth and Stokes County Cluster



Map 34. Detail of Winston-Salem Splits



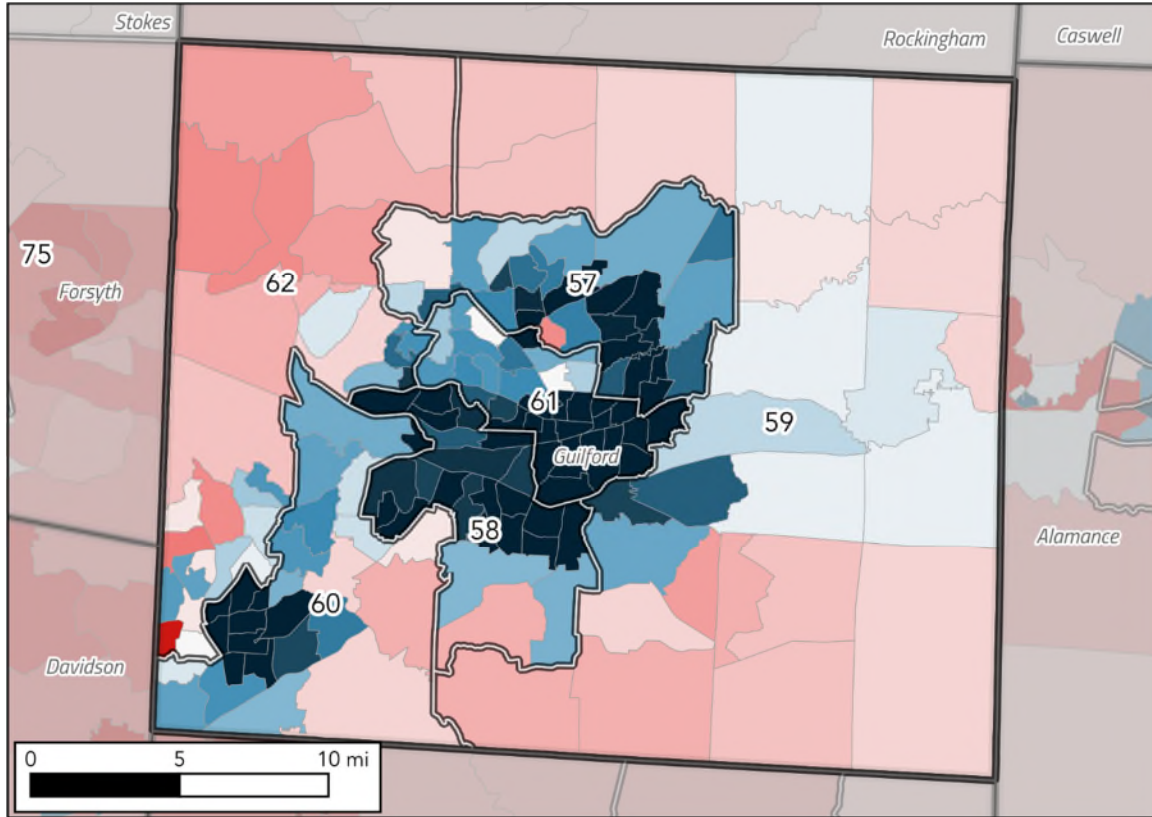
HDs 57, 58, 59, 60, 61, and 62: Guilford County Cluster

HDs 57, 58, 59, 60, 61, and 62 are all contained within the Democratic stronghold of Guilford County, which contains Greensboro and High Point. As noted above, Guilford County voters have provided Democratic candidates large margins of victory in recent state- and county-wide elections.

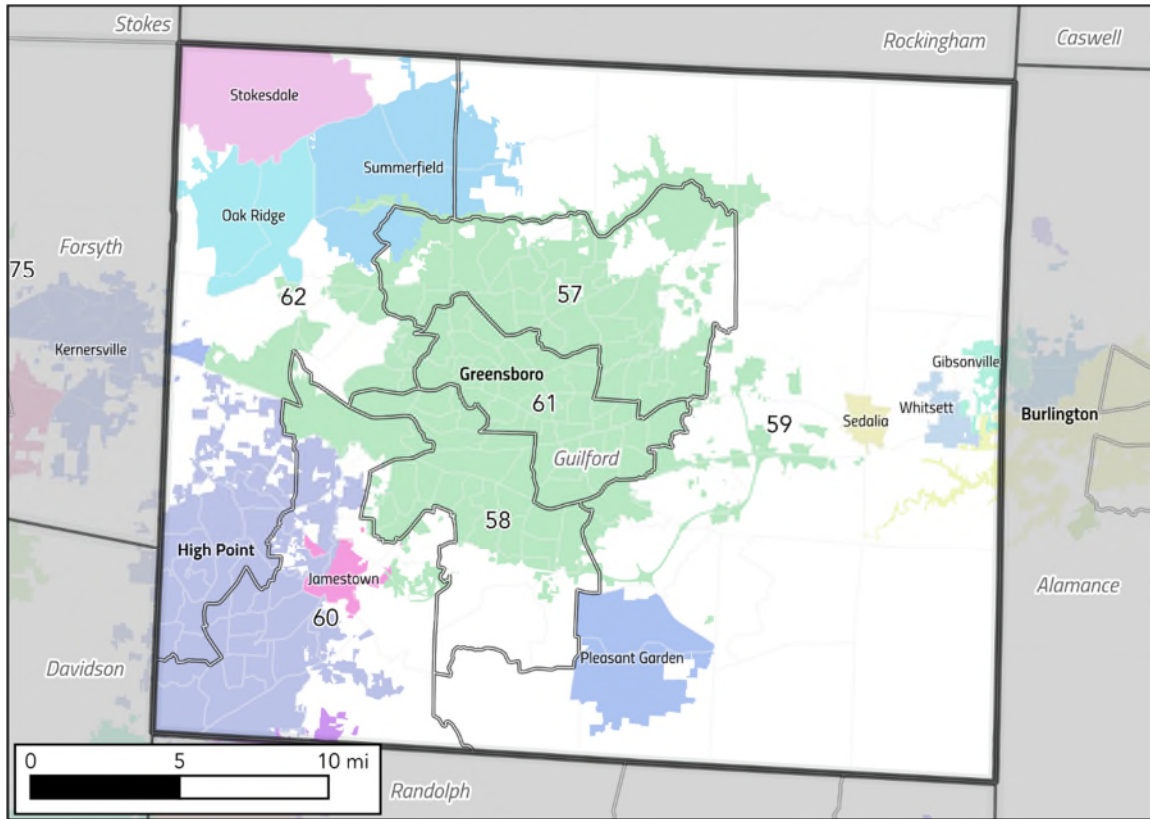
The enacted map packs Democratic voters into HDs 57, 58, 60, and 61. By studiously avoiding the Democratic leaning VTDs in the center of the county, HD-59 creates a reverse C shape that pieces together the southern and northern VTDs in an arrangement that creates district rated as R+2 by CPI, with a R+4,794 CCSC score. Meanwhile, HD-62 rests on the western edge of the county and includes pieces of both Greensboro and High Point, while avoiding the most Democratic areas of these cities. HD-62 is rated by the CPI as R+5 and has a CCSC score of R+11,030.

The enacted map splits Greensboro across all six districts and splits the city of High Point across two districts and Summerfield across three districts (*see* Map 36).

Map 35. VTD CCSC for the Guilford County Cluster



Map 36. Municipal Splits in the Guilford County Cluster



HDs 114, 115, and 116: Buncombe County Cluster

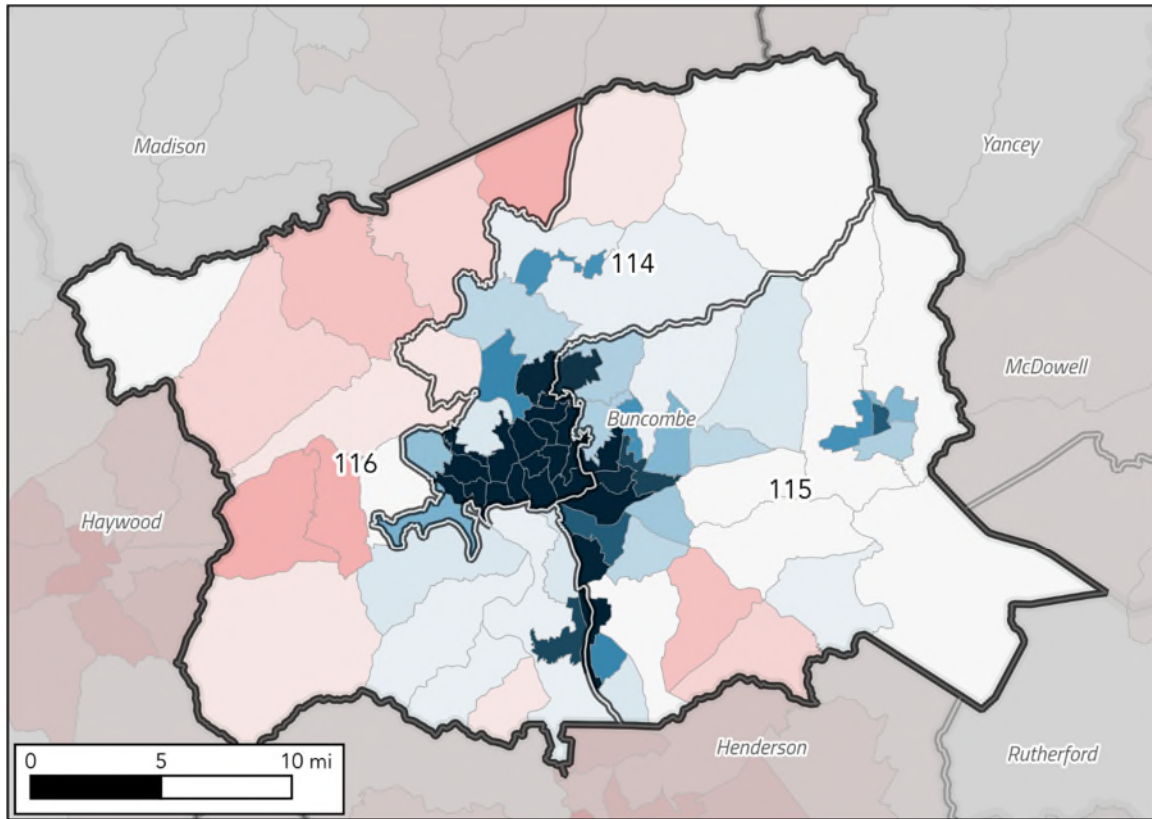
Buncombe County is located in Western North Carolina. It is anchored by Asheville, but also includes five other municipalities—Montreat, Biltmore Forest, Black Mountain, Woodfin, and Weaverville. Due to the *Stephenson* rule, Buncombe County is a single county cluster that must include three districts. Within the county, however, there were a number of choices the map-drawers had before them.

Buncombe is an overwhelmingly Democratic county and has been trending more Democratic each year. In 2020, 60.7% of the county’s two-party vote share went to Joe Biden, the 10th highest in the state. Buncombe voters voted for the Democratic candidate in every county-wide contest in 2021 and Buncombe’s county commission includes only one Republican.

In both the current map and the enacted map, Buncombe County includes HDs 114, 115, and 116. All three districts are currently represented by Democrats, with Susan Fisher in HD-114, John Ager in HD-115, and Brian Turner in HD-116. By shifting the current district lines where the districts meet in Asheville, however, the enacted map packs as many Democrats as possible into HD-114, while HD-115 stays relatively constant in terms of predicted vote share. The C-shaped HD-116 now includes most of the Republican-leaning VTDs in Buncombe, transforming it from a safely Democratic district into a district that leans towards the Republican Party (HD-116 is rated by CPI as R+3 and has a CCSC score of R+5,800).

The enacted map also places the pocket of overwhelmingly white voters of Biltmore Forest in the competitive HD-116, while the traditionally African American community of Shiloh to the east is left in HD-115. Soon after the maps were passed, all three Democratic incumbents announced that they would be retiring and not running for office in these newly drawn districts.

Map 37. VTD CCSC for the Buncombe County Cluster

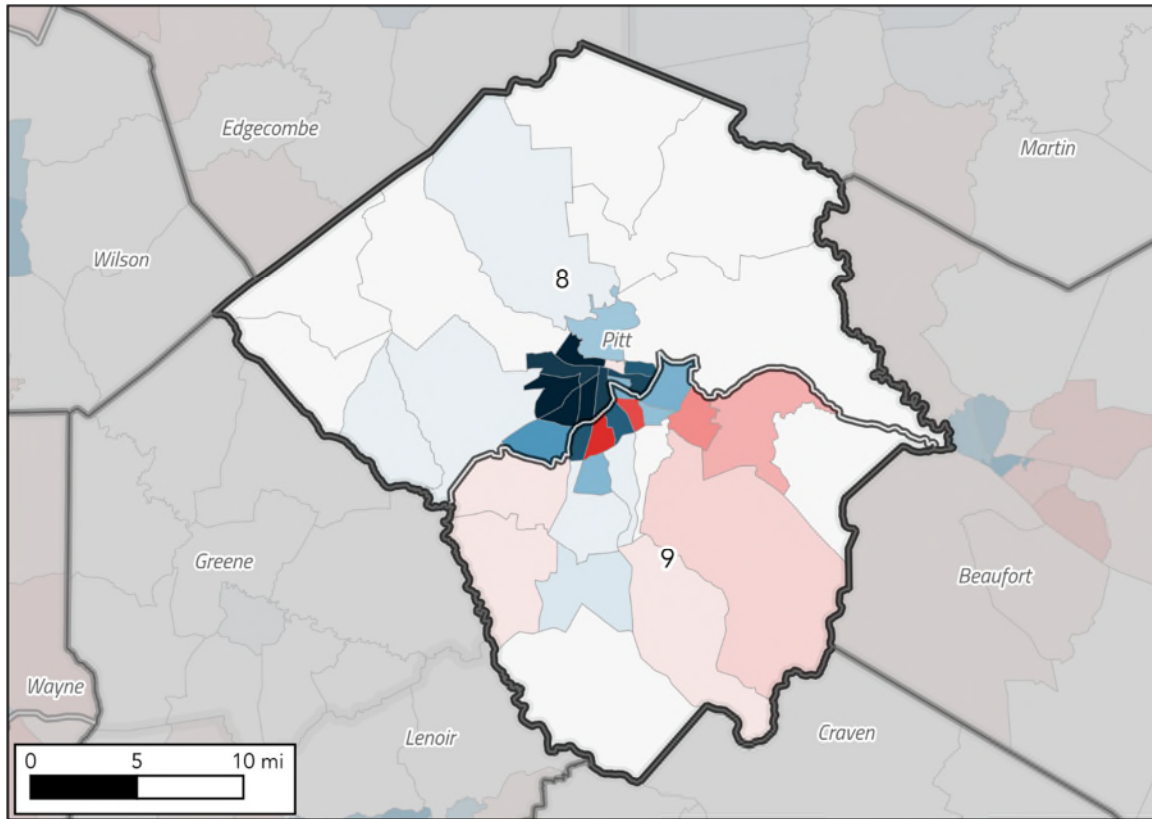


HDs 8 and 9: Pitt County Cluster

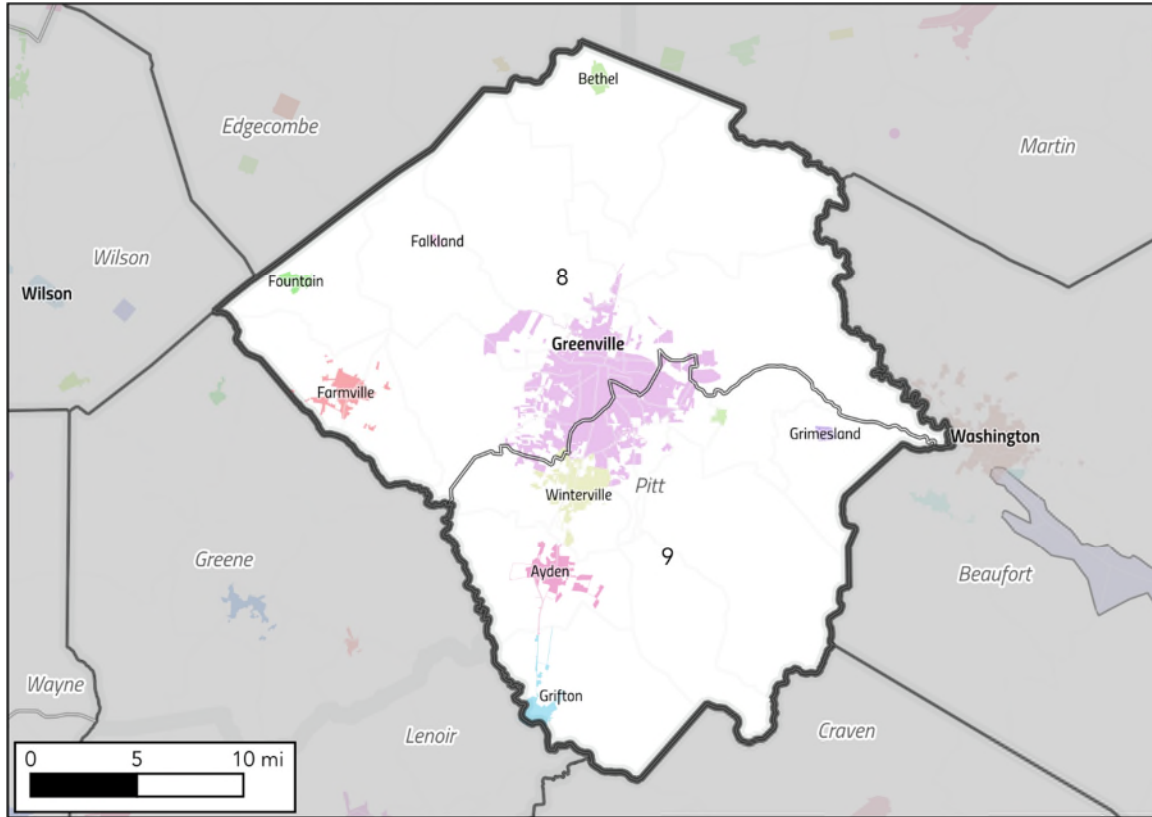
HD 8 and 9 are located in Pitt County, a county that gave 55% of its vote share to Joe Biden in the 2020 election, making it the 19th most Democratic county in the state according to this metric. The county is currently represented by two Democrats: Kandie Smith in HD-8 and Brian Farkas in HD-9.

By splitting Greenville at a particularly consequential location, the enacted map packs most Democrats in that city into HD-8 and fences them off from two Republican-leaning VTDs in HD-9. This particular division of Greenville makes HD-8 a much safer seat for Democrats and allows for a Republican-leaning district in Farkas' HD-9, which is rated by the CPI as R+3 and has a CCSC score of R+4,503. These district boundaries are difficult to explain with reference to communities of interest or natural geography. For example, students in East Carolina University's College of Health and Human Performance would take classes in HD-9, while their residence halls would be in HD-8. Similarly, as students walked from the ECU Hill District to Dowdy-Ficklen Stadium on Saturdays to watch the Pirates, they would be entering not only a sea of purple-clad football fans, but a different House district as well.

Map 38. VTD CCSC for the Pitt County Cluster



Map 39. Municipal Splits in the Pitt County Cluster

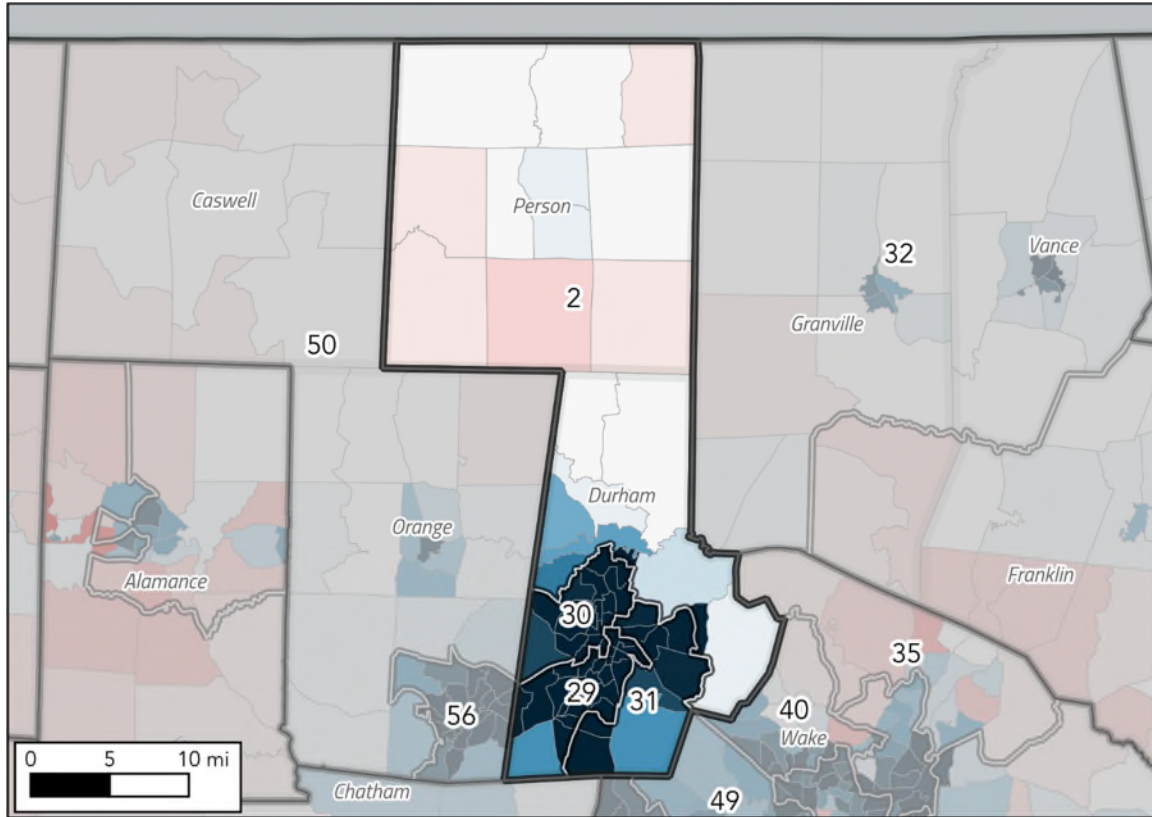


HDs 2, 29, 30, and 31: Durham and Person County Cluster

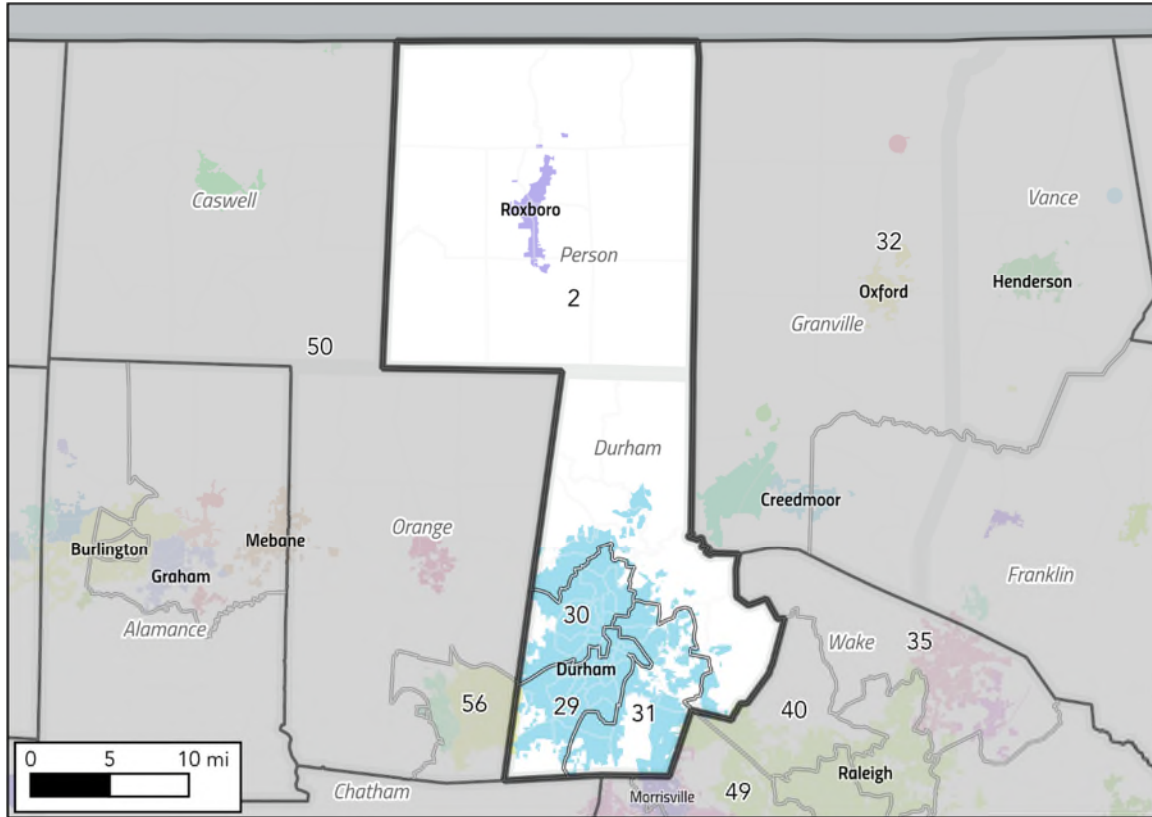
House districts 2, 29, 30, and 31 are located in a cluster with Durham and Person counties. While Person County leans towards the Republican Party, Durham County is the most Democratic county in the state, by almost any metric. Durham County gave 81.6% of its two-party vote share to Joe Biden in the 2020 election and voted overwhelmingly for Democratic candidates in every county-wide election.

The enacted map splits the City of Durham across all four districts but packs Democratic voters in HDs 29, 30, and 31; there is not a single Republican or competitive VTD in those districts. Meanwhile, HD-2 grabs all of the less Democratic and more competitive VTDs within Durham County, studiously avoiding the darkest blue VTDs in the northern end of the City of Durham. The result of these district boundaries that pack Democratic voters in the three districts in the south of Durham County is a claw-shaped appendage that allows HD-2 to be as competitive for the Republican Party as possible, giving the Republican incumbent a chance in this largely blue cluster.

Map 40. VTD CCSC for the Durham and Person County Cluster



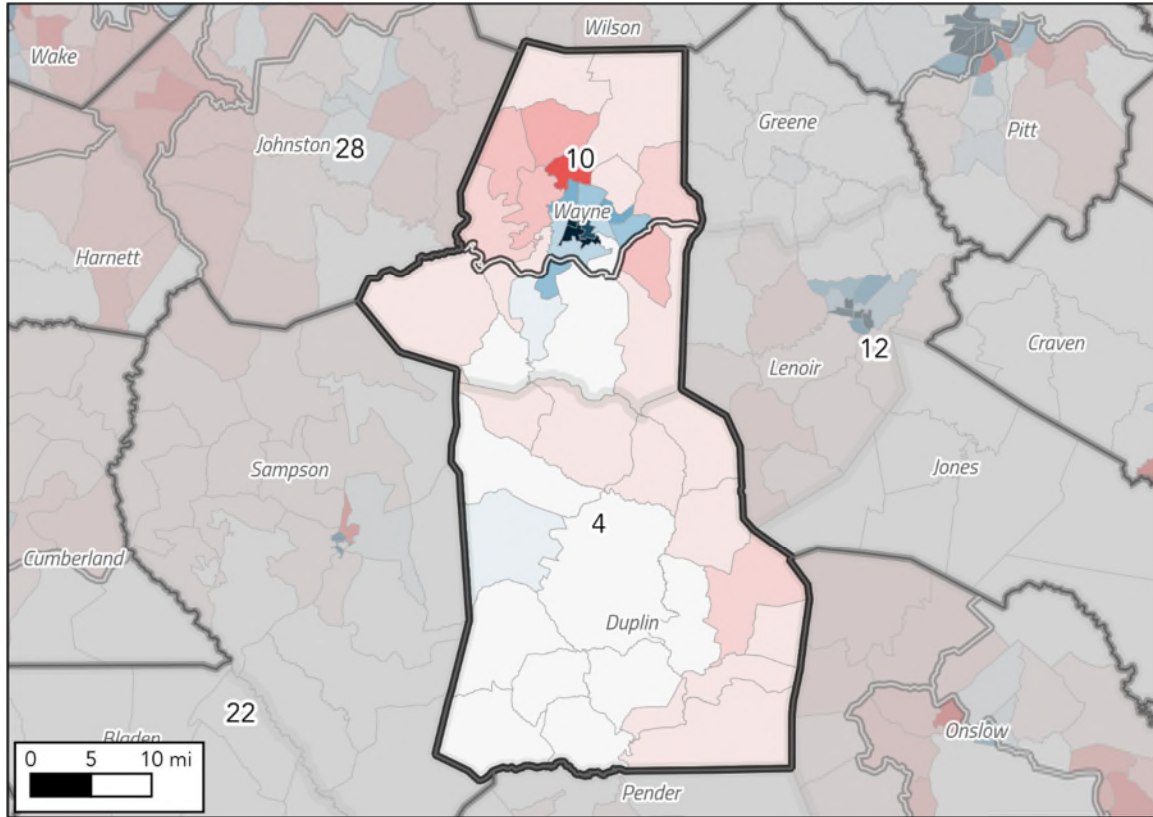
Map 41. Municipal Splits in the Durham and Person County Cluster



HDs 4 and 10: Duplin and Wayne County Cluster

House districts 4 and 10 are located in Duplin and Wayne counties, southeast of Wake County. The district boundary that runs through Wayne County ensures that there will be two Republican districts. HD-4 is rated R+8 by the CPI and advantages the Republican Party by 14,079 votes, according to the CCSC. HD-10 is rated R+3 by the CPI, with a R+4,951 CCSC advantage.

Map 42. VTD CCSC for the Duplin and Wayne County Cluster

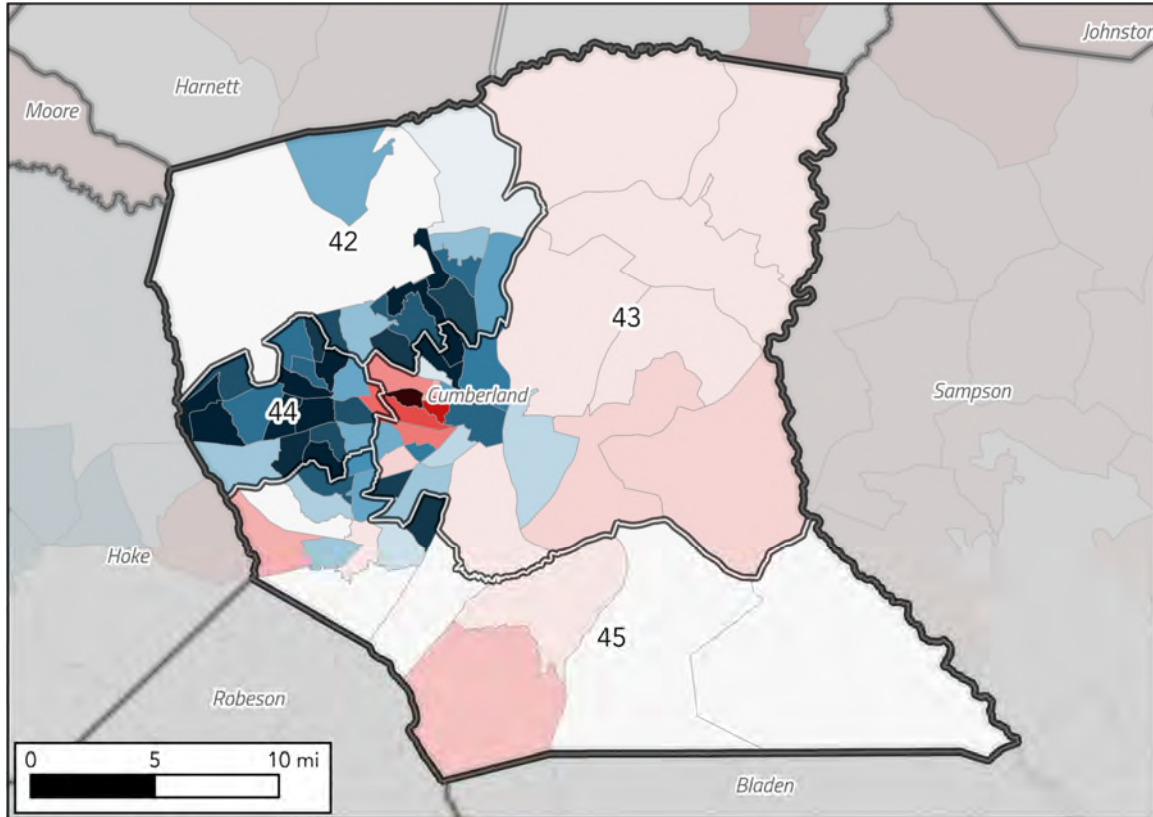


HDs 42, 43, 44, and 45: Cumberland County Cluster

Cumberland County is a heavily Democratic county, home to Fayetteville. Cumberland gave 58% of its two-party vote share to Joe Biden in 2020 and has not given the plurality of its votes for President to a Republican since 2004.

The enacted map creates two extremely competitive districts, HD-43 and HD-45 (with CCSC scores of D+1,334 and D+663, respectively) by splitting the Democratic-leaning City of Fayetteville into all four districts in the cluster. HD-43 picks up the most Republican VTDs in Fayetteville in a pattern that has partisan implications, making that district more competitive for first-term incumbent Republican Diane Wheatley. The district boundaries are also potentially confusing to voters. A citizen driving north on The All American Freeway would, in the span of about 3.5 miles, move from HD-43 to HD-44, then split the border between HD-43 and HD-44, then back into HD-44, form the border between HD-44 and HD-42, then move fully into HD-42. HD-45 includes the Republican and competitive VTDs on the south side of the county and moves into Fayetteville, but narrowly avoids the most Democratic-leaning VTDs in the city.

Map 43. VTD CCSC for the Cumberland County Cluster

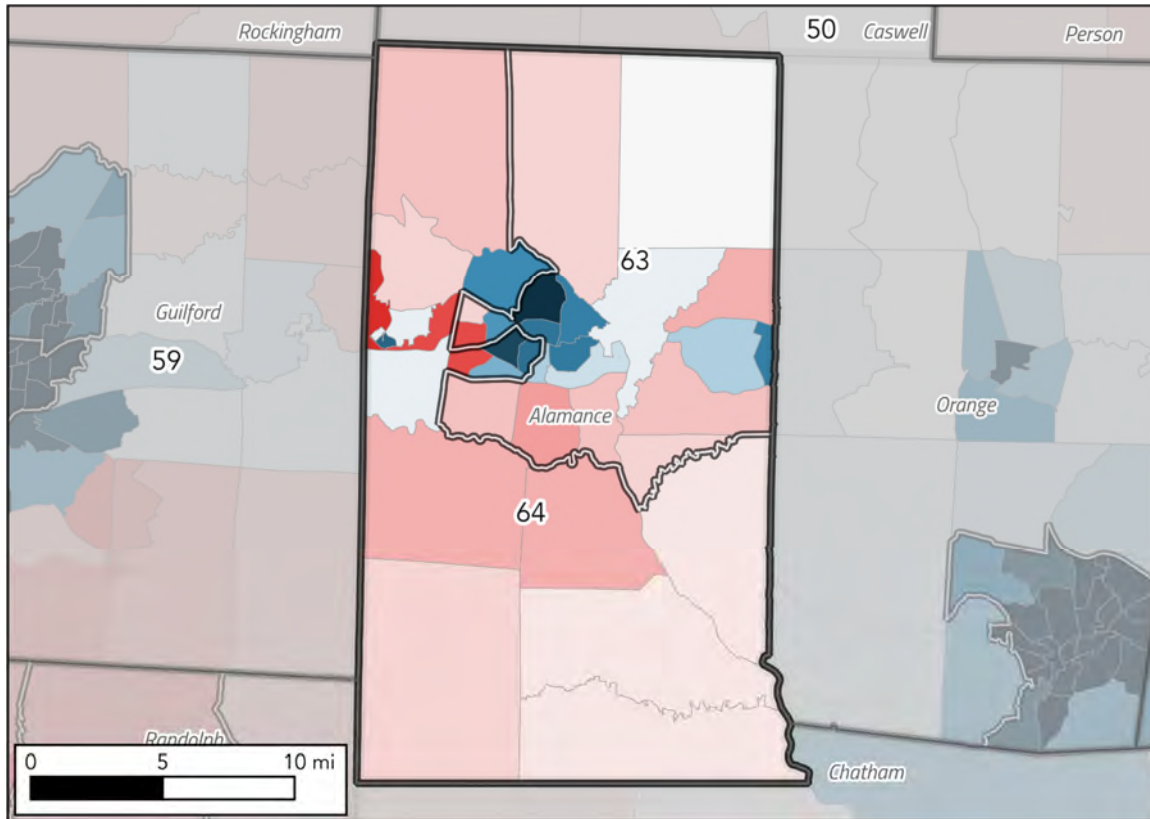


HDs 63 and 63: Alamance County Cluster

Alamance County is located between Guilford and Orange counties and includes the municipalities of Burlington, Graham, Mebane, Elon, Gibsonville, Green Level, Haw River, Ossipec, Swepsonville, and Alamance. The enacted map creates a heavily Republican HD-64 (R+8, R+13,572) and a competitive HD-63 (D+1, D+1,877) that could be challenging for the re-election of Democrat Ricky Hurtado, the only Latino legislator in North Carolina's General Assembly.

The enacted map takes a series of odd jogs around the City of Burlington in which three heavily Democratic VTDs are drawn into the heavily Republican HD-64, thus reducing the influence of those voters and leaving them walled off from HD-63 where they would be more likely to make a difference in the electoral outcome in a close district. This dovetail pattern does not follow municipal boundaries or other traditional communities of interest. At one point, the gap created between HD-63 and HD-64 is a mere three blocks wide.

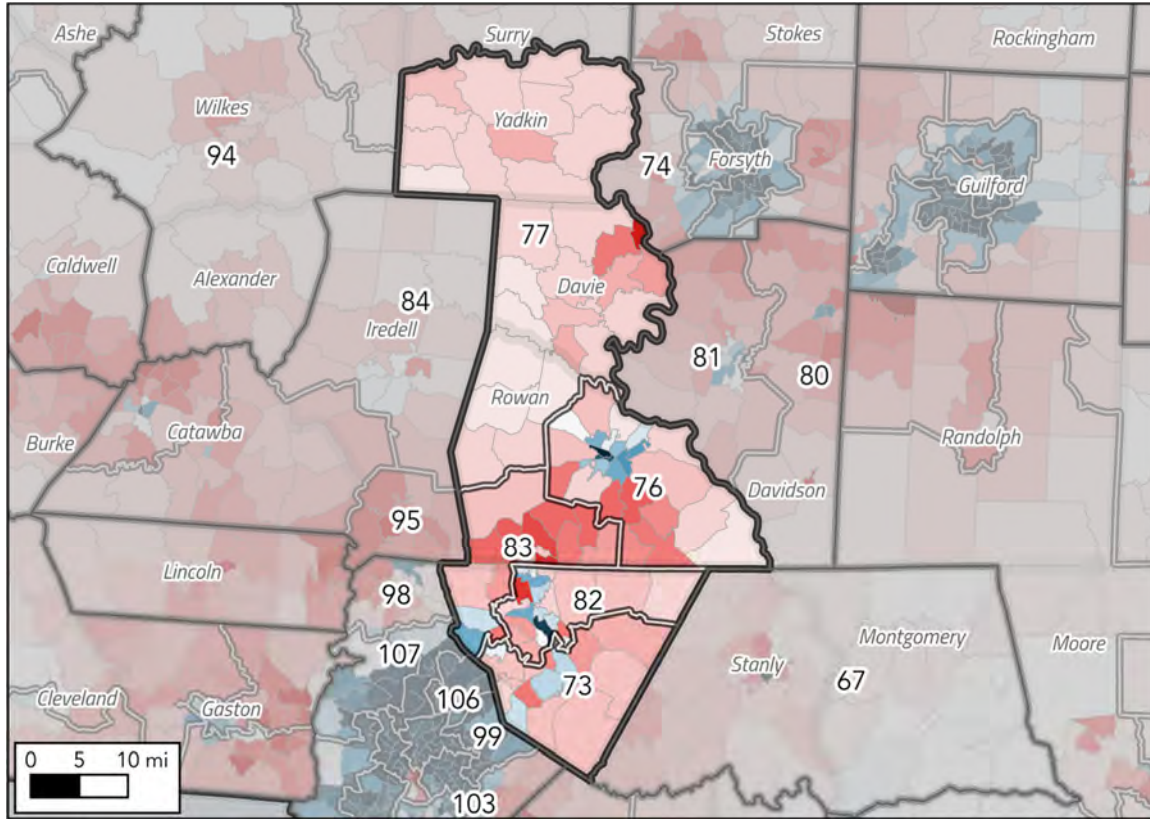
Map 44. VTD CCSC for the Alamance County Cluster



HDs 73, 76, 77, 82, and 83: Cabarrus, Davie, Rowan, and Yadkin County Cluster

This cluster is located northeast of Mecklenburg County. While the composition of these counties suggests that Republicans are likely to have an advantage in some of the potential districts in this cluster, the enacted map creates five Republican districts, ranging from a CPI of R+3 and CCSC score of R+5,578 to a CPI of R+25 and CCSC score of R+51,128. HD-82, which includes Concord and Kannapolis and is the most competitive district in the cluster as drawn, conspicuously excludes Democratic VTDs near the northeastern border of Mecklenburg County, which are placed in HDs 83 and 73.

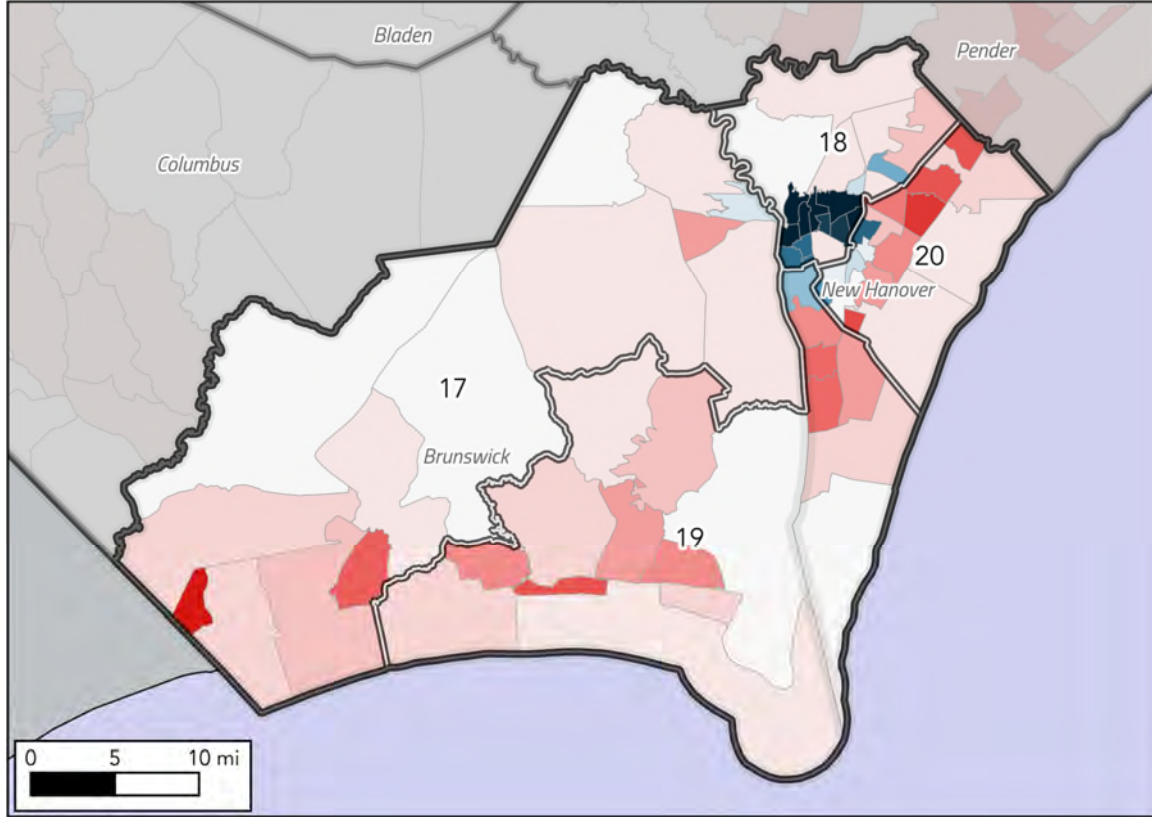
Map 45. VTD CCSC for the Cabarrus, Davie, Rowan, and Yadkin County Cluster



HDs 17, 18, 19, and 20: Brunswick and New Hanover County Cluster

The Brunswick-New Hanover cluster is located in eastern North Carolina and includes four House districts. Three of the four (HD-17, HD-19, and HD-20) lean towards the Republican Party, while HD-18 (D+11, D+20,338) packs Democratic voters in and around Wilmington, making the adjacent HD-20 (R+3, R+7,728) more competitive. The heavily Republican HD-19 also ensnares a Democratic-leaning VTD south of Wilmington, which keeps that VTD out of competitive HD-20.

Map 46. VTD CCSC for the Brunswick and New Hanover County Cluster



Conclusion

After analyzing the characteristics of all three maps as a whole, as well as the characteristics of each district in isolation, it is clear that the enacted maps will increase the number of Republicans in Congress and in the General Assembly, while decreasing the number of Democrats. Democratic voters in the vast majority of the congressional districts will have no chance at representation from a member of their own party and Republican voters in the congressional districts that pack Democrats will have no chance of representation from a member of their own party. Democratic voters are similarly disadvantaged in the Senate and House county clusters addressed above. This is not a result of natural packing or geographic clustering, but rather because the map-makers drew district lines in ways that, taken together, benefit the Republican Party. Not only do the enacted maps artificially create a substantial partisan advantage for which there is no apparent explanation other than gerrymandering, but the enacted maps also unnecessarily split communities of interest and will alter representational linkages in ways that, in some cases, have never been seen in North Carolina's history.



Christopher A. Cooper

Attachment A

December, 2021

Christopher A. Cooper

EDUCATION

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Madison Distinguished Professor (July 2019-Present)

Professor of Political Science and Public Affairs, Western Carolina University (2014-Present)

Associate Professor of Political Science and Public Affairs, Western Carolina University (2008-2014)

Associate Professor of Psychology (by Courtesy), Western Carolina University (2011-present)

Faculty Fellow, Institute for the Economy and the Future Western Carolina University (2002-2006)

Assistant Professor of Political Science and Public Affairs, Western Carolina University (2002-2008)

ADMINISTRATIVE POSITIONS

Director, Public Policy Institute, Western Carolina University (July 2008-July 2011; July 2021-present)

Department Head, Department of Political Science and Public Affairs, Western Carolina University (July 2012-July 2021; Interim from July 2011-June 2012)

Director, Master of Public Affairs (M.P.A.) Program, Western Carolina University (2005-2010)

INTERNATIONAL TEACHING

Guest Lecturer, Ludwigsburg University of Education, Ludwigsburg, Germany (May, 2018)

Guest Lecturer, Middelburg Center for Transatlantic Studies, Middelburg, the Netherlands (December, 2009; June 2012)

AWARDS

North Carolina Professor of the Year, Carnegie Foundation for the Advancement of Teaching (2013)

Board of Governors Teaching Award, WCU (2013)

University Scholar, WCU (2011)

Chancellor's Award for Engaged Teaching, WCU (2007)

Teaching-Research Award, WCU (2006)

Outstanding Achievement—Teaching, Service Learning Department (2005)

Oral Parks Award for the best faculty paper presented at the 2003 meeting of the North Carolina Political Science Association.

Artinian Professional Development Grant, Southern Political Science Association (2004; 2006)

Provost's Citation for Extraordinary Professional Promise, University of Tennessee (2002)

ADDITIONAL TRAINING

Social Network Analysis course through the Inter-university Consortium for Political and Social Research, Chapel Hill, NC (2010)

Spit Camp, Salimetrics, Inc, State College, PA (2010)

Deliberative Polling Institute, Stanford University (2008)

Hierarchical Linear Model course through the Inter-university Consortium for Political and Social Research, Amherst, MA (2005)

Summer Institute in Experimental Methods, Yale University (2003)

CATI and Ci3 training (2003)

Summer Institute in Political Psychology, Ohio State University (1999)

RESEARCH

BOOKS [2]

Cooper, Christopher A., and H. Gibbs Knotts. 2017. *The Resilience of Southern Identity*. Chapel Hill: University of North Carolina Press.

[Featured in the Durham Herald-Sun, Charleston City Paper, Statehouse Report (SC), Blue Ridge Public Radio (Asheville, NC), WFAE (Charlotte, NC), South Carolina Public Radio (Walter Edgar's Journal), WUNC (The State of Things), Georgia Public Radio (On Second Thought), Reviewed in the *Journal of Southern History*]

Cooper, Christopher A., and H. Gibbs Knotts, eds. 2008. *The New Politics of the Old North State*. Chapel Hill, NC: University of North Carolina Press.

[Featured in *Raleigh News and Observer*, Reviewed in *Journal of Southern History*, *North Carolina Historical Review*]

JOURNAL ARTICLES (PEER REVIEWED)

DENOTES STUDENT CO-AUTHOR

Cooper, Christopher A. "Innumeracy and State Legislative Salaries." *Public Opinion Quarterly*. 85(1): 147-160.

[Media coverage: Kate Elizabeth Queram; “Voters Have No Clue How Much State Lawmakers Make.” Route Fifty. Sept 9, 2021. Jeremy Borden’s Untold Story; Under the Dome Podcast (Sept 10); John Boye, “Paltry Pay for State Legislators is Embarrassing—and bad for Democracy.” *Asheville Citizen Times*. December 4, 2021]

Cooper, Christopher A., Scott Huffmon, and H. Gibbs Knotts, and Seth McKee. 2021. “Heritage v. Hate: Assessing Opinions in the Debate Over Confederate Monuments and Memorials.” *Social Science Quarterly*. 102(3): 1098-1110.

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Cooper, Christopher A. 2020. “Maybe They’re Not So Different After All: The Uniform Effects of Personality on Job Satisfaction Among Government and Non-Government Workers.” *Journal of Public and Nonprofit Affairs*. 6(1): 63-78.

Cooper, Christopher A. and John D. Gerlach. 2019. “Diversity Management in Action: Chief Diversity Officer Adoption in America’s Cities.” *State and Local Government Review*. 51(2): 113-121

Reinagel, Tyler, and Christopher A. Cooper. 2019. “Assessing the State of Mandatory Fees in America’s Public Colleges and Universities: Causes and Consequences.” *Social Science Quarterly* 101(2): 427-438.

Menickelli, Justin, Christopher A. Cooper, Chris Withnall, and Michael Wonnacott. 2019. “Analysis and Comparison of Lateral Head Impacts Using Various Golf Discs and a Hybrid III Head Form.” *Sports Biomechanics*. 18(6).

Cooper, Christopher A., and H. Gibbs Knotts. 2019. “Do I Have to Take The GRE? Standardized Testing in MPA Admissions. *PS: Political Science & Politics*.” 52(3): 470-475..

Cooper, Christopher A., H. Gibbs Knotts, and James Bourne#. 2018. “When the Personal Vote Isn’t Enough: Voter Mobilization and the Failed Effort to Change the Form of Government in Columbia, SC.” *Journal of Public and Nonprofit Affairs*. 4(3): 251-264.

Cooper, Christopher A. Cooper. “Not Just for Oprah Anymore: Incorporating Book Clubs Into Political Science Classes.” *Journal of Political Science Education*.

Amira, Karyn, Christopher A. Cooper, H. Gibbs Knotts, and Claire Wofford. 2018. “The Southern Accent as a Heuristic in American Campaigns and Elections.” *American Politics Research*. 46(6): 1065-1093.

[News Coverage: *Charleston Post and Courier* “Dang it! Politicians with Southern Accents seen as less honest, less intelligent.”; PsyPost, “Candidates with a Southern accent are views more negatively—even in the South.”; *US News and World Report*; *Charleston City Paper*]

Cooper, Christopher A. and Tyler Reinagel. 2017. “The Limits of Public Service Motivation: Confidence in Government Institutions Among Public Servants.” *Administration and Society* 49(9): 1297-1317.

Chaffin, Latasha, Christopher A. Cooper, and H. Gibbs Knotts. 2017. "Furling the Flag: Explaining the 2015 Legislative Vote to Remove the Confederate Flag in South Carolina." *Politics and Policy*. 45: 944-963.

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Cooper, Christopher A., and H. Gibbs Knotts. 2004. "Defining Dixie: A State Level Measure of the Modern Political South." *American Review of Politics*. 25: 25-40 (Special Issues on Southern Politics).

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[Reviewed in the *New York Post* Aug. 2, 2008]

Cooper, Christopher A. “Multimember Districts and State Legislatures.” 2008. In Bruce Cain, Todd Donovan, and Caroline Tolbert, eds. *Electoral Reform in the United States*. Brookings Institution Press.

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Cooper, Christopher A. 2008. “Multi-Member Districts.” In the *Political Encyclopedia of the US States and Regions*, edited by Donald P. Haider-Markel, Michael Card, Keith Gaddie, Gary Moncrief, and Kenneth Palmer. Washington DC: CQ Press.

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Cooper, Christopher A., and Brian Noland. 2004. “Lobbying the Executive Branch.” In *Research Guide to U.S. and International Interest Groups*, ed. Clive Thomas. Westport, CT: Praeger Press: 176-178.

EXPERT & TECHNICAL REPORTS

Cooper, Christopher, Blake Esselstyn, Gregory Herschlag, Jonathan Mattingly, and Rebecca Tippet. 2021. NC General Assembly County Clusterings from the 2020 Census. August 17.
<https://sites.duke.edu/quantifyinggerrymandering/files/2021/08/countyClusters2020.pdf>

Cooper, Christopher, Blake Esselstyn, Gregory Herschlag, Jonathan Mattingly, and Rebecca Tippet. 2021. Legislative Clustering in North Carolina: Looking Towards the 2020 Census. July 16.
<https://sites.duke.edu/quantifyinggerrymandering/files/2021/07/Legislative-County-Clustering-in-North-Carolina.pdf>

Cooper, Christopher A. 2020. Declaration of Christopher A. Coper, PhD. Submitted in National Urban League v. DeJoy. Case No. 1:20-cv-023971-GLR. September 2020.

Cooper, Christopher A. 2019. Rebuttal Report of Christopher A. Cooper, PhD. Submitted in Common Cause V. Lewis. 18: VCS 014001. June 7, 2019.

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Brennan, Kathleen, Christopher A. Cooper, and Inhyuck “Steve” Ha. 2014. *Regional Outlook Report, 2014*. Western Carolina University.

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Cooper, Christopher A. 2008. *Citizen Satisfaction in Buncombe County, NC*. Report Prepared for Buncombe County based on original survey data.

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Cooper, Christopher A., and Sarah Kehrberg[#]. 2007. *Yancey County Schools Health Assessment Report*. Report Prepared for the Yancey County School District based on original survey data.

Cooper, Christopher A., and Alison Melnikova[#]. 2006. *Citizen Satisfaction in Sylva, NC*. Report Prepared for the Town of Sylva based on original survey data.

Ha, Inhyuck, Kathleen Brennan, Christopher Cooper, Chester Pankowski, and Jay Denton. 2005. *The Impact of Western Carolina University on the Regional Economy*. Center for Regional Development, Western Carolina University.

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Cooper, Christopher A., and H. Gibbs Knotts. “Let the Veepstakes Begin.” *Asheville Citizen Times*. June 24, 2012.

Cooper, Christopher A., and H. Gibbs Knotts. “Thought the Election was Over? Get Ready for the Runoff.” *Asheville Citizen Times*. May 27, 2012.

Cooper, Christopher A., and H. Gibbs Knotts. “A Closer Look at Same Sex Marriage Amendments.” *Asheville Citizen Times*. April 27, 2012.

Cooper, Christopher A., and H. Gibbs Knotts. “Examining the Impact of Voter Mobilization in 2012.” *Asheville Citizen Times*. March 25, 2012.

Cooper, Christopher A., and H. Gibbs Knotts. “With No Incumbent, What Makes a Favorite?” *Asheville Citizen-Times*. February 26, 2012.

Cooper, Christopher A., and H. Gibbs Knotts. “Primary Elections About More Than Winners and Losers.” *Asheville Citizen-Times*. January 27, 2012.

Cooper, Christopher A., and H. Gibbs Knotts. “Occupy, Tea Party to Help Define 2012 Politics.” *Asheville Citizen-Times*. December 21, 2011.

Cooper, Christopher A. and H. Gibbs Knotts. “What to Look for in the 2012 Election Season.” *Asheville Citizen Times*. November 25, 2011.

Cooper, Christopher A. and H. Gibbs Knotts. “What do Business Names Say About Asheville?” *Asheville Citizen Times*. August 21, 2011.

Cooper, Christopher A. and H. Gibbs Knotts. “Redistricting 101: An FAQ on a Current Political Issue.” *Asheville Citizen Times*. July 17, 2011.

Cooper, Christopher A., and H. Gibbs Knotts. “Be Skeptical of Both Sides in Debate Over N.C. Voter ID Law.” *Charlotte Observer*. January 13, 2011.

Cooper, Christopher A., and H. Gibbs Knotts. “County Seats: the GOPs Rise to Parity.” *Raleigh News and Observer*. December 8, 2010.

Cooper, Christopher A. “Reflections on the ‘Far-Left Leanings’ of the 11th Congressional District.” *Asheville Citizen Times*. November 11, 2010.

Cooper, Christopher A., and H. Gibbs Knotts. “Conservative Democrats, Endangered Species and Rep. Heath Shuler.” *Smokey Mountain News*. July 14, 2010.

Cooper, Christopher A., and H. Gibbs Knotts. “Local Government Doesn’t Fare Well in Poll.” *Smoky Mountain News*. July 14, 2010.

Cooper, Christopher A., and H. Gibbs Knotts. “Tea Party Catches on, but Impact on Election Still Hard to Gauge.” *Smoky Mountain News*. July 14, 2010.

Cooper, Christopher A., and H. Gibbs Knotts. “Assessing the Tea Party Nationally and Locally.” *Asheville Citizen Times*. March 2, 2010.

Cooper, Christopher A., and H. Gibbs Knotts. “Look for Opportunities in the Public Arena.” *Asheville Citizen-Times*. June 5, 2009.

Cooper, Christopher A., and Thaddeus Huff[#]. “Future NC Leaders Get Valuable Learning Experience.” *Asheville Citizen-Times*. May 15, 2009.

Cooper, Christopher A., and H. Gibbs Knotts. “Listening for the Voice of the People.” *Durham Herald-Sun*. April 12, 2009.

Cooper, Christopher A., and H. Gibbs Knotts. “Here We Go Again—the ‘Z’ Word Returns.” *Asheville Citizen Times*. April 8, 2009.

Cooper, Christopher A. “Shadowboxing Great for Sports TV, But Bad For Democracy.” *Atlanta Journal-Constitution*. November 20, 2008.
[Reprinted in the *Asheville Citizen Times*. November 20, 2008.]

Cooper, Christopher A., and H. Gibbs Knotts. “Making Sense of This Historic 2008 Election.” *Asheville Citizen Times*. November 9, 2008.

Cooper, Christopher A., and H. Gibbs Knotts. “Survey Reveals Where WCU Students Stand in Presidential Race.” *Asheville Citizen Times*. November 2, 2008.

Cooper, Christopher A., and H. Gibbs Knotts. “The State of Politics on NC Campuses.” *Charlotteobserver.com*. November 1, 2008.

Cooper, Christopher A., and H. Gibbs Knotts. “Can Obama Pull off an Upset in the South?” *Asheville Citizen-Times*. October 19, 2008.

Cooper, Christopher, and Gibbs Knotts. “Candidates’ Campaign Schedules Finely Tuned.” *Asheville Citizen-Times*. September 7, 2008.

Cooper, Christopher, and Gibbs Knotts. “Voters: It’s Healthy to Challenge Your Biases.” *Asheville Citizen-Times*. July 27, 2008.

Cooper, Christopher A., and H. Gibbs Knotts. “Much Ado About Something: Vice-Presidential Selection in the 2008 Election.” *Asheville Citizen-Times*. June 15, 2008.

Knotts, H. Gibbs, Christopher Cooper and Jewel Counts[#]. “Democratic Party’s Process Undemocratic.” *Charlotte Observer*. May 23, 2008.

Cooper, Christopher A., and H. Gibbs Knotts. “Political Mudslinging has a Long History in our Democracy.” *Asheville Citizen-Times*. May 4, 2008.

Cooper, Christopher A., and H. Gibbs Knotts. “Race, Gender Intrude on Democratic Race.” *Asheville Citizen-Times*. March 30, 2008.

Cooper, Christopher A., and H. Gibbs Knotts. “Turnout Tsunami.” *Asheville Citizen-Times*. February 17, 2008.

Cooper, Christopher A., and H. Gibbs Knotts. “The Field Narrows.” *Asheville Citizen-Times*. January 13, 2008.

Cooper, Christopher A., and H. Gibbs Knotts. “Tar Heels Need to Become More Aware of State Politics.” *Asheville Citizen-Times*. April 8, 2007.

Cooper, Christopher A., and Niall Michelsen. “College Education Must Play a Role in Teaching Civic Responsibility.” *Asheville Citizen-Times*. October 13, 2006.

Cooper, Christopher A., and H. Gibbs Knotts. “People Across the Nation Divided on Confederate Flag.” *The Greenville (SC) News*. August 10, 2006.

Brennan, Kathleen, and Christopher A. Cooper. “WNC Natives and in-migrants Have More Common Values Than They know.” *Asheville Citizen-Times*. December 12, 2004.

Cooper, Christopher A. “Opinion Polls, While not Perfect, Give Voice to the Public.” *Asheville Citizen-Times*. October 20, 2004.

Cooper, Christopher A. “Kerry’s choice of Edwards Unlikely to Have Large Impact on Election Outcomes.” *Asheville Citizen-Times*. July 21, 2004.

Cooper, Christopher A. “A Money Spinner for the West.” *Raleigh News and Observer*. July 1, 2004.

Cooper, Christopher A. “How to Increase Voter Turnout.” *Charlotte Observer*. June 24, 2004.
[Reprinted in the *Smoky Mountain News*.]

Cooper, Christopher A. “Trust in Government Declining, From City Hall to White House.” *Asheville Citizen-Times*. June 13, 2004.

OTHER PUBLICATIONS [8]

Cooper, Christopher A., and H. Gibbs Knotts. 2020. “Tips for Talking with the Media.” *The Department Chair*. 31(2): 10-11. (editor reviewed)

Cooper, Christopher A. 2020. “Back to Basics: Cultivating Community Among Faculty.” *The Department Chair* 30(4): 3-4. (editor reviewed)

Cooper, Christopher A. 2020. Review of *The Rise and Fall of the Branchhead Boys: North Carolina’s Scott Family and the Era of Progressive Politics*. *North Carolina Historical Review*.

Collins, Todd A., and Christopher A. Cooper. 2011. “The Case Salience Index: A Potential New Measure of Legal Salience.” *Law and Courts Newsletter* 21: 5-7. (editor reviewed)

Cooper, Christopher A. 2010. Instructor's Manual for *State and Politics: Institutions and Reform, Second Edition*, by Todd Donovan, Christopher Mooney and Daniel Smith. Wadsworth Publishing.

Collins, Todd A., Christopher A. Cooper, and H. Gibbs Knotts. 2008. "Picturing Political Science." *PS: Political Science and Politics*, 42: 365. (editor reviewed)

Cooper, Christopher A. 2008. Instructor's Manual for *State and Politics: Institutions and Reform*, by Todd Donovan, Christopher Mooney and Daniel Smith. Wadsworth Publishing.

Cooper, Christopher A. 2006. Review of *Bringing Representation Home: State Legislators Among Their Constituencies*, by Michael A. Smith. *Perspectives on Politics* 2: 603-604.

CONFERENCE PRESENTATIONS

*Virtual

"The Rise of the Unaffiliated Voter in North Carolina." Presented at the State of the Parties 2020 and Beyond Virtual Conference. Ray C. Bliss Institute for Applied Politics, University of Akron. November, 2021 (with J. Michael Bitzer, Whitney Ross Manzo, and Susan Roberts).*

"Redistricting in North Carolina." Panel Discussion at Redistricting and American Democracy Conference. Sanford School, Duke University. September, 2021.

"Is The Appalachian Voter Distinct?" Poster Presented at the Appalachian Studies Association. March, 2021.*

"Innumeracy and State Legislative Salaries." Presented at the North Carolina Political Science Association. February, 2021.*

"Roundtable: North Carolina and the 2020 Election." North Carolina Political Science Association. February 2021.*

"The Southern Voter." Presented at the Citadel Symposium on Southern Politics. March, 2020 (with Scott H. Huffmon, H. Gibbs Knotts, and Seth McKee).

"Cooper, Christopher A., Scott Huffmon, and, H. Gibbs Knotts. "The Politics of Southern Identity" Presented at the Biennial Meeting of the Southern Studies Forum. Odense, Denmark. April, 2019

"Heritage v. Hate: Assessing Opinions in Debate Over Confederate Monuments and Memorials." Presented at the Annual Meeting of the South Carolina Political Science Association. February, 2019 (with Scott H. Huffmon, H. Gibbs Knotts, and Seth McKee).

"Still Fighting the Civil War? Southern Opinions on the Confederate Legacy?" Presented at the Biennial Meeting of the Citadel Symposium on Southern Politics. March, 2018 (with M.V. Hood III, Scott H. Huffmon, Quentin Kidd, H. Gibbs Knotts, and Seth C. McKee).

"Leaving the (Political) Party in the South: Unaffiliated Voters and the Future of the Southern Electorate." Presented at the Auburn University Montgomery Southern Studies Conference. February, 2018.

“The Resilience of Southern Identity.” Presented at the Biennial Meeting of the Southern American Studies Association. March, 2017 (with H. Gibbs Knotts).

“The Five Factor Model, Public Service Motivation, and Person-Organization Fit.” Presented at the Northeastern Conference for Public Administration. Harrisburg, PA. November, 2016.

“Furling the Flag: Examining the Legislative Vote to Remove the Confederate Flag from the Statehouse Grounds in South Carolina.” Presented at the Citadel Symposium on Southern Politics. March, 2016 (with Latasha Chaffin and H. Gibbs Knotts).

“Tuition vs. Fees: Breaking Down the Ballooning Costs of Attendance in America’s Public Colleges.” Presented at the Northeastern Conference for Public Administration. Arlington, VA. November, 2015 (with Tyler Reinagel).

“Charter Reform in City Government: The Case of Columbia, SC.” Presented at the Annual Meeting of the Southeastern Conference for Public Administration. Charleston, SC. October, 2015 (with James Bourne and H. Gibbs Knotts).

“The Bluest Red State in America: North Carolina as a Swing State.” Presented at the Annual Meeting of the Midwest Political Science Association. Chicago, IL. April, 2015 (with H. Gibbs Knotts).

“Personality Predictors of Job Satisfaction in Public Administrators.” Presented at the Annual Meeting of the Southeastern Psychological Association. Hilton Head, SC. March, 2015 (with John Luke McCord).

Kaysing, Nicole, Erin Leonard, Adam Keath, Justin Menickelli and Christopher A. Cooper. “Perceived Sexual Orientation of Women in Sports and Non-Sport Contexts. 2015 SHAPE America National Convention and Expo. Seattle, WA March, 2015.

Menickelli, Justin, Maridy Trom, Tom Watterson, Christopher A. Cooper and Dan Grube. “Activity Monitor Accuracy in Assessing Caloric Expenditures in Obese Adults.” 2015 SHAPE America National Convention and Expo. Seattle, WA March, 2015.

“The Resilience of Southern Identity.” Presented at the AUM Southern Studies Conference 2015. February 2015 (with Gibbs Knotts).

“Personality and Nonprofit Management.” Presented at the Northeastern Conference on Public Administration. October, 2014.

“What Do Wilbur Zelinsky and the Beatles Have in Common?” Presented at the Annual Meeting of the Association of American Geographers. Tampa, FL. April 2014 (with Gibbs Knotts).

“Blue Beacon in the South, or the New South Carolina? North Carolina Politics in the 21st Century” Presented at the Citadel Symposium on Southern Politics. Charleston, SC. February, 2014 (with Gibbs Knotts).

“A ‘Court’ of Public Opinion Influence on Judicial Decision-Making in the U.S. Supreme Court.” Presented at the Public Choice Society Conference. March, 2014 (with Todd Collins).

“Appointed Senators: Treadmill to Oblivion or Stairway to Success?” Presented at the Southern Political Science Association. Orlando, FL. January, 2014 (with Gibbs Knotts).

“Unpacking Southern Identity.” Presented at the Southern American Studies Association Meeting. Charleston, SC. February, 2013 (with Gibbs Knotts)

“Southern Identity Revisited.” Presented at the Southern Political Science Association. Orlando, FL. January, 2013 (with Gibbs Knotts)

“Reassessing Case Salience.” To be presented at the American Political Science Association. New Orleans, LA. August, 2012 (with Todd Collins). [Conference was cancelled due to Hurricane]

“The Southern Focus Poll Revisited.” Presented at the Citadel Symposium on Southern Politics. Charleston, SC. February, 2012 (with Gibbs Knotts).

Menickelli, J., Smith, J., Claxton, D., Troy, M., Cooper, C., & Grube, D. (2012, March). Validity of the Walk4Life MVP Pedometer for Measuring Steps and Moderate-to-Vigorous Physical Activity. Presented at the AAHPERD Convention, Boston.

Menickelli, J., Tuten, C., Cooper, C., Grube, D., Claxton, D., Barney, D. & Lyksett, J. (2012, March). Disc Golf and Walking Benefits: A Pedometer-Based Exercise Assessment. Presented at the AAHPERD Convention, Boston.

“In Search of Meaning in Southern And Dixie Business Names.” Presented at the Annual Meeting of the North Carolina Political Science Association. Charlotte, NC. February, 2011 (with Gibbs Knotts and Hope Alwine#).

“Media Coverage of the Burger Court.” Presented at Southern Political Science Association. New Orleans, LA. January, 2011 (with Todd A. Collins).

“Measuring Legal Salience.” Presented at the Annual Meeting of the Midwest Political Science Association. Chicago, IL. April, 2010 (with Todd A. Collins).

“Love ‘Em or Hate ‘Em: Opinions of Southerners between 1964 and 2008.” Presented at the Citadel Symposium on Southern Politics, March, 2010 (with Gibbs Knotts).

“The Geography of Social Identity in Appalachia.” Presented at the Annual Meeting of the North Carolina Political Science Association. Durham, NC. February, 2010 (with Gibbs Knotts and Katy Elders).

“Methodological Tools in SoTL” Presented at the International Society for the Scholarship of Teaching and Learning. Bloomington, IN. October, 2009 (with John Habel, Mary Jean Herzog, and Kathleen Brennan).

“Guided by Voices: Understanding Student Learning.” Presented at the International Society for the Scholarship of Teaching and Learning. Edmonton, AL. October, 2008 (with Anna McPhadden, Chesney Reich, Glenn Bowen, Laura Cruz, and Carol Burton).

“Two Approaches to Place and Civic Engagement.” Presented at the American Democracy Project. Snowbird, UT. June, 2008 (with Sean O’Connell).

“Overlapping Identifies: Investigating the Causes and Consequences of Social Identify in the South.” Presented at the Citadel Symposium on Southern Politics, March, 2008 (with Gibbs Knotts, presenter).

“The Importance of Voter Files for State Politics Research.” Presented at the Annual Meeting of the Southern Political Science Association. New Orleans, LA. January, 2008 (with Gibbs Knotts and Moshe Haspel).

“Beyond Racial Threat.” Presented at the Annual Meeting of the American Political Science Association. Chicago, IL. September, 2007 (with Gibbs Knotts and Moshe Haspel).

“News Media and the State Policy Process: Perspectives from Legislators and Political Professionals.” Presented at the 7th Annual Conference on State Politics and Policy. Austin, TX. February, 2007 (with Martin Johnson).

“Politics and the Press Corps: Reporters, State Legislative Institutions and Context.” Presented at the Annual Meeting of the American Political Science Association. Philadelphia, PA. August, 2006 (with Martin Johnson).

“Politics and the Press Corps: Reporters, State Legislative Institutions and Context.” Presented at the 6th Annual Conference on State Politics and Policy. Lubbock, TX. May, 2006 (with Lilliard Richardson).

“The Impact of Multi-Member Districts on Descriptive Representation in U.S. State Legislatures, 1975-2002.” Presented at the 6th Annual Conference on State Politics and Policy. Lubbock, TX. May, 2006 (with Lilliard Richardson).

“Trust in Government, Citizen Competence and Public Opinion on Zoning.” Paper presented at the Annual Meeting of the North Carolina Political Science Association. High Point, NC. March, 2006 (with Gibbs Knotts and Kathleen Brennan).

“Casework in U.S. State Legislatures.” Presented at the Annual Meeting of the Southern Political Science Association. Atlanta, GA. January, 2006 (with Lilliard Richardson).

“Voice of the People: Letters to the Editor in America’s Newspapers.” Presented at the Annual Meeting of the American Political Science Association. Washington, DC. August, 2005 (with H. Gibbs Knotts).

“Newsgathering in America’s Statehouses.” Presented at the 5th Annual Conference on State Politics and Policy. East Lansing, MI. May, 2005 (with Martin Johnson).

“Media Coverage of Scandal and Declining Trust in Government: An Experimental Analysis of 9/11 Commission Testimony.” Presented at the Annual Meeting of the Midwest Political Science Association. Chicago, IL. April, 2005 (with Anthony Nownes).

“Beyond Dixie: Race, Region, and Support for the South Carolina Confederate Flag.” Presented at the Annual Meeting of the North Carolina Political Science Association. Pembroke, NC. March, 2005 (with H. Gibbs Knotts).

“Media Bias and American Statehouse Reporting.” Presented at the Annual Meeting of the Southern Political Science Association. New Orleans, LA. January, 2005 (with Martin Johnson).

“The Impact of Institutional Design on State Legislative Representation.” Presented at the 4th Annual Conference on State Politics and Policy. Kent, OH. April, 2004 (with Lilliard Richardson).

“Defining Dixie: Searching for a Better Measure of the Modern Political South.” Presented at the 2004 Citadel Symposium on Southern Politics. March, 2004 (with H. Gibbs Knotts).

[Also presented at the Annual Meeting of the North Carolina Political Science Association. Elon University. March, 2004.]

“Negotiating Newsworthiness: Organized Interests and Journalists in the States.” Presented at the Annual Meeting of the Southern Political Science Association. New Orleans, LA. January, 2004 (with Anthony J. Nownes).

“State Legislators in the Internet Age.” Presented at the Annual Meeting of the American Political Science Association. Philadelphia, PA. August, 2003. (with Lilliard Richardson).

“Descriptive Representation in Multi-Member Districts, 1975-2002.” Presented at the Annual Meeting of the Midwest Political Science Association. Chicago, IL. April, 2003 (with Lilliard Richardson).

“The Consequences of Multi-Member Districts in the State Legislature.” Presented at the 3rd Annual Meeting of the Conference on State Politics and Policy. Tucson, AZ. March, 2003 (with Lilliard Richardson).

“I Learned it From Jay Leno: Entertainment Media in the 2000 Election.” Presented at the Annual Meeting of the South Carolina Political Science Association. Rock Hill, SC. February 2003 (with Mandi Bates). Also presented at the Annual Meeting of the North Carolina Political Science Association. Elon, NC.

“Do Advertorials Work?” Presented at the Annual Meeting of the Southern Political Science Association. Savannah, GA. November 2002 (with Anthony Nownes).

“Legislative Representation in the Face of Direct Democracy.” Presented at the 2nd Annual Conference on State Politics and Policy. Milwaukee, WI. May, 2002 (with Lilliard E. Richardson).

“Local Citizen Groups.” Presented at the Annual Meeting of the Western Political Science Association. Long Beach, CA. March 2002 (with Anthony J. Nownes).

“Internet Use in the State Legislature.” Presented at the Annual Meeting of the Western Political Science Association. Las Vegas, NV. March, 2001.

“Media Consumption in the State Legislature.” Presented at the Annual Meeting of the Western Political Science Association. Las Vegas, NV. March 2001.

“Media and the State Legislature.” Presented at the Annual Meeting of the American Political Science Association. Washington, DC. September, 2000.

“Depictions of Public Service in Children’s Literature.” Presented at the Annual Meeting of the International Society for Political Psychology. Seattle, WA (with Marc Schwerdt). July, 2000.

“Former State Legislators in the U.S. Congress During the 1990’s.” Presented at the Annual Meeting of the Southern Political Science Association. Atlanta, GA. (with Lilliard E. Richardson). August, 1999.

INVITED TALKS AND COMMUNITY SPEAKING ENGAGEMENTS

**Virtual*

“State and Local Government in NC,” Leadership Asheville. December, 2021.

“The Resilience of Southern Identity.” West Forum, Winthrop University. November, 2021 (with Gibbs Knotts).

“Running Elections in NC—an Insider’s Perspective.” Panel for Carolina Public Press. November, 2021.*

“North Carolina Politics Primer.” Presented to Leadership Asheville Seniors. November, 2021.*

Co-host and Co-Moderator for Sylva Town Commission Debate. October, 2021*

“Redistricting.” Presented to Politica. October, 2021*

“The Swain County Electorate.” Presented to Indivisible, Swain County.*

“The Jackson County Electorate.” Presented to the Jackson County NC Democratic Women.

“Introduction to North Carolina Government.” Presented at the Science Policy Bootcamp and NC STEM Policy Fellowship Orientation. Sigma Chi.* June, 2021.

“The Landscape of North Carolina Politics.” Presented to the NC League of Municipalities Conference, April, 2021.*

“Politics 2021” Presented to the Hendersonville Rotary. February, 2021.*

“Election Recap.” Presented to NC Association of City and County Managers.” February, 2021.*

“State and Local Government in North Carolina.” Presented to Leadership Asheville, January 2021.*

“Election 2020: In the Rear View Mirror.” Presented to Leadership Asheville Foundation. November, 2020.*

“Election 2020: In the Rear View Mirror.” Presented to Sylva Rotary. November, 2020.*

“Election 2020.” Presented to Leadership Asheville Seniors. October, 2020.*

“North Carolina Politics.” Presented to University of Chicago Harris School Alumni Association. October 2020. *

“Election Data.” Guest Lecture for Gerry Cohen’s Election Law Class at the Duke University Sanford School of Public Policy. October, 2020. *

“Election 2020.” City of Burlington, NC. October 2020. *

“Election 2020” Haywood Sunrise Rotary Club. October, 2020. *

Election 2020 from the Bottom Up.” Asheville Chamber of Commerce Executive Committee. September 2020. *

“Election 2020.” Policy on Tap. Asheville Chamber of Commerce. September 2020.

“North Carolina Elections 2020.” Folkmoot. Waynesville, NC. September, 2020. *

“Measuring, Mapping and Interpreting Southern Identity.” Guest Lecture for Derek Alderman’s Geography of the South class. University of Tennessee, Knoxville. *

“Thoughts on Election 2020.” Leadership Asheville Buzz Breakfast. August, 2020). *

“Local, Regional, and State Political Climate.” Asheville Rotary Club. July, *

“Political Polarization: Causes and Consequences.” Givens Estate. May, 2020; *

“Gerrymandering.” Hinton Rural Life Center. February, 2020.

“Elections 2020.” Hendersonville Rotary Club.

Moderator, 11th Congressional District Democratic Forum. Jackson County Library. February, 2020.

“State and Local Elections 2020.” Presented at the Leadership Asheville Foundation. January, 2020.

“North Carolina Redistricting.” Presented at the Asheville Chamber of Commerce. December, 2019.

“State and Local Government.” Presented at Leadership Asheville. December, 2019.

“Politics 2020.” Roundable on NC Spin (UNC-TV)

“A User’s Guide to the 2020 Election.” Presented at Life@WCU (two presentations). November, 2019.

“The Resilience of Southern Identity.” Presented at Clemson University’s Osher Lifelong Learning Institute. (with Gibbs Knotts). November 8, 2019.

“The Resilience of Southern Identity.” Presented at the West Forum, Winthrop University. November, 2018.

“2018 Elections.” Presented to the Foundation Board of Blue Ridge Public Radio. November, 2018.

“2018 Elections.” Roundtable on NC Spin (UNC-TV).

“The Future of the Two-Party System.” Presented at Leadership Asheville Foundation. October, 2018

“The 2018 Election” Presented at the Beth HaTePhelia Congregation Brotherhood Luncheon. October, 2018

“The 2018 Constitutional Amendments.” Presented at the Cathedral of All Souls. Asheville, NC. October, 2018.

“Elections and North Carolina Politics in 2018.” Presented at the NC Local Government Budget Officers Association Annual Summer Meeting. Atlantic Beach, NC. July 2018.

“State and Local Government in North Carolina.” Leadership Asheville. December, 2018.

“Politics 2017.” Presented at Life@WCU (two presentations). November, 2018.

Moderated 11th Congressional District Democratic Primary Debate. Canton, NC. April, 2018.

“The Resilience of Southern Identity.” Madstone Café and Books. September, 2017.

Moderated Asheville City Council Debate. Givens Estate. August, 2017.

“Politics in Western North Carolina.” Presented at the Hinton Rural Life Center. June, 2017.

“Redistricting.” Presented at the FairVote Forum, Haywood Community College. June, 2017.

“Redistricting.” Presented to the Asheville Chamber of Commerce. May, 2017.

“Man is, by Nature, a Political Animal.” Presented at the Science Café. Sylva, NC. March, 2017.

“State of State Politics.” Presented to Leadership Asheville Foundation Luncheon. March, 2017.

“Raising Your Voice: Contacting Your Representatives in a Polarized Age.” Presented at the Haywood County Library. March, 2017.

“Politics 2017.” Presented to the NC City/County Manager’s Association in Durham, NC. February 2017.

“Election 2016.” Presented at the WCU Alumni Association Meeting in Charlotte, NC. October, 2016.

Speaker and Moderator for Buncombe County Commissioner Debate. October, 2016.

“Election 2016.” Presented at the WCU Alumni Association Meeting in Atlanta, NC. October, 2016.

“Election 2016.” Presented at the South Asheville Rotary Club. October, 2016.

“Election 2016.” Presented at the Buncombe County Rotary Club. October, 2016.

“Election 2016.” Presented at the Sylva Rotary Club. October, 2016.

“Election 2016.” Presented at Beth Hatephelia Brotherhood Lunch. October, 2016.

“Politics 2016.” Presented at Life@WCU. Cullowhee and Asheville. October 2016.

“Political Polarization.” Presented to the Buncombe County League of Women Voters. June 2016.

“Congress Today.” Presented at Life@WCU. Cullowhee, and Asheville. November, 2015.

“Politics 2015.” Presented at the Highlands Leadership Series. Highlands, NC. July, 2015.

“Politics in North Carolina.” Presentation to the Nonprofit Pathways Policy Conference. January, 2015.

“Polarization in Politics.” Presented at the Givens Estate, Asheville, NC. June 2015.

“Politics Today in North Carolina.” Presented at Leadership Asheville. Asheville, NC. February, 2015.

“North Carolina For Nonprofits.” Presented at the Nonprofit Pathways Public Policy Briefing. January 2015.

“Regional Outlook Report.” Presented at Lead WNC, Cullowhee, NC. November, 2014.

“North Carolina Politics.” Presented at Leadership Asheville, Asheville, NC. November, 2014.

“Election 2014.” Presented at Beth Hatephelia Synagogue. Asheville, NC. October 2014.

“Electoral Politics in the United States.” Presented to the Finance Directors for America’s Motor Speedways. October, 2013.

“The Current State of American Civics.” 2nd Annual Social Work Conference: Citizenship and Civility: Working Together for Practical Advocacy in a Polarized Era. May, 2013.

“Election 2012.” Presented at Sylva Rotary Club. Sylva, NC, October, 2012.

“Election 2012.” Presented at Leadership Asheville. Asheville, NC, October, 2012.

“Election 2012.” Keynote address to the Motor Speedway Finance Officers. September, 2012.

“Election 2012 in North Carolina.” Keynote address to the North Carolina Association of Electrical Cooperatives. September, 2012.

“Election 2012.” Keynote address to the North Carolina City/County Manager’s Association Summer Meeting. June, 2012.

“What Do The Data Tell Us About Hunger?” Presented at Leadership Asheville. Asheville NC, April, 2012.

“Public Opinion on Second Home Development.” Presented at the Symposium on Second Home Development. Asheville, NC April, 2011.

“North Carolina Politics” (with Gibbs Knotts). Presented to the Association of North Carolina Budget Officers. Grove Park Inn, Asheville, NC. 2010.

“Engaged Scholarship and the Public Policy Institute.” Presented to the Morehead State Leadership Institute, 2009.

“Progressivism in North Carolina Politics” (with Gibbs Knotts). Presented at the John Locke Foundation. Raleigh, NC, June, 2008.

“Political Change in Western North Carolina.” Presented at the Economic Forecast Forum, sponsored by the NC Association of Bankers and the NC Chamber of Commerce. Raleigh, NC, January, 2008.

“Multi-Member Districts.” Electoral Reform: 2006 and Beyond Conference. Columbus, OH, January, 2007.

“Rhetoric on Representation.” University of California, Riverside, November, 2006.

“The Importance of Undergraduate Research.” Presentation to the Winthrop University Undergraduate Research Expo. February, 2006.

“Perspectives on Economic Development Research.” Presentation to Business Librarians in North Carolina. August, 2005.

“The Importance of a Political Science Education.” Presentation to Winthrop University Pi Sigma Alpha Chapter Keynote speaker, Pi Sigma Alpha initiation, Winthrop University, February 2003.

CONTRACTS AND GRANTS

“Policymaking in the Shadows: Collaborative Governance, University Governing Boards and the New Politics of Higher Education.” Graduate School and Research. \$5000.

“Opt-In Survey.” 2013. \$8,896.

“Public Opinion on the Town Square Property in Black Mountain, NC.” 2010. \$6,000.

“French Broad River Congestion Management Plan.” 2010. Subcontract from The Louis Berger Group. \$5000.

“Evaluating Health Risk in Yancey County Schools.” 2010. \$500.

“Know Your Region.” A Contract with the US Economic Development Administration. 2009. Co-PI with John Hensley. \$50,000.

“American Youth Congress.” 2009. NC Civic Education Consortium/Z Smith Reynolds. \$6000.

“Voter Education Initiative.” 2008. NC Campus Compact. \$500.

“Citizen Satisfaction in Buncombe County.” 2007. \$16,577.

“Evaluating Health Risk in Yancey County Schools.” 2007. \$500.

“Regional Outlook Report.” 2007. Internal Contract with the Institute for the Economy and the Future. \$6,500.

WCU Summer Research Fellowship. 2007. \$1500.

Co-Principal Investigator (with H. Gibbs Knotts). Sponsored contract with the city of Asheville, NC to consult about the design of a citizen satisfaction survey. \$3,000.

WCU Summer Research Grant, 2001. \$5000.

Yates Dissertation Fellowship, UTK, 2001. \$5000.

Undergraduate Education Improvement Grant, UTK Department of Political Science, 2001. \$1000.

Dissertation Fellowship, UTK Department of Political Science, 2001. \$700.

TEACHING

COURSES TAUGHT

Election Administration (Graduate)
State and Local Governance (Graduate)
Political Analysis (Undergraduate)
State and Local Government (Undergraduate, Traditional and Distance Education)
Political Parties, Campaigns and Elections (Undergraduate)
Research Methods for Public Affairs (Graduate)
Southern Politics (Undergraduate)
Public Policy Analysis (Graduate)
Public Affairs Capstone Experience (Graduate)
Public Affairs Administration (Graduate)
Simulation in American Politics (Undergraduate)
Election 2012 (Undergraduate)
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Editorial Board, Journal of Election Administration Research and Practice (2021-)
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Reviewer for [since 2010]:

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Political Behavior
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PS: Political Science and Politics
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Social Science Journal
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Social Forces
Southeastern Geographer
State and Local Government Review
State Politics and Policy Quarterly
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Southeastern Geographer
Southern Cultures
Urban Affairs Review
Oxford University Press
University of South Carolina Press
Routledge
Rowman and Littlefield
Palgrave McMillan
CQ Press
Carnegie Foundation for the Advancement of Teaching
National Science Foundation

Discussant and Panel Chair Duties at Conferences

Discussant for panel on “Congressional Politics.” Citadel Symposium on Southern Politics. March, 2020.

Discussant for panel on “Electoral Reform in North Carolina.” North Carolina Political Science Association. February, 2011.

Chair for panel on “Economic Development Policies.” North Carolina Political Science Association. Durham, NC. February, 2010.

Chair for panel on “The Future of State Politics.” Southern Political Science Association. New Orleans, LA. January, 2008.

Discussant for panel on “Electoral Reform.” American Political Science Association. Chicago, IL. September, 2007.

Discussant for panel on “Disaster: Politics and Policy.” Policy History Conference. Charlottesville, VA. June, 2006.

Chair and Discussant for panel on “Issues in Electoral Politics.” North Carolina Political Science Association. High Point, NC. March, 2006.

Discussant for panel on “Issues in American Politics.” North Carolina Political Science Association. High Point, NC. March, 2006.

Discussant for panel on “North Carolina Politics.” Citadel Symposium on Southern Politics. Charleston, SC. February, 2006.

Chair and discussant for panel on “State Policy.” American Political Science Association. Washington, DC. September, 2005.

Discussant for panel on state politics. Annual Meeting of the Midwest Political Science Association. Chicago, IL. April, 2005.

Chair and Discussant for panel on “Electoral Politics.” Annual Meeting of the North Carolina Political Science Association. Cullowhee, NC. March, 2004.

Discussant, “State Legislative Elections.” Annual Meeting of the Southern Political Science Association. New Orleans, LA. January, 2004.

Discussant and Chair, “Highlighting Student Research.” Annual Meeting of the South Carolina Political Science Association. Rock Hill, SC. February 2003.

Discussant and Chair, “Media Coverage of Elections and Representation.” Annual Meeting of the Southern Political Science Association. November, 2002.

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- Chair, MPA Director Search Committee (2008-2009)
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- Chair, Graduate Research Grant subcommittee of the Research Council (2008)
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- Public Law visiting assistant professor search committee (2006)
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- President, University Club (2006-2007)
- Arts and Sciences Strategic Planning Committee (2005-2007)
- Arts and Sciences Dean's Advisory Board (2006-2007)
- Committee Chair, National Youth Congress (April, 2005)
- Scholarship of Teaching and Learning Committee (2005-2006)
- Committee on Student Learning (2005-2008)
- ICPSR Representative for WCU (2004-2007)
- Created and Directed WCU faculty Quantitative Research Forum (2004-2005)
- Congress to Campus Coordinator (2004)
- Center for Regional Development Director Search Committee (2003)
- Public Administration Search Committee (2003)
- Co-op and Internship Coordinator, Dept. of Political Science, WCU (2002-2006)
- Webmaster, WCU Department of Political Science (2002-2007)

MEDIA APPEARANCES, ON-CAMPUS AND COMMUNITY SPEAKING

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Times, Charlotte Observer, Winston Salem Journal, National Journal, Rock Hill Herald, Smoky Mountain News, Hendersonville Times, Sylva Herald, Mountain Express, Yahoo Singapore News, Carolina Journal, Blue Ridge Public Radio, WUNC, WFAE, Roll Call, Waynesville Mountaineer, Voice of America, Zoomer Radio (Toronto, Canada), WLOS TV (Asheville, NC), WATV, WRAL (Raleigh, NC), WCNC (Charlotte, NC), WFSC, WJLA (Washington DC) and KISS FM, Spectrum News and many more.

Expert Report on the North Carolina State Legislature and Congressional Redistricting (Corrected Version)

Jonathan C. Mattingly

December 23, 2021

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1 Introduction

I am a Professor of Mathematics and Statistical Science at Duke University. My degrees are from the North Carolina School of Science and Math (High School Diploma), Yale University (B.S.), and Princeton University (Ph.D.). I grew up in Charlotte, North Carolina and currently live in Durham, North Carolina.

I lead a group at Duke University which conducts non-partisan research to understand and quantify gerrymandering. This report grows out of aspects of our group’s work around the current North Carolina legislative districts which are relevant to the case being filed.

I previously submitted an expert report in *Common Cause v. Rucho*, No. 18-CV-1026 (M.D.N.C.), *Diamond v. Torres*, No. 17-CV-5054 (E.D. Pa.), *Common Cause v. Lewis* (N.C. Sup. Ct No. 18-cvs-014001), and *Harper v. Lewis* (No. 19-cv-012667) and was an expert witness for the plaintiffs in *Common Cause v Rucho* and *Common Cause v. Lewis*. I am being paid at a rate of \$400/per hour for the work on this case. Much of the work derives from an independent research effort, unrelated to this lawsuit, to understand gerrymandering nationally and in North Carolina specifically. Much of the core analysis described in this report was previously released publicly as part of a non-partisan effort to inform the discussion around the redistricting process.

2 General Overview

I was asked in this case to analyze whether the enacted Congressional, state House, and state Senate redistricting plans for North Carolina were drawn intentionally for partisan advantage. In summary, to conduct our analysis, we used historic voting data to compare election results under the enacted plans with elections results under a collection of non-partisan maps generated using Markov Chain Monte Carlo methods, referred to throughout this report as an “ensemble.” No partisan information is used to construct this ensemble of maps; only the generally accepted districting criteria of approximately equal population per district, contiguous and relatively compact districts, reducing traversals, and keeping counties, precincts, and possibly municipalities whole. One strength of the ensemble method is that it makes no assumptions in advance about what structure an election should have such as a relation to proportional representation or some type of symmetry considerations. Rather it shows what results would naturally occur, and the structure of those results, because of political geography of the state when non-partisan maps are used. We examine both the number of seats that would have been won under these vote counts, along with the expected margins of victory.

We see that each of the enacted plans is an extreme outlier with respect to its partisan properties in comparison to the ensemble. The Congressional, House, and Senate plans each systematically favor the Republican Party to an extent which is rarely, if ever, seen in the non-partisan collection of maps. Under many historic elections considered, each of the enacted maps elects significantly fewer Democrats than the typical number of Democrats found in the collection of maps. Specifically, the enacted Congressional plan produces 10 Republican seats and 4 Democratic seats across a wide range of historic elections, spanning roughly a 6-point differential in the statewide two-party vote share. In other words, Republicans win 10 congressional seats despite large shifts in the statewide vote fraction and across a variety of election structures. Over

the statewide vote Democratic partisan vote range of 46.59% to 52.32%, the enacted map only twice changes the number of Republicans elected. The outcome of the election is largely stuck at 4 Democrats. Our non-partisan ensemble plans, by contrast, are far more responsive to changes in the election structure and the statewide vote fraction.

Under the enacted Senate and House plans, at times the Democratic Party is either denied a majority of seats or denied breaking a Republican supermajority when the overwhelming majority of maps in our ensemble would have resulted in either a Democratic majority or a simple Republican majority. In the Senate, we find instances in which the Republicans would have gained a supermajority under the enacted plan, but would have lost a supermajority in nearly every map in our collection. In the House, we find instances in which the Republicans won the supermajority of seats under the enacted plan but they would have not won the supermajority in the majority of maps in our collection.

In the House and Senate plans, the extreme statewide tilt towards the Republican Party is the result of a significant number of truly independent choices at the level of the county-clusters into which the state is divided. The chance of making so many independent choices which bias the results towards the Republican Party unintentionally, without corresponding choices favoring the Democratic party, is astronomically small.

In addition to this systematic bias towards the Republican Party which when aggregated produces highly atypical results, the enacted House and Senate plans also have highly atypical results in a number of county clusters even when viewed alone. Beyond often creating atypical results in terms of the number of seats won in a given cluster, our results also show a durability in the results in certain clusters under the enacted plans. By durable, we mean that the results remain atypically unchanged over a wide range of elections. This unresponsiveness to changes in vote counts is another problematic feature revealed by our analysis of the enacted plans.

Our analysis show that each of the three enacted plans is an extreme gerrymander over a range of voter behavior seen historically in North Carolina. The effect of these extreme gerrymanders is to prevent the Democrats from winning as many seats in Congress, the House, and the Senate as they would have had the maps been drawn in a neutral way without political considerations. In many cases, the enacted maps reduce the extent to which the results of an election respond to the changing options of the electorate as expressed at the ballot box.

3 Discussion on Interpreting The Ensemble Method

3.1 The Political Geography

In redistricting conversations, there are often discussions of the urban versus rural divide and natural packing. These points demonstrate the need for a methodology that accounts for this political geography; ensemble methods precisely capture it. The distribution on redistricting plans can distinguish between typical plans and atypical plans. This determination is fundamentally informed by the geometry of the state, its political geography, and the spatial structure of the elections used to probe the redistricting plan.

The fundamental power of the ensemble method is that it begins with a clear set of redistricting criteria as an input. It then creates a representative ensemble of redistricting plans which accounts for the geometry of the state and the geography of where people live and how they vote. Any collection of voting data can then be applied to this ensemble of restricting plans to obtain a collection of election results. The election results give a benchmark against which a particular redistricting may be compared under the same set of voting data. It is only the relative difference between the ensemble and the enacted plan which matters. Our ensemble of restricting plans naturally incorporates how nonpartisan redistricting criteria interact with the political geography and geometry of the state. It naturally adapts to natural packing in urban areas and other effects. It is capable of separating these natural effects from those of partisan gerrymandering. Because of this, this mode of analysis can separate bias that natural packing might induce from other effects.

Additionally, none of these analyses rely on any forms of partisan symmetry or ideas of proportional representation. The ensemble method does not impose any idea of fairness nor does it select for a particular seats-to-votes curve. Rather it illuminates what the result would have typically been had only the stated redistricting criteria been utilized. It is quite possible, and often happens, that the results from the ensemble method do not yield proportional representation and one party has a natural advantage relative to the statewide vote fraction. One can then use this natural advantage as a benchmark to detect when a particular plan is biased beyond the neutral standard the ensemble establishes.

3.2 Different Elections have Different Voting Patterns

Elections differ both in the statewide partisan vote fraction and the spatial patterns of voting across the state. Hence, it is not at all surprising that a given map can act differently under different voting patterns; even those that share the same statewide partisan vote fractions. For instance, a map could be designed to neutralize the effectiveness of a particular set of coalitions, and hence would only be a statistical outlier in elections when those coalitions are active.

On a number of occasions, we have seen maps that particularly show the effect of the Gerrymander when there is a danger that the majority or supermajority are lost. To better understand why this is natural, consider the following example. Let us assume that a region has three varieties of people who always vote as a block and are spatially contiguous. For definiteness, let us call them red, purple, and blue people. We will assume that red always vote for the red candidate and blue for the blue candidate. Sometimes the purple vote for the red candidate and sometimes for the blue candidate. Hence, sometimes red wins two seats, and sometimes three seats, depending on how the purple people vote. Let us assume that most redistricting plans that one would naturally draw (without knowing where the red, purple, and blue people lived) would produce 2 majority red districts, 2 majority blue districts, and one majority purple district. We will call these neutral plans. Now let us consider a plan which is carefully drawn so that the purple people are never a majority but rather the purple people are split such that there are three majority blue districts and two majority red. We will call this the gerrymandered plan.

Under the gerrymandered plan the red candidates always win two of the five seats, but never more. This is typical of elections where the purple people vote with the blue people. It is typical because the majority purple district in the neutral plans would vote for the blue candidate to elect three blue candidates. On the other hand, in elections where the purple people vote with the red people, the outcome would be highly atypical as the neutral maps would have always produced three red winners but the gerrymandered plan only produces two red winners. In summary, atypical maps may lead to a typical split of elected officials under some vote counts, but not under others. It is not unusual for gerrymandered maps to sometimes produce typical results.

3.3 Collected Seat Histograms and Uniform Swing Analysis

It is a misconception that a gerrymandered map will behave atypically under all different types of elections. Gerrymandered maps can behave atypically under some types of elections and typically under other types of elections. For example, a map may only become atypical when a party is in danger of losing the majority. We demonstrate this through a type of plot we call *Collected Seat Histograms*. The election data use can either be historical elections or data generated using a uniform swing hypothesis.¹

In both cases, we plot the histograms tabulating the fraction of the ensemble maps which produce a particular number of Democratic seats under a particular choice of statewide votes (tabulated at the precinct level). We then collect these histograms on a single plot where they are arranged on the vertical axis according to their statewide vote fractions, with the most Republican at the bottom and the most Democratic at the top. On each of the individual histograms, we also place a mark corresponding to the number of seats the enacted map would produce using those votes. Using these plots, one can identify trends and types of elections where the enacted maps produces outlier results. When considering the NC State House and Senate, we also place vertical lines on each plot to mark where the supermajorities are in effect and where the simple majority in the chamber changes hand.

In addition to using historical statewide votes to produce our Collected Seat Histograms, we also create a collection of Collected Seat Histograms built from a single historical vote which is shifted using the Uniform Swing Hypothesis to produce a collection of votes which preserve the relative voting pattern across the state while seeing the effect of shifting the partisan tilt of the election.

Both kinds of Collected Seat Histograms are effective at identifying maps that are non-responsive to changing voter opinions or under-respond to those changes. A district map that results in different representation when the number of votes for a particular party changes sufficiently is a minimal requirement of a democratic process that is responsive to the changing will of the people. The Collected Seat Histograms can be used to determine the level of responsiveness to changes in the votes one should expect of the maps that were drawn without a partisan bias. The Rank Ordered Boxplots in the next section can help illuminate the structure of the map which is responsible for any systematic bias or lack of responsiveness relative to the nonpartisan benchmark embodied in the ensemble.

¹The uniform swing hypothesis takes a single election and then uniformly increases (or decreases) the percentage for a given party across all the predicts. This creates a new set of voting data with the same spatial structure but a different statewide partisan percentage for each party.

3.4 Structure of Maps and Rank-Ordered Marginal Boxplots and Histograms

While the partisan seat count is clearly a quantity of interest, it can be less effective at illuminating the structure of a map that also explores how the elections are won. To this end, we introduce the *Rank-Ordered Marginal Boxplots and Histograms*. These are formed by considering the partisan vote fraction for one of the political parties (say the Democrats, or equally the Republicans) in each of the districts for a given redistricting plan. These marginal vote fractions are then ordered from smallest to largest, that is to say; from most Republican district to most Democratic district. These ordered numbers are then tabulated over all of the plans in the ensemble.

The Rank-Ordered Marginal Boxplots plot the typical range of the most Republican district to most Democratic district. Ranges are represented by box-plots. In these box-plots, 50% of all plans have corresponding ranked districts that lie within the box; the median is given by the line within the box; the ticks mark the 2.5%, 10%, 90% and 97.5% quartiles; the extent of the lines outside of the boxes represent the range of results observed in the ensemble. The number of boxes is the same as the number of seats. That is 120 seats for the NC House, 50 seats for the NC Senate, and 14 seats for the NC Congressional Delegation. Any box that lies above the 50% line on the vertical axis will elect (or typically elect) a Democrat; any box that lies below the 50% line will elect (or typically elect) a Republican.

We take the enacted plan with each set of votes and plot the ordered district returns over the box plots. If the districts of an enacted plan lie either far above or far below the ensemble at a particular ranking, this can indicate that the district was either packed or cracked to provide an atypical result.

4 State Legislature

Using historic voting data, we compare election results under the enacted districting plans for the North Carolina House and North Carolina Senate with election results under a collection of non-partisan maps. One strength of this method is that it makes no assumptions in advance about what structure an election should have such as a relation to proportional representation or some type of symmetry considerations. We examine both the number of seats that would have been won under these vote counts, along with the expected margins of victory.

4.1 State Legislature: Overview of Findings

4.2 State Legislature: Overview of Method

We generate a collection of alternative restricting maps using Markov Chain Monte Carlo methods, and used this collection to characterize what would be expected if only non-partisan redistricting criteria were used. We have described this method in detail in our academic work. See [7, 3, 8, 10, 1, 2]. (References in this report to numbers in brackets are to articles cited in a numbered bibliography at the end of this report). No partisan information is used to construct this ensemble of maps; only the generally accepted districting criteria of approximately equal population per district, contiguous and relatively compact districts, reducing traversals, and keeping counties, precincts, and municipalities whole.

For both the NC House and NC Senate, we generate a *Primary Ensemble* whose non-partisan properties are close to those of the enacted plan. Because of this, we sometimes label this plan as the *Matched Ensemble*. For both the NC Senate and NC House, we produce a *Secondary Ensemble* which makes different policy choices concerning the preservation of municipalities. In a third ensemble built, we also consider the pairing of incumbents.

The ensembles are generated by using the Metropolis-Hasting Markov Chain Monte Carlo Algorithm in a parallel tempering framework which employs proposal from the Multiscale Forest RECOM algorithm [2, 1] and the single-node flip algorithm [7]. Using these proposals, the Metropolis-Hasting algorithm is then used to produce samples from the desired policy-informed, non-partisan distribution on redistrictings; such algorithms are widely accepted for sampling high-dimensional distributions. The Markov Chain Monte Carlo and Metropolis-Hasting algorithms are a cornerstone of modern computational statistics, protein folding and drug discovery, and weather prediction. They date back to at least the Manhattan Project in Los Alamos are used in a huge range of mathematical and statistical applications.

The distributions we use are defined to be concentrated on districting plans that contain districts near the ideal district population based on the one-person-one-vote principle (including the 5% population deviation acceptable for legislative districts). They are also designed to produce contiguous districts that are relatively compact and to reduce the number of counties and, in some cases, the number of people split out of a municipality. For the Primary Ensemble, the distribution on redistricting plans is tuned so that these non-partisan qualities, including the number of counties, municipalities, and precincts which are split, are similar to the enacted plan. We also respect the county-clustering requirement for State Legislative maps.

We will see that the enacted NC Senate preserves municipalities to a high degree; in a way consistent with the most municipality preserving distributions we could produce. Hence, we also provide a *Secondary Ensemble* for the NC Senate which does not explicitly preserve municipalities (thought compactness and the county preservation lead to a degree of municipality preservation.) It coincides with the primary ensemble properties in other respects.

For the NC house, we will see that the enacted plan is not as stringent in its municipality preservation, and that respecting the other criteria could naturally create many plans that better preserve municipalities than the enacted plan. Since we have tuned our primary ensemble to match the level of municipality preservation in the enacted plan, which include a Secondary Ensemble for the NC house we is better at preserving municipalities.

As the guidance from the legislature at the start of the redistricting process stated that one “may consider municipality preservation” (in contrast to other directives which were not optional), all four of these ensembles meet the guidance given by the legislature. As already mentioned, we also provide a third ensemble for both the NC house and NC Senate which is derived from the primary ensemble, but considers the double-bunking of incumbents.

In all cases using the Metropolis-Hasting Markov Chain Monte Carlo Algorithm, we can produce a mathematically representative sample of the redistricting plans that comply with the criteria described.

4.3 County Clusters for State Legislature

In *Stephenson v. Bartlett*, 562 S.E.2d 377 (N.C. 2002), the North Carolina Supreme Court ruled that North Carolina’s state legislative districts should be clustered into groups of counties and that no district should cross between two of the “county clusters.” As part of our non-partisan work concerning redistricting, we implemented the algorithmic part of the *Stephenson Ruling* in a publicly available open-source piece of software [4]. We used this computer software to produce the county clusterings used in this report. The resulting clusterings were described in our publicly released report which can be found here [5]. We understand that the NC Legislature also used this report to determine the possible clusterings. In any case, the clusterings we found coincide with those discussed by the legislature.

There is not a unique choice of statewide clustering. Rather there are parts of the state which can only be clustered in one way, while there are two ways to cluster the counties in other regions. In the state Senate, there are 17 clusters containing 36 of the 50 districts that are fixed based on determining optimal county clusters. These are represented by the color county groupings in Figure 4.3.1. The white numbers annotating each county clustering give the number of districts that the county cluster should contain. Ten of these clusters contain one district, meaning that ten of the 50 senate districts are fixed by the county clusters. The remaining county clusters must be further subdivided into legislative districts. The remaining 14 counties, shown in gray on the map in Figure 4.3.1 are distributed among four groups, each containing two clustering options. Following the nomenclature in [5], we will label the cluster groups by the letters A, B, C, and D. Each group consists of two different possible clusterings which we will label with the numbers 1 and 2. Thus, the first choice in cluster A is labeled A1, and the second choice A2. A complete choice of county clusters then consists of one choice from the A group, the B group, the C group, and the D group.

Similarly, in the NC State House, there are 33 clusters containing 107 of the 120 districts that are fixed based on determining optimal county clusters. These are represented by the color county groupings in Figure 4.3.2. Again, the white numbers annotating each county clustering give the number of districts that the county cluster should contain. Eleven of these clusters contain one district, meaning that eleven of the 120 house districts are fixed by the clustering process. The remaining clusters (shown in gray) are separated into three groups each containing two clustering options. As before, the groups will be demoted by the letters A, B, and C with each of the two options in each group labeled with the numbers 1 or 2.

More details can be found in [5] and [4]. It should be noted that the algorithm used to produce these clusterings only implements the algorithmic portion of the *Stephenson v. Bartlett*. In particular, it does not address any compliance with the Voting Rights Act.

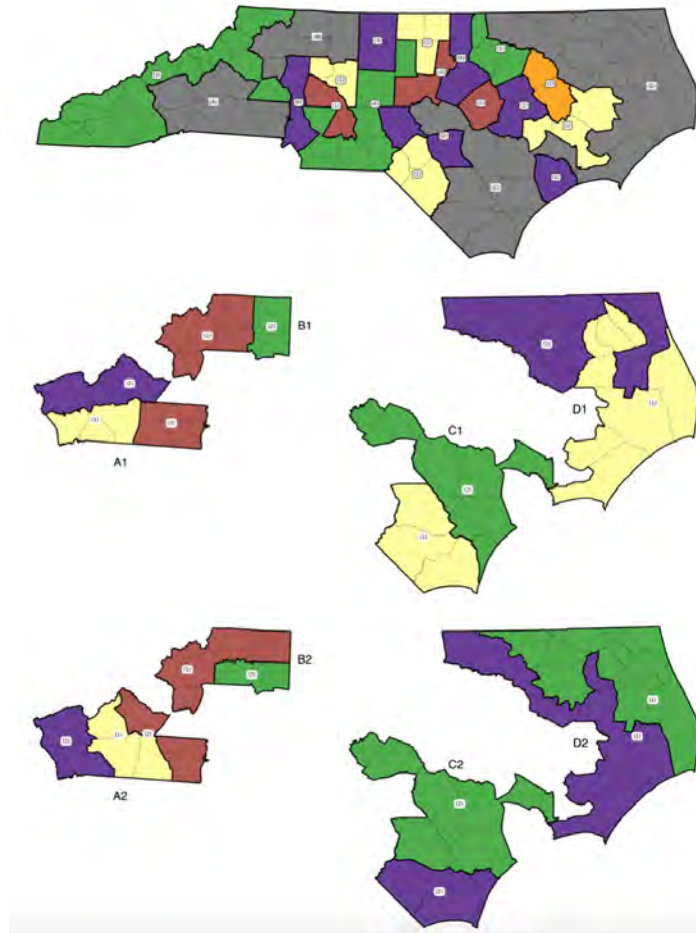


Figure 4.3.1: Senate

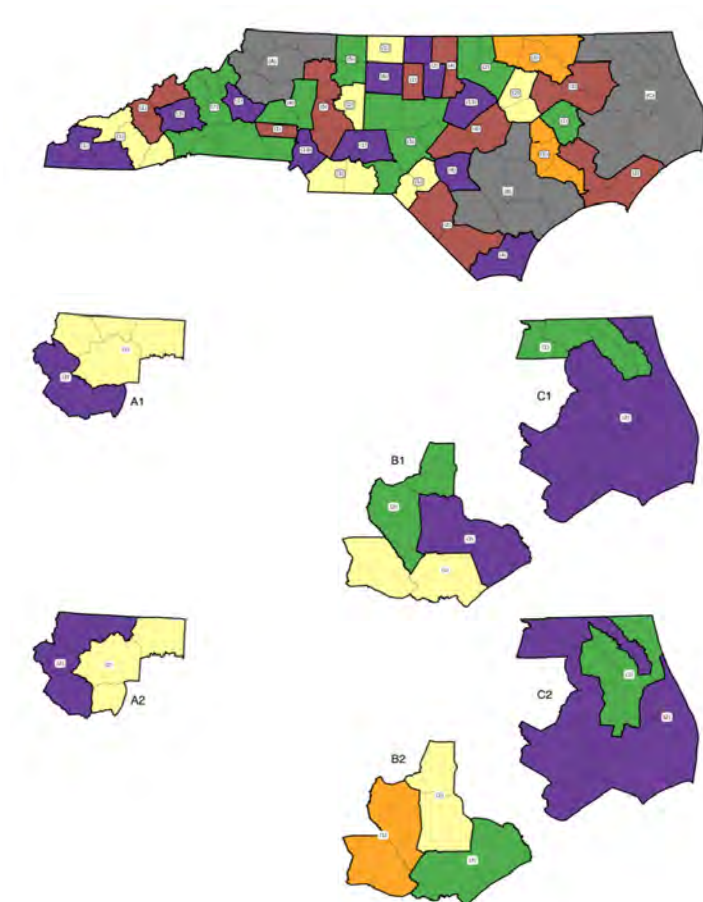


Figure 4.3.2: House

4.4 State Legislature: Ensemble Overview

We now give more details on the different distributions already sketched in Section 4.2. They represent different distributions that emphasize different policies consistent with the Legislature’s guidance and historical precedents. All the distributions from which we build our ensembles respect the county clusters we derived in [6] by algorithmically implementing the ruling *Stephenson v. Bartlett*, 562 S.E.2d 377 (N.C. 2002). That is to say in both the State House and State Senate, the state is segmented into groups of counties referred to as *county clusters* so that the population of each county cluster can be divided into a number of districts each with a population within 5% of the ideal district population. The county clusters are different for the State House and State Senate as the number of districts, and hence the ideal district populations, are different. Each district is constrained to lay entirely within one county cluster.

Beyond the county cluster requirement all of our primary and secondary ensembles for both chambers also satisfy the following constraints:

- The maps minimize the number of split counties. The 2021 redistricting criteria state that “Within county groupings, county lines shall not be traversed except as authorized by *Stephenson I*, *Stephenson II*, *Dickson I*, and *Dickson II*.”
- Districts traverse counties as few times as possible.
- All districts are required to consist of one contiguous region.
- Except for two exceptions, the deviation of the total population in any district is within 5% of the ideal district population. The two special cases are explained in Section 7.2.
- Voting tabulation districts (i.e. VTDs or precincts) are not split (see again the two exceptions with population deviation in Section 7.2)
- Compactness: The distributions on redistricting plans are constructed so that a plan with a larger total isoperimetric ratio is less likely than those with a lower total isoperimetric ratio. (See Section 7.2 and 8.1 for a definition of the isoperimetric ratio.) The total isoperimetric ratio of a redistricting plan is simply the sum of the isoperimetric ratios over each district. The isoperimetric ratio is the reciprocal of the Polsby-Popper score; hence, smaller isoperimetric ratio corresponds to larger Polsby-Popper scores. The General Assembly stated in its guidance that the plans should be compact according to the Polsby-Popper score or the Reock score [9]. We have found that while the Reock is useful when comparing two districts. However, the Polsby-Popper/isoperimetric score is a better measure when generating district computationally. In our previous work, we have seen that this choice did not qualitatively change our conclusions (see [7] and the expert report in *Common Cause v. Rucho*).

We tuned our primary ensemble so that compactness scores of the ensemble were comparable to those of the enacted plan. See Section 7, for plots showing the compactness scores.

Municipality Preservation: We now come to the property which distinguishes the Primary and Secondary ensembles. In both chambers of the NC Legislature, we tune the primary ensemble to match the level of municipalities preservation to those seen in the enacted plan. Since municipality preservation is concerned with keeping the voters of a particular municipality together as a block, we concentrate on the number of *ousted voters*. Ousted voters are those who have been removed from the districts which primarily contain the other members of the municipalities. We construct the ensemble to control the total number of ousted voters across the entire state. More details are given in Section 7.2. As already mentioned, we tune the Secondary ensembles differently for the two chambers. Since the Enacted Senate plan was at the lowest end of municipality splitting we observed, we have included a secondary ensemble in the Senate which did not explicitly consider municipality reservation. In the NC House, since the enacted plan did not preserve municipalities to the level we found possible, we included a secondary ensemble which better preserved municipalities.

Incumbency: The effect of incumbency are addressed in a subsequent section of this report.

4.5 Construction of Statewide Ensembles for State Legislature

Statewide ensembles are created by drawing samples from a number of “sub-ensembles.” Because of the county cluster structure, we can sample each county cluster independently of the other county clusters. In the house, we sample the Wake and Mecklenburg county cluster groups separately from the rest of the state as they have many more precincts and districts. In the Senate, we sample the Wake county cluster independently since it must split precincts to achieve the 5% population

balance. There are several regions of the state that have multiple options for county clusters and we sample each of the county clustering options separately. We then sample the remainder of the state together.

We combine these sub-ensembles by first choosing which of the county clustering options will be used, treating all options equally. With these fixed, we then choose a map from each of the other sub-ensembles and combine them to produce a statewide map. We used this procedure to create an ensemble of 100,000 maps. These ensembles of statewide maps were used to generate the various figures. This number was chosen as it proved to be sufficient for the statistics of the quantities of interest to have converged. That is to say that adding additional maps to the ensemble did not change the results. See Section 7.1 for more details on the sampling method.

4.6 Election Data Used in Analysis

The historic elections we consider are from the year 2016 and 2020. We only consider statewide elections. We will use the following abbreviations: AG for Attorney General, USS for United States Senate, CI for Commissioner of Insurance, LG for Lieutenant Governor, GV for Governor, TR for State Treasure, SST for Secretary of State, AD for State Auditor, CA for Commissioner of Agriculture, and PR for United States President. We add to these abbreviations the last two digits of the year of the election. Hence CI16 is the vote data from the Commissioner of Insurance election in 2016.

5 State Legislature: Main Statewide Analysis

Our analysis shows that the enacted plan for the NC State House is an extreme gerrymander over a wide range of voter behavior seen historically in NC. The effect of this extreme gerrymander is to prevent the Democrats from winning as many seat as they would have had the maps been drawn in a neutral way without political considerations. This gerrymander is achieved by packing Democrats in a number of the most Democratic districts while depleting them from those districts which typically change hands when the public changes its expressed political opinion through the vote. The effect is particularly strong in situations where the Democrats would typically reduce a Republican supermajority to a simple majority. The enacted map often denies this transition. Similarly the enacted map again behaves in an anomalous fashion by under electing democrats when the typical maps would almost always give the Democrats the majority in the House. This extreme outlier behavior is reflected in the behavior we see at the individual cluster level.

The effect in the Senate is less pronounced. At the cluster level there are a number of strong and extreme outliers signaling extreme partisan gerrymandering. At the statewide level, the structure of the map shows it to be an extreme outlier in the fashion in which Democrats are packed in certain districts and depleted from others. The effect at the statewide level is mostly seen when the Republicans are in danger of losing the supermajority in the Senate. Over this range the anomalous packing and cracking of Democrats leads to a number of extreme outlier behaviors which result in the Republicans maintaining the supermajority when they typically would have lost it under a non-partisan map from the ensemble.

Additionally we see that the reason that the Senate map is typical in many situations stems from the choice to highly conserve municipalities. The municipality preservation is at the extreme end of what we have observed. In contrast, the municipality preservation in the house is less extreme as we can easily create an ensemble which preserves municipalities to a higher degree. For the Senate plan, relaxing the requirement to preserve municipalities leads to an ensemble that is more favorable to the Democrats, meaning that the enacted plan would be an extreme outlier in more situations. Put differently, prioritizing municipality preservation in the Senate plan appears to enable more maps that favor Republicans. By contrast, for the House plan, where the enacted map does not prioritize preserving municipalities, my analysis finds that such a prioritization would not have favored the Republican party.

5.1 NC State House

Figure 5.1.1 shows the distribution of Democratic seats elected under a number of historical elections which capture plausible voting patterns in North Carolina elections. The elections are arranged vertically by the statewide Democratic vote share, from most Republican at the bottom to the most Democratic at the top. The Democratic seats elected under each election by the enacted plan is marked with a yellow dot.

It is important to remember that the single number of statewide vote fraction is not sufficient to categorize an election. Elections with similar statewide vote fractions can have dramatically different seat counts since the votes can be concentrated differently geographically. An example of this is shown in Figure 5.1.8 which shows the Collected Seat Histograms for an ensemble that places more weight on preserving municipalities than the enacted plan or the primary ensemble. Notice that

the AG20 votes produce more democratic seats typically than either AG16 or GV16 even though the statewide vote fraction of AG20 is sandwiched between AG16 and GV16. (Recall the definitions of these abbreviations given in Section 4.6.)

Returning to Figure 5.1.1, we see that the enacted map is atypical in its favoring of the Republican party in every one of the elections considered and an outlier or extreme outlier in the vast majority of the elections. Additionally, the enacted plan is an extreme outlier when the Republicans are likely to lose either the Super-majority or control of the chamber. Observe that in the vast majority of plans in the primary ensemble (Figure 5.1.1) the votes in PR16, LG20 and CL20 produce a simple majority for the Republican party in the NC State House (and not a supermajority). Yet under the enacted plan, the Republican Party maintains the supermajority in all three cases.

Similarly, in a large number of the ensemble plans the Democrats hold the majority in the chamber under the voting patterns given by AD20, SST20, and GV20. (Under GV20 the Democrats have the majority most of the time, under AD20 roughly half the time and under SST roughly 75% of the time.) Yet, under the enacted plan the results are extreme outliers, giving the Republicans the majority with a safety margin of a few seats in all cases.

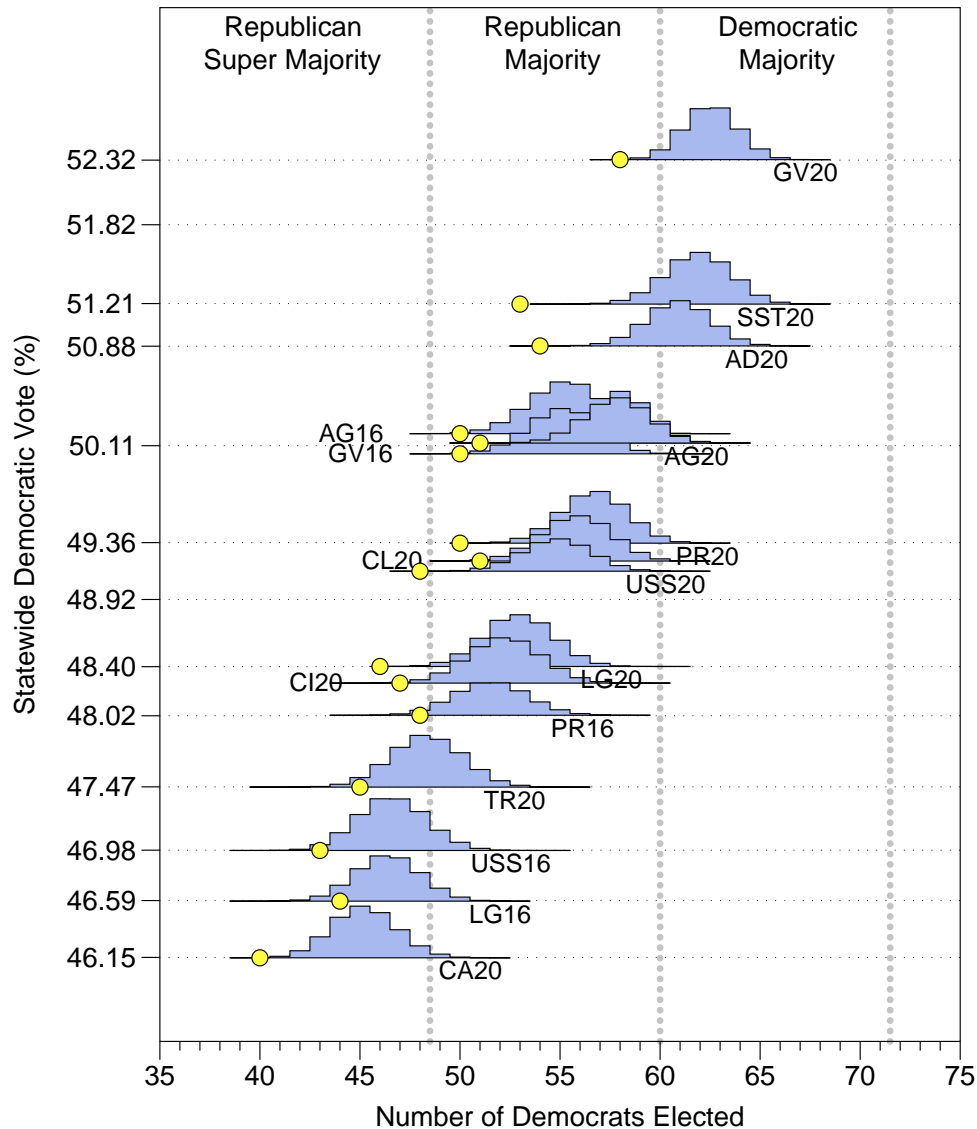


Figure 5.1.1: The Collected Seat Histogram for the Primary Ensemble on the NC House. The individual histograms give the frequency of the Democratic seat count for each of the statewide elections considered from the years 2016 and 2020. The histograms are organized vertically based on the statewide partisan vote fraction for each election. The more Republican elections are placed lower on the plot while more Democratic elections are placed higher. Three dotted lines denote the boundary between where the supermajorities and simple majorities are in force. The yellow dot represents the enacted plan.

As already observed, Figure 5.1.1 helps to identify the properties of the Enacted Map under different electoral environments. There is a clear trend as one moves to more Democratic elections, the atypical results (already tilted to toward

% Dem	Election	% Outlier	# Outlier	# Samples
52.32%	GV20	0.118%	118	100000
51.21%	SST20	0.000%	0	100000
50.88%	AD20	0.007%	7	100000
50.20%	AG16	0.451%	451	100000
50.13%	AG20	0.005%	5	100000
50.05%	GV16	0.399%	399	100000
49.36%	PR20	0.007%	7	100000
49.22%	CL20	0.759%	759	100000
49.14%	USS20	0.012%	12	100000
48.40%	LG20	0.009%	9	100000
48.27%	CI20	0.461%	461	100000
47.47%	TR20	5.569%	5569	100000
46.98%	USS16	3.066%	3066	100000
46.59%	LG16	11.778%	11778	100000
46.15%	CA20	0.094%	94	100000

Table 1: NC House Collected Seat Histogram Outlier Data. Starting from the left, the first column gives the statewide partisan makeup of the of the election under consideration whose abbreviation is given in the second column from the left. The right most column gives the total number of plans in the ensemble considered which is 100,000. The second column from the right gives the number of those 100,000 plans which elect the same or less Democrats under the given election. These are the plans which are as much or more of an outlier than the enacted map. The middle column is the percentage of plans which are more or equal of an outlier. (It is calculated by dividing the 2nd column from the right by 100,000 and multiplying by 100 to make a percentage.) The extremely low percentages in the middle column shows that the enacted plan is an extreme outlier across many different electoral settings.

the Republican party) in the more Republican elections in Figure 5.1.1 trend into extreme outliers as we shift to the more Democratic leaning elections.

To make the above table more quantitative, in Table 1 we tabulated the number of maps which produced the same or fewer seats for the Democrats in each of the elections we consider. We see that the enacted map is an extreme outlier. Across the vast majority of elections, the house map behaves as an extreme outlier in favor of the Republican party.

In the three elections where the results are not an extreme outlier (TR20, USS16, and LG16), the enacted plan is still atypically tilted to favor the Republican party. These three elections have a strong statewide Republican vote fraction. Hence, there is no need for a gerrymander as the Republicans have the needed votes to often keep a supermajority under even a typical map.

We will see in Figure 5.1.2 and 5.1.3 below that when these three elections are shifted (using the uniform swing hypothesis) to produce plausible voting fractions at a larger statewide Democratic vote fraction, then the results are also extreme outliers.

It is also worth noting that the bias in the enacted plan from what non-partisan map would produce systematically is the favor of the Republican party. Not once is the tilt even mildly in the favor of the Democrats.

To better control for other variation, we now include a number of Collected Seat Histograms built from a single election which has been shifted to create a sequence of elections with different statewide partisan vote fractions but the same spatial voting pattern.

In Figures 5.1.2 and 5.1.3, we see that the same phenomena from Figure 5.1.1 is repeated again and again. As the vote share increases to the point where the primary ensemble for the NC House would typically break the Republicans supermajority, the enacted plan under elects Democrats to an extent which makes it an extreme outlier. This exceptional under-electing of Democrats persists past the point where almost all of the ensemble maps would have given the majority to the Democrats. In many cases the enacted map fails to respond to the shifting will of the electorate, leaving the control in the Republican hands. In addition to presenting these figures, we have also animated this affect with movies that have been submitted.

To better understand the structures responsible at the district level for the extreme outlier behavior seen in Table 2 and Figures 5.2.1 to 5.2.2, we now turn to the rank-order-boxplots as described in Section 3.4. It is easy to see the abnormal structures of the enacted plan which are responsible for its extreme outlier behavior. The pattern revealed is one often seen in gerrymandered maps; namely *packing and cracking*. This refers to the depleting of one party from districts which typically would be competitive but often elect a representative from their party and instead place them in districts which were already overwhelmingly safe for either party. In Figures 5.1.4, 5.1.5, and 5.1.6, a version of this pattern is repeated. The number

of Democrats seen in the districts which usually would be moderate in their partisan makeup has been decreased with a corresponding increase in the number of Democrats in the more Democratic districts where their presence has little effect on the election outcome. We give the specifics in the captions of each figure. We will see that this type of structure will be repeated in many of the individual clusters which are analyzed in Section 6.1. In addition to presenting these figures, we have also animated this affect with movies that have been submitted.

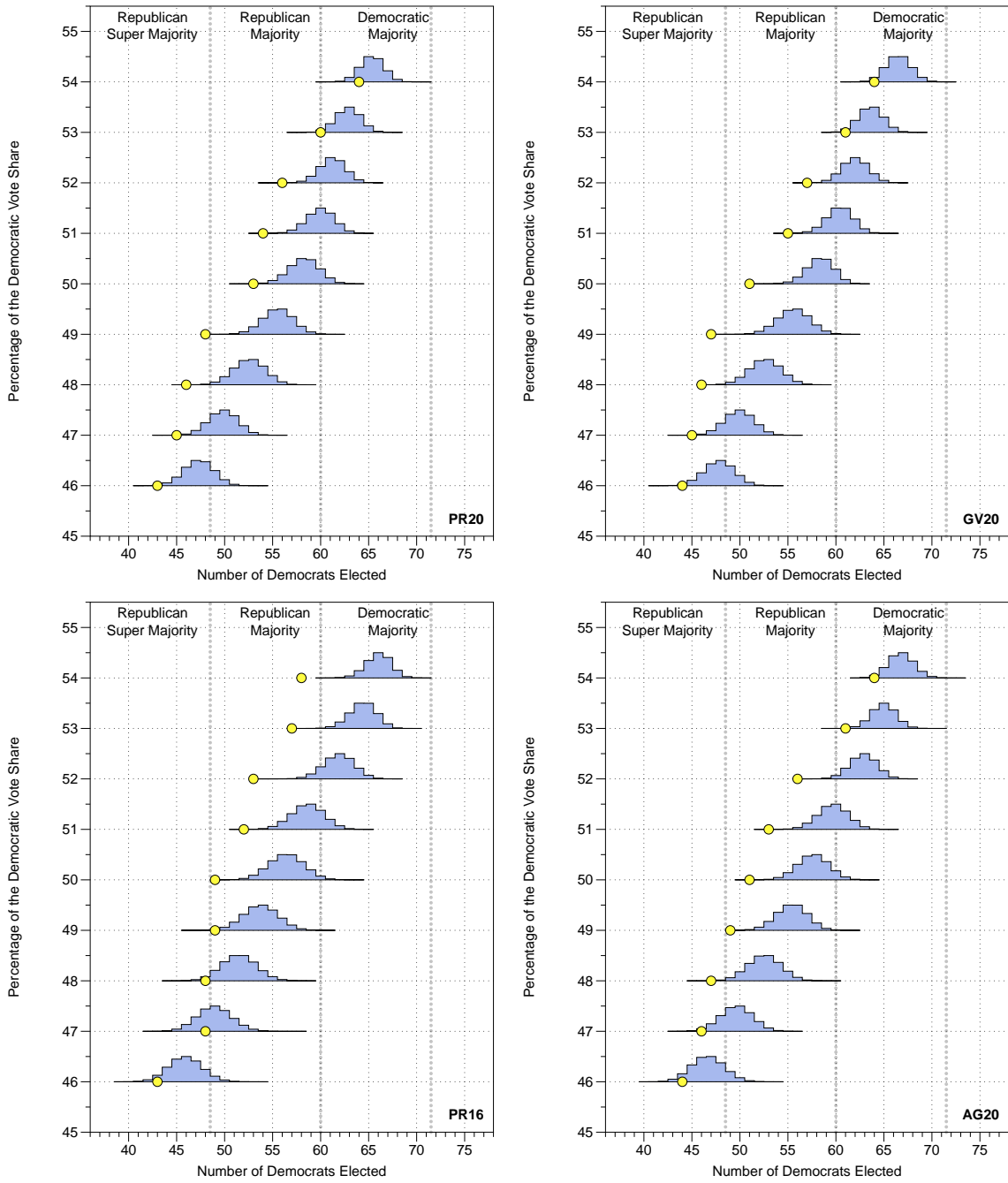


Figure 5.1.2: The individual histograms give the frequency of the Democratic seat count in the ensemble for each of the shown statewide elections, with a uniform swing. The histograms are organized vertically based on the statewide partisan vote fraction. The more Republican swings are placed lower on the plot while more Democratic swings are placed higher. Three dotted lines denote the boundary between where the supermajorities and simple majorities are in force. The yellow dot is the enacted plan.

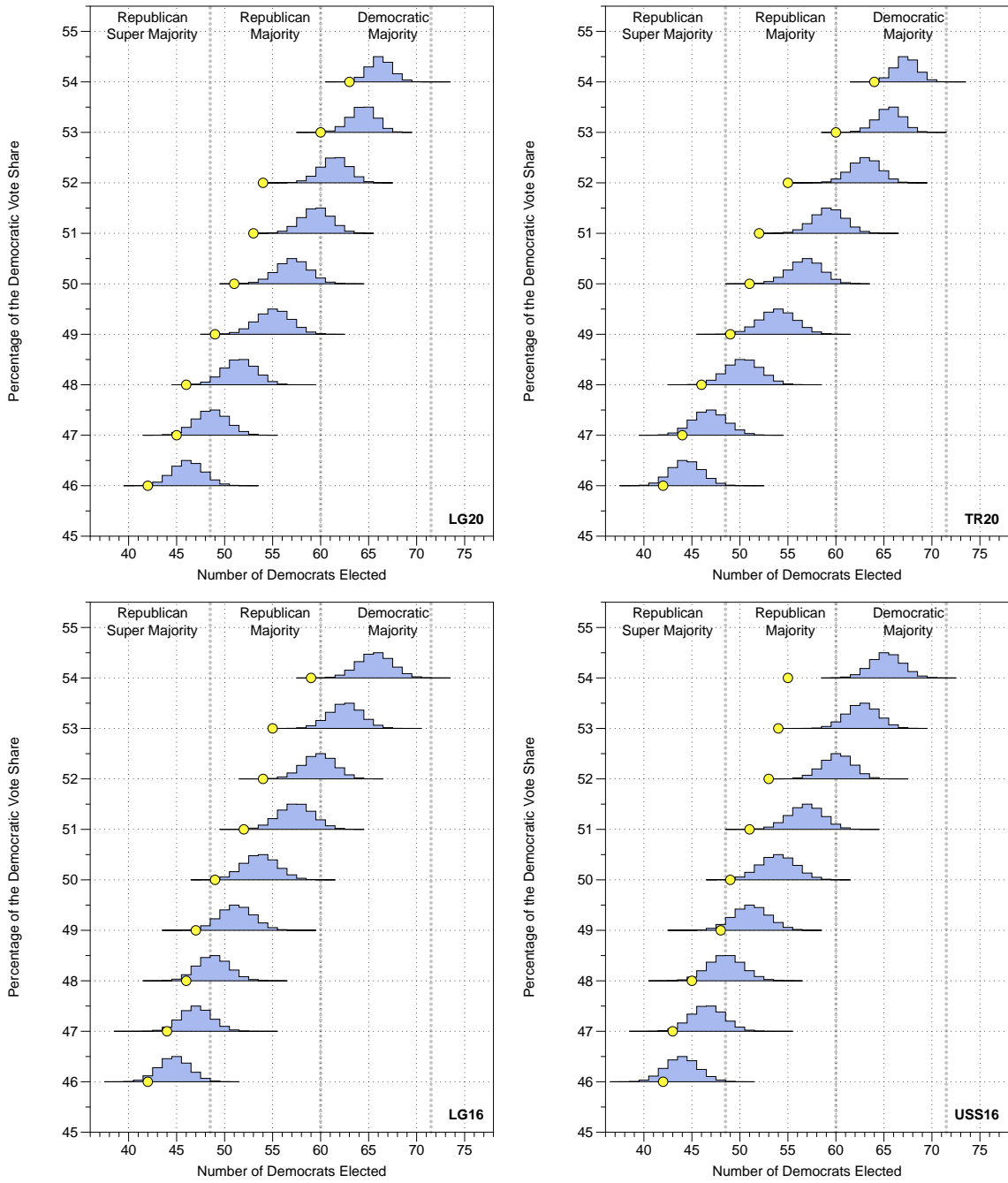


Figure 5.1.3: The individual histograms give the frequency of the Democratic seat count in the ensemble for each of the shown statewide elections, with a uniform swing. The histograms are organized vertically based on the statewide partisan vote fraction. The more Republican swings are placed lower on the plot while more Democratic swings are placed higher. Three dotted lines denote the boundary between where the supermajorities and simple majorities are in force. The yellow dot is the enacted plan.

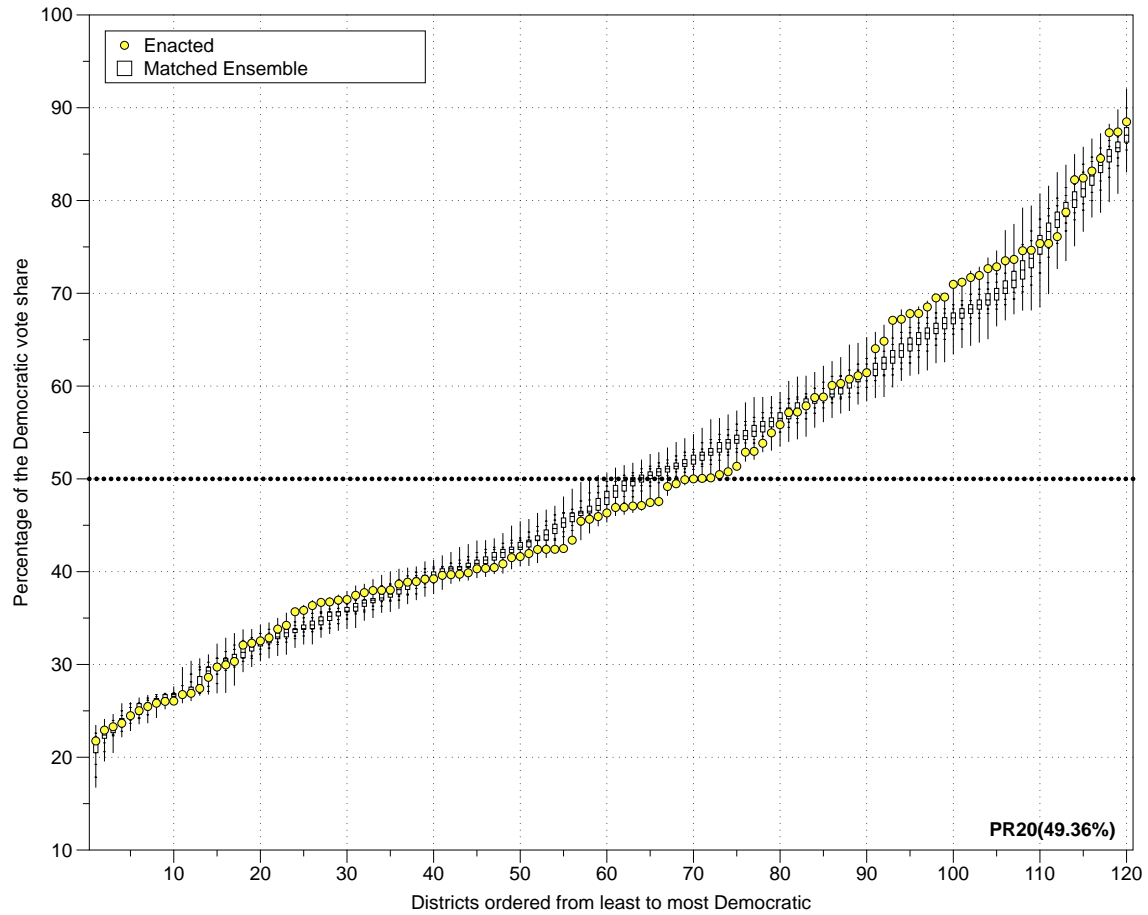


Figure 5.1.4: The yellow dots represent the democratic vote fraction of the enacted map under the PR20 vote count when the district are ordered from most Republican on the left to most Democratic in vote share on the right. The box-plots show the range of the same statistic plotted over the primary ensemble. From around the 60th to 80th district the yellow dots all well below the boxplots of the ensemble. This result is that many dots fall well below the dotted 50% line than usually would; and hence more Republicans are elected than typical. To achieve this effect, the fraction of Democrats is increased in the already strongly democratic districts ranging from the 90th to 105th most Democratic districts. This structure does not exist in the non-partisan ensemble and is responsible for the map’s extreme outlier behavior.

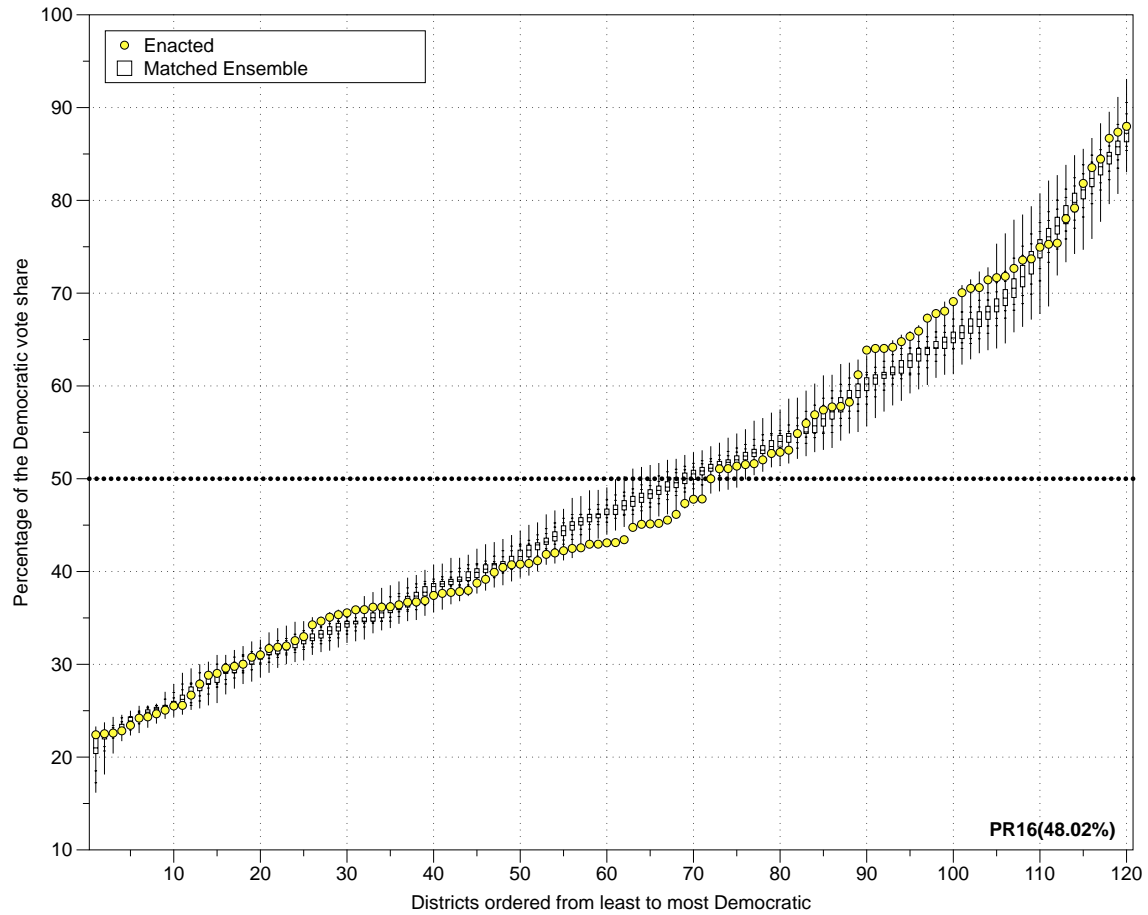


Figure 5.1.5: A similar structure to that seen in Figure 5.1.4 is repeated here. The low 50s to the high 70s have had the number of democrats depleted while the districts from the high80s to around 105 have an excess of Democrats.

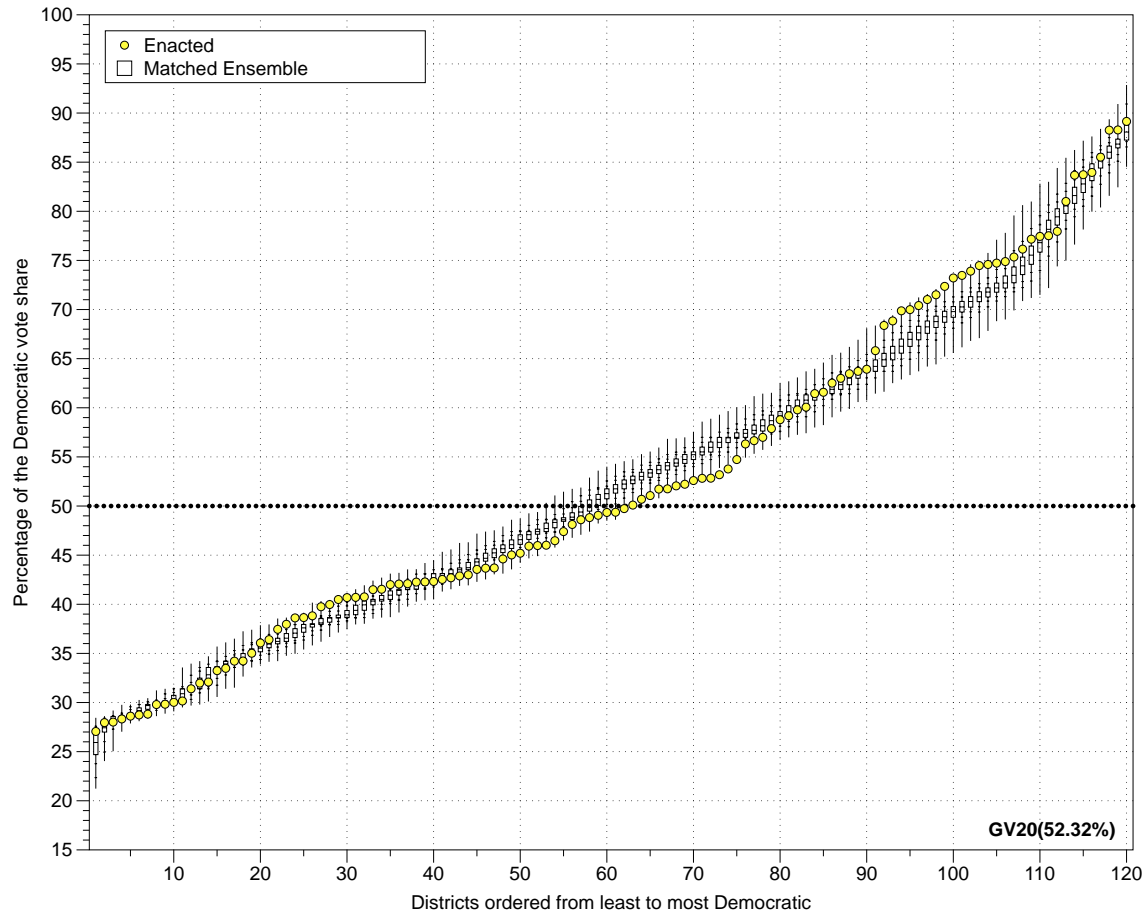


Figure 5.1.6: Mirroring what was seen in Figure 5.1.4 and Figure 5.1.5, we have abnormally few Democrats from around the 60th to the 80th most Republican and abnormally many Democrats packed in the districts in the low 90s to the just below 110.

NC House: Primary Ensemble considering Incumbency.

Figure 5.1.7 shows the Collected Seat Histogram analogous to Figure 5.1.1, but for an ensemble which pairs the same or fewer incumbents than the enacted plan. The other considerations are left unchanged from the Primary ensemble. Comparing the two figures, we see no qualitative change in the behavior of the ensemble. Hence the previous conclusions continue to hold. In particular, a desire to prevent the pairing of incumbents cannot explain the extreme outlier behavior of the enacted plan.

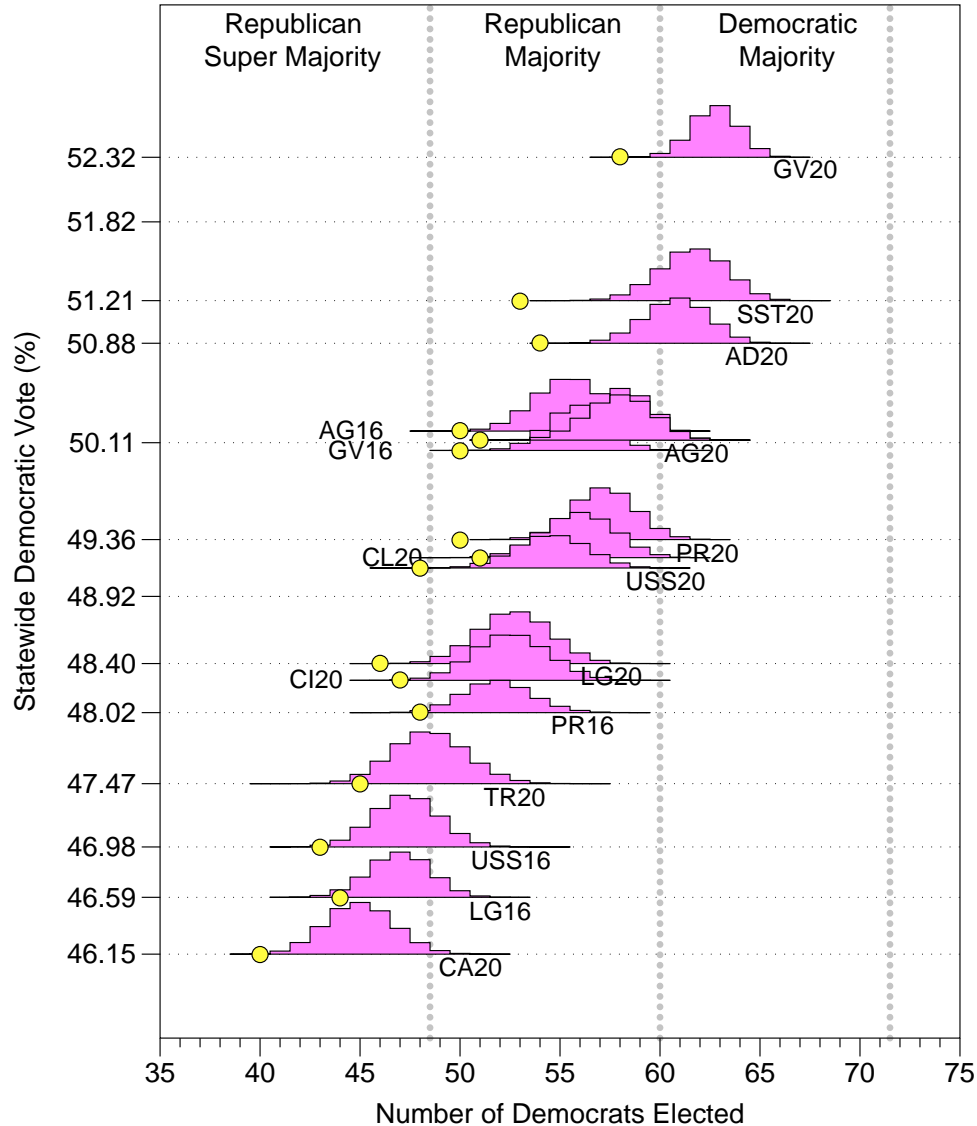


Figure 5.1.7: The Collected Seat Histogram for the Primary Ensemble on the NC House with incumbency considerations added. See Figure 5.1.1 for full description.

NC House: Secondary Distribution

The ensemble used to produce Figure 5.1.8, put more weight on preserving municipalities than either the enacted plan or the Primary Ensemble, which is tuned to match the enacted plan. This enacted plan is still an extreme outlier with respect to this secondary ensemble. We still see that the enacted map resists relinquishing the supermajority under PR16, CI20 and LG20 when this secondary ensemble almost always does. Similarly as the elections become more Democratic in AD20, SST20 and GV20 and the ensemble regularly would give the majority to the Democrats the enacted map dramatically under elects Democrats. In other words, we find that if the mapmakers had made an effort to prioritize preservation of municipalities in the House, that effort would not have led to a map that was more likely to favor Republicans.

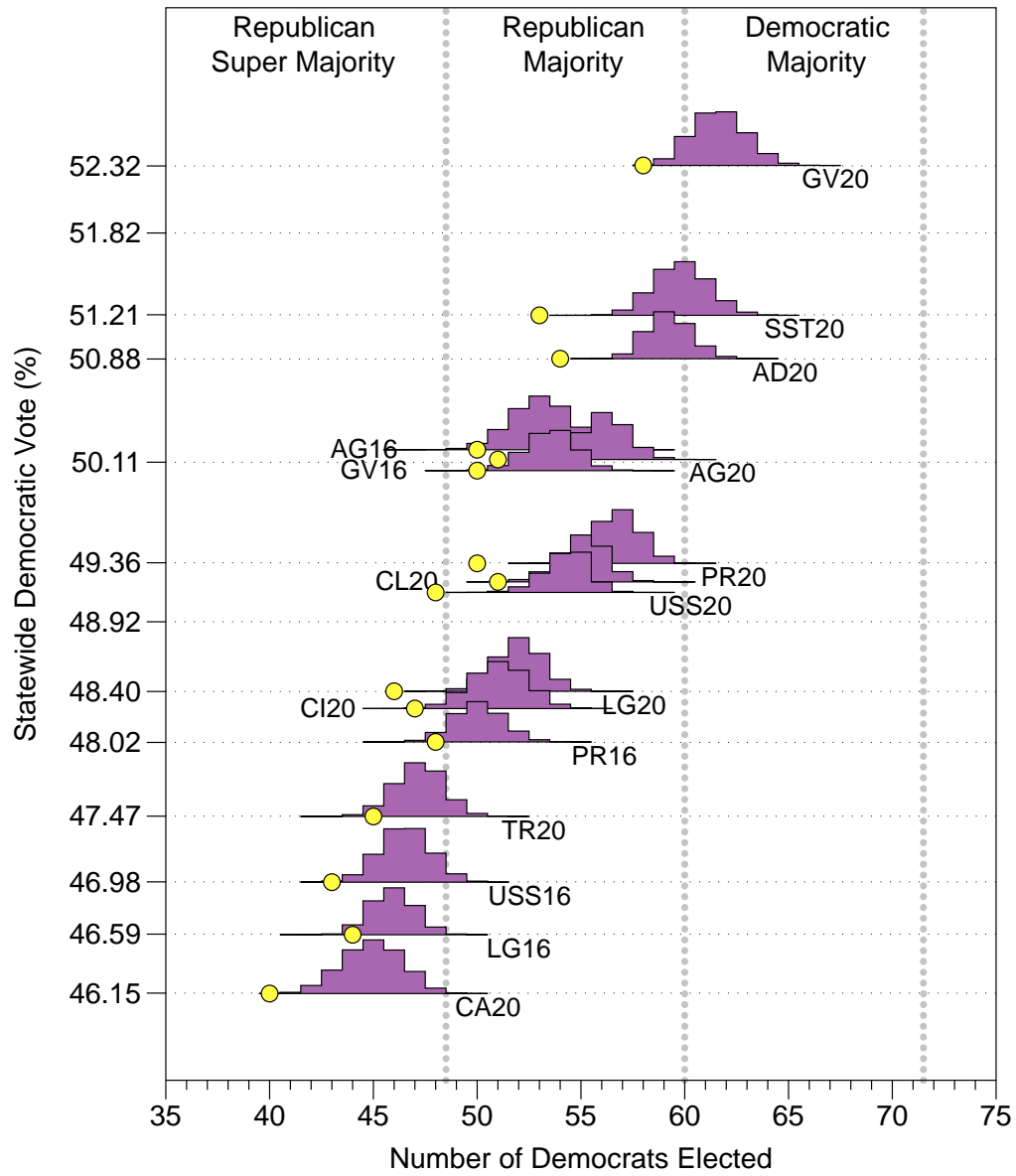


Figure 5.1.8: The Collected Seat Histogram for the Secondary Ensemble on the NC House. The Secondary Ensemble for the NC House is centered on distributions which better preserve municipalities than the enacted plan. See Figure 5.1.1 for full description.

% Dem	Election	% Outlier	# Outlier	# Samples
52.32%	GV20	16.343%	16343	100000
51.21%	SST20	35.184%	35184	100000
50.88%	AD20	42.880%	42880	100000
50.20%	AG16	12.129%	12129	100000
50.13%	AG20	4.332%	4332	100000
50.05%	GV16	0.075%	75	100000
49.36%	PR20	6.220%	6220	100000
49.22%	CL20	5.365%	5365	100000
49.14%	USS20	14.052%	14052	100000
48.40%	LG20	0.000%	0	100000
48.27%	CI20	0.322%	322	100000
47.47%	TR20	5.726%	5726	100000
46.98%	USS16	43.176%	43176	100000
46.59%	LG16	44.943%	44943	100000
46.15%	CA20	1.123%	1123	100000

Table 2: NC Senate Collected Seat Histogram Outlier Data. Starting from the left, the first column gives the statewide partisan makeup of the election under consideration whose abbreviation is given in the second column from the left. The right most column gives the total number of plans in the ensemble considered which is 100,000. The second column from the right gives the number of those 100,000 plans which elect the same or less Democrats under the given election. These are the plans which are as much or more of an outlier than the enacted map. The middle column is the percentage of plans which are more or equal of an outlier. (It is calculated by dividing the 2nd column from the right by 100,000 and multiplying by 100 to make a percentage.) The number of fairly small to extremely small percentage in the middle column between 50.13% (AG20) and 47.47% (TR20) are another signature of the anomalous behavior seen visually in Figure 5.2.1 over the same range of vote percentages.

5.2 NC State Senate

We will see in our cluster-by-cluster analysis that the NC Senate map has a number of clusters that are outliers. Their structures are systematically in favor of the Republican party. As discussed in Section 3.2, we often see maps that express their outlier status under a specific voting climate; often when one party is in danger of losing the majority or super-majority. The enacted map for the NC Senate shows this behavior.

Figure 5.2.1 is the plot for the NC Senate analogous to Figure 5.1.1, which was for the NC House. Most of the outlier behavior at the state level for the enacted NC Senate map is concentrated in the interval between 47.5% statewide Democratic vote share and around 50.5% statewide Democratic vote share. In this range, the enacted map is always an outlier and often an extreme outlier under the votes considered. This range is significant for a number of reasons. First, this is a range of statewide vote fraction where many North Carolina elections occur. Secondly, looking at Figure 5.2.1 we see that over this range the ensemble shows that one should expect the Republican super-majority (less than 21 Democratic Seats) to switch to a simple Republican majority (between 21 and 24 Democratic Seats). Yet the enacted map often resists this switch, breaking the supermajority only when the PR20 and CL20 votes are considered. In both of these elections, the ensemble places the typical number of Democratic seats well away from the supermajority line and centered between it and the simple majority line.

To make Figure 5.2.1 more quantitative, we have included Table 2 which shows the number of maps where the primary ensemble elects less democrates in that election than the enacted map.

Looking at Table 2 we see that a number of the elections in the critical partisan range of around 47.5% to 50% are extreme outliers (GV16, LG20, and CI20) while other (AG20, PR20, and TR20) show atypical behavior all favoring the Republican candidates. It is again important to notice that the enacted plan is never seen to favor the Democratic party relative to what is expected from the Primary non-partisan ensemble. The enacted map ranges between tilted to the Republican party to being an extreme partisan outlier. The importance of the range of statewide Democratic between 47.5% to 50% by looking at Figure 5.2.1. The primary ensemble shows that is within this range that one expects a Republican supermajority to become a simple majority. The effect of the enacted plan is to suppress this by under electing Democrats.

We will in the cluster-by-cluster analysis in Section 6.2 that a number of individual clusters are extreme outliers in their partisan structure.

To better control for other variation we now include a number of Collected Seat Histograms built from a single election which has been shifted to create a sequence of elections with different statewide partisan vote fractions but the same spatial voting pattern.

The large jump that we see in Figures 5.2.3 to 5.2.5 between the 33nd most Republican district and the 35th most

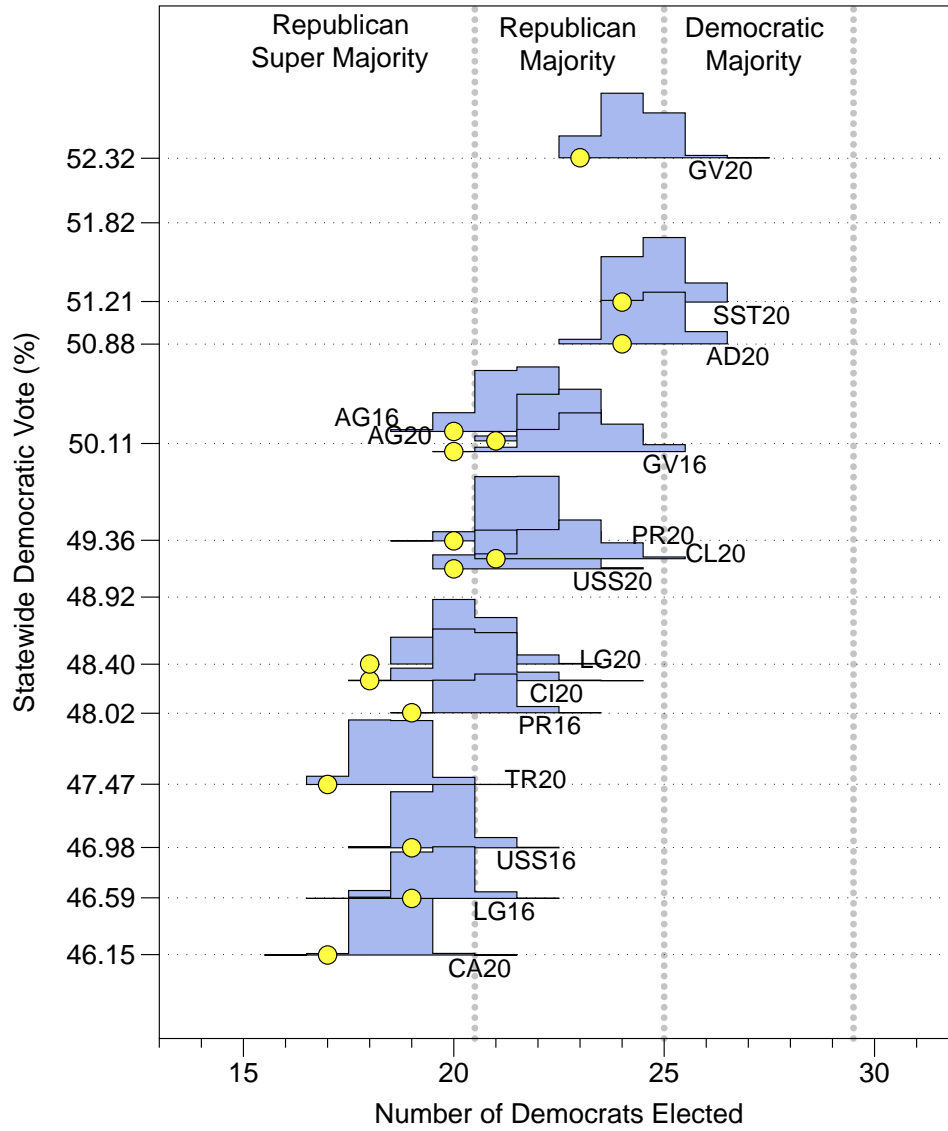


Figure 5.2.1: The Collected Seat Histogram for the Primary Ensemble on the NC Senate. The individual histograms give the frequency of the Democratic seat count for each of the statewide elections considered from the years 2016 and 2020. The histograms are organized vertically based on the statewide partisan vote fraction for each election. The more Republican elections are placed lower on the plot while more Democratic elections are placed higher. Three dotted lines denote the boundary between where the supermajorities and simple majorities are in force.

Republican district means that over a large range of swings in the partisan character of the election the outcome will change at most by one seat.

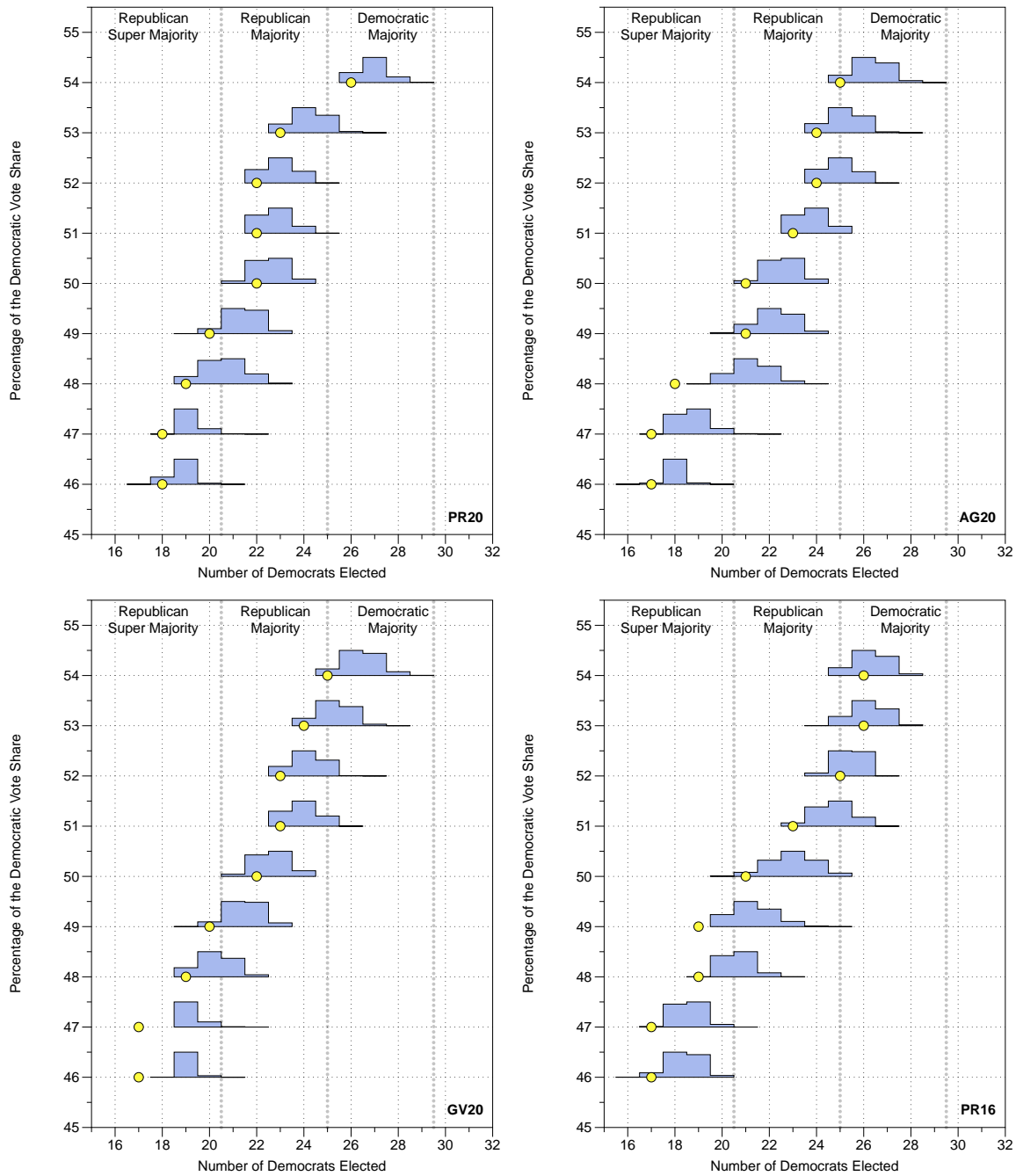


Figure 5.2.2: The Collected Seat Histograms for the Primary Ensemble on the NC House built from a collection of voting data generated via uniform swing.

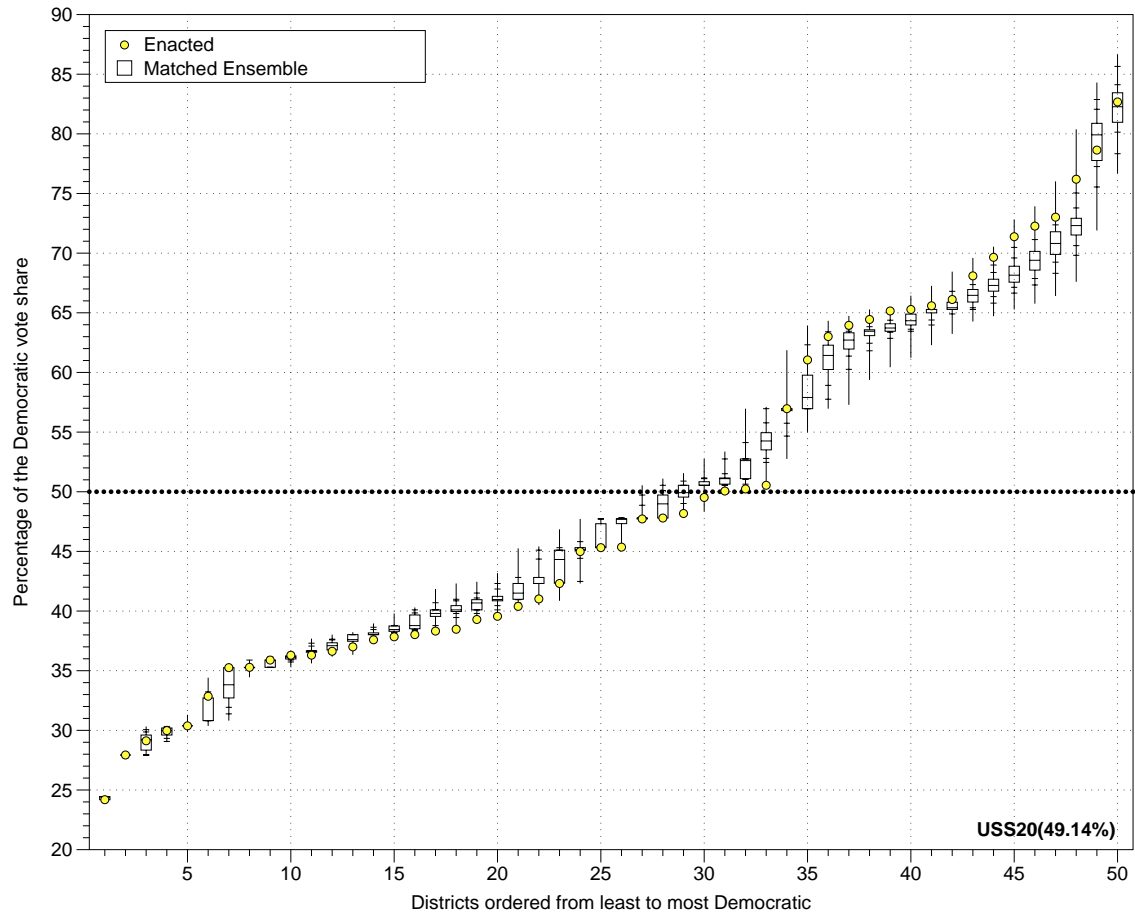


Figure 5.2.3: The yellow dots represent the democratic vote fraction of the enacted map under the USS20 vote count when the district are ordered from most Republican on the left to most Democratic in vote share on the right. The box-plots show the range of the same statistic plotted over the primary ensemble. Essentially all of the districts between the 15th most Republican and the 33rd most Republican have abnormally few Democrats. This is compensated by packing abnormally many Democrats the 35th to the 47th most Republican districts. This structure is an extreme outlier and does not occur in the ensemble.

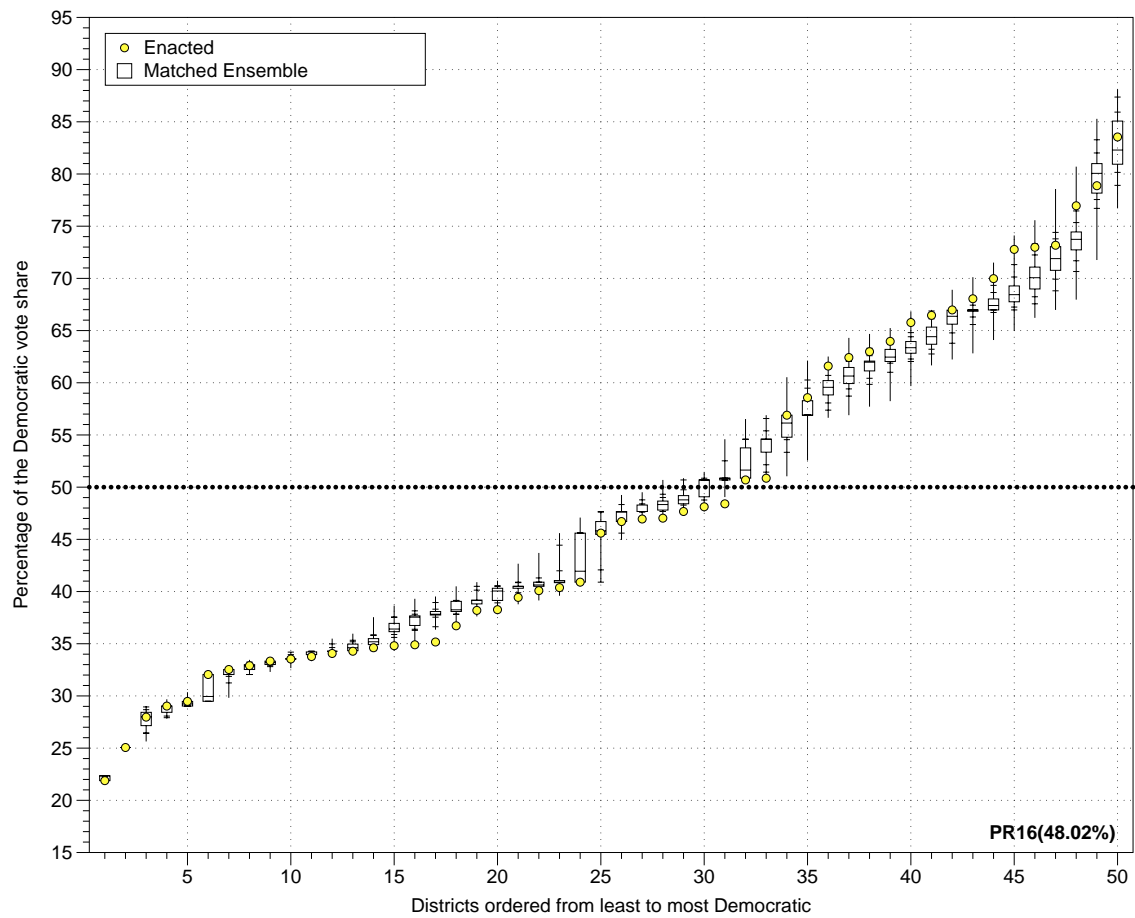


Figure 5.2.4: A similar structure to that seen in Figure 5.2.3 is repeated here over a nearly identical range of districts.

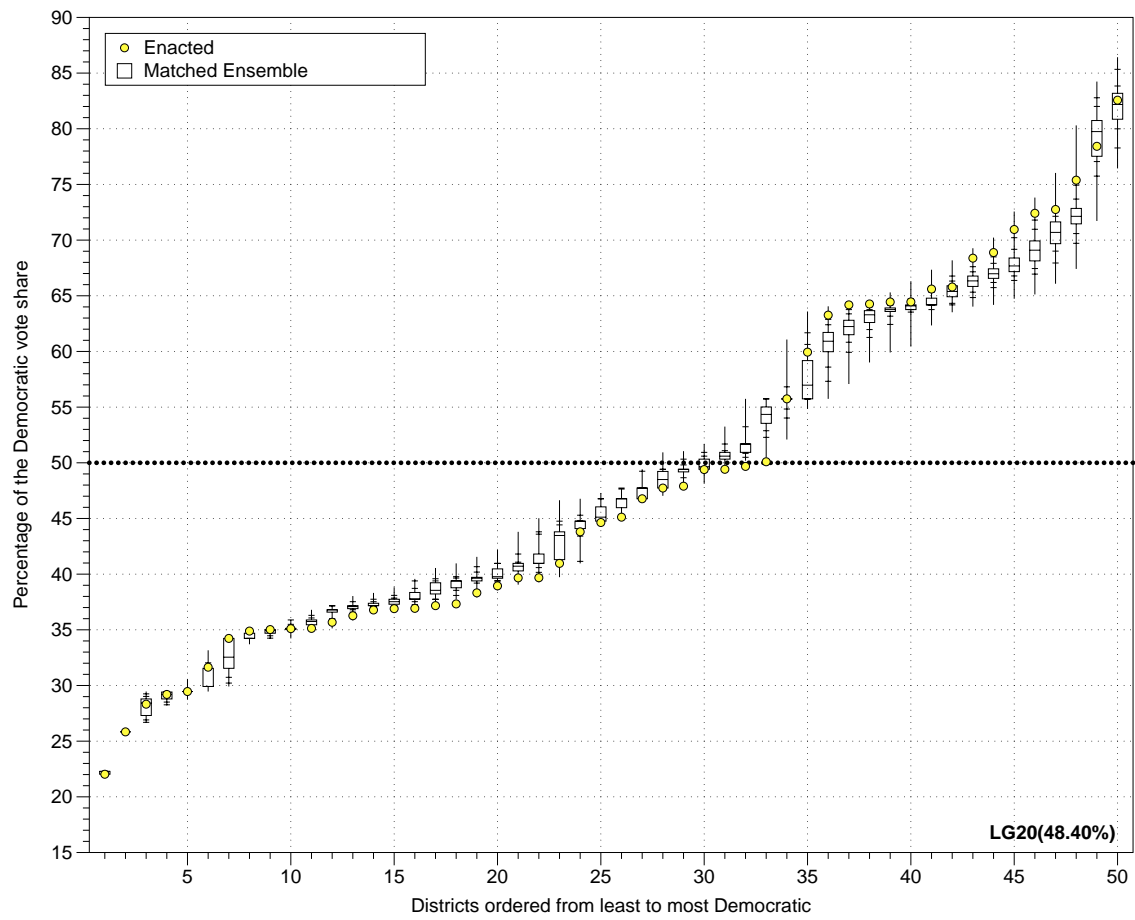


Figure 5.2.5: A similar structure to that seen in Figure 5.2.3 is repeated here.

NC Senate: Primary Ensemble considering Incumbency.

Preserving incumbency has little qualitative effect on the observations we have made. Looking at 5.2.6, we see that the election between and including GV16 and TR20 in the Figure 5.2.6 are all extreme outliers. This is in fact more extreme that the enacted map was under the Primary ensemble. It reinforces that this gerrymander seems to be most effective at the statewide level when the Republican supermajority is possible but in question.

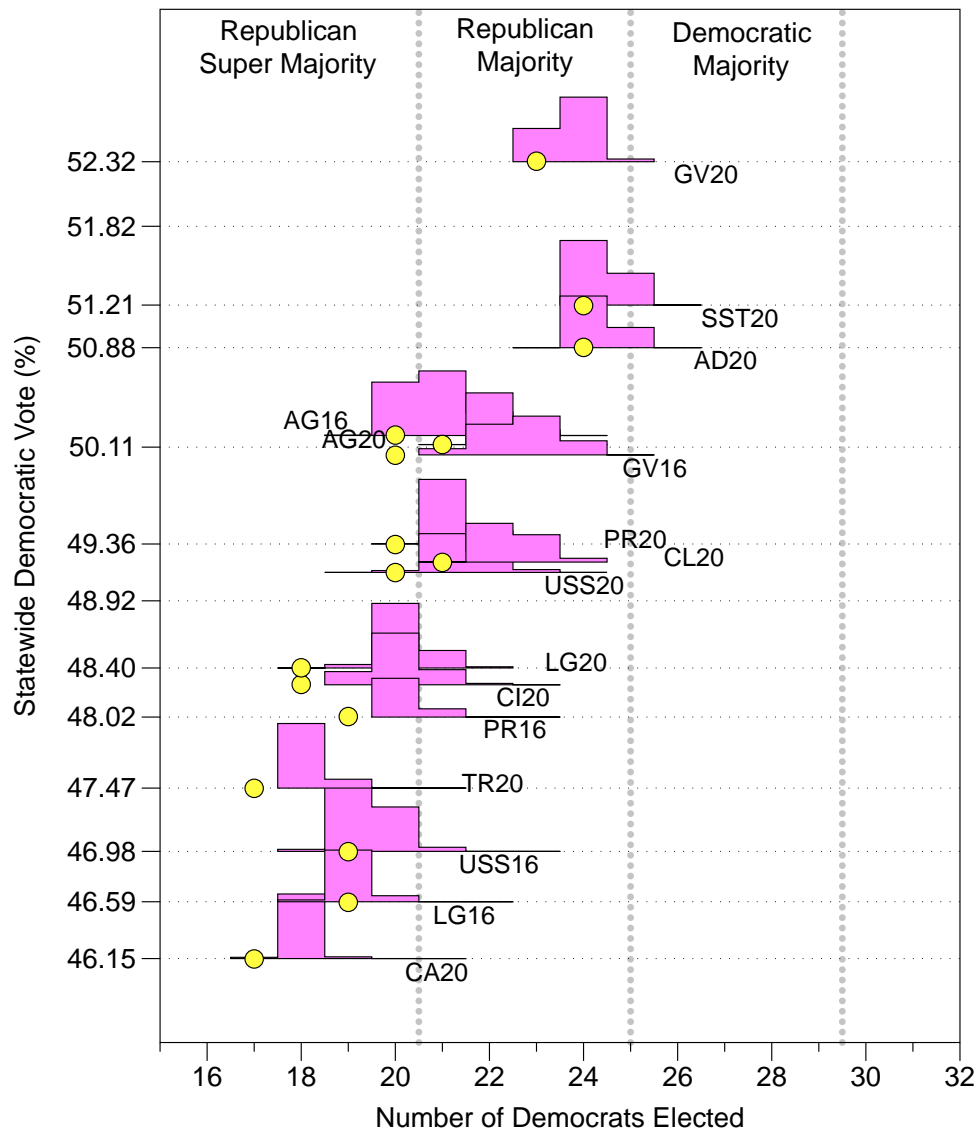


Figure 5.2.6: The Collected Seat Histogram for the Primary Ensemble on the NC Senate with incumbency considerations added. See Figure 5.1.1 for full description.

NC Senate: Secondary Distribution

When municipal preservation is not prioritized, the enacted plan becomes an outlier in all but the two most Republican elections as shown in Figure 5.2.7. Additionally, in most cases it was an extreme outlier when municipal preservation is not considered.

In other words, when municipal preservation is not prioritized, the ensemble produced is more favorable to the Democrats, meaning that the enacted plan appears as an extreme outlier in more situations than in the ensemble that matched the enacted map in prioritizing municipality. Put differently, the decision to prioritize municipality preservation in the Senate plan appears to have enabled more maps that favor Republicans.

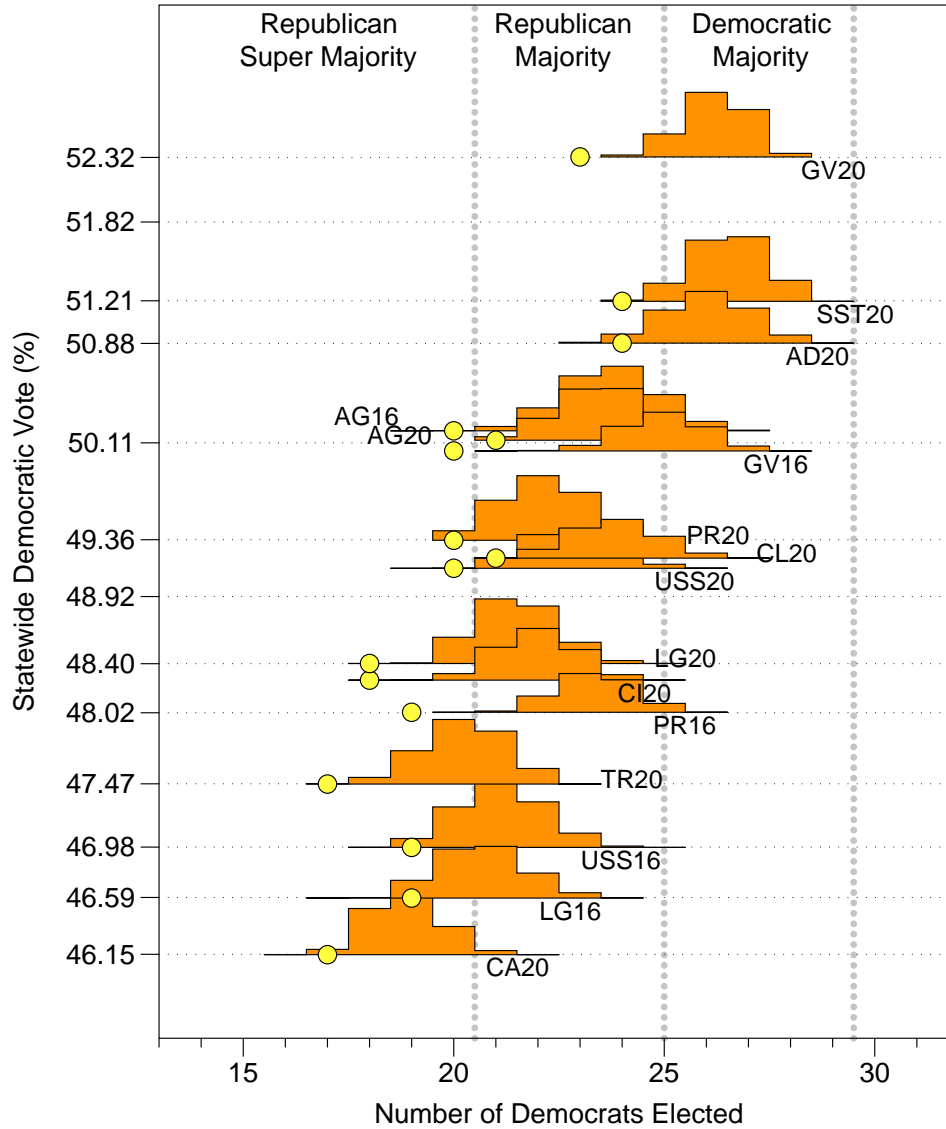


Figure 5.2.7: The Collected Seat Histogram for the Secondary Ensemble on the NC Senate. The Secondary Ensemble for the NC Senate is centered on distributions which do not explicitly consider municipality preservation. See Figure 5.1.1 for full description.

6 State Legislature: Selected Cluster by Cluster Analysis

Using the same tools, we now turn our analysis to the individual cluster. We find that a number of cluster demonstrate significant cracking and packing. In some cases this leads to changes in the partisan make of the representative typically elected from the region. In other cases, it makes the districts insensitive to changes in the voters political outlook as expressed in their votes.

6.1 NC State House

6.1.1 Mecklenburg

The ranked ordered histogram for the Mecklenburg cluster using the primary ensemble (which matches the number of people displaced from municipalities) is given in Figure 6.1.1. Across all of the voting patterns considered, we see that the two most Republican Districts (districts 98 and 103) have exceptionally few Democrats. This has the effect of making them more likely to elect a Republican when many (and often almost all) ensemble plans elect a Democrat in those districts. Specifically, that is the case under LG20, AG20, USS20, CL20, AD20 and SST20. Under GV20 and PR20, the two most Republican districts barely elect Democrats even though the majority of the ensemble plans safely elect Democrats. Under CA20 and TR20, the enacted plan safely elects two Republicans while under the ensemble the races are much closer, swinging in both directions under different plans. In these two elections, the enacted map elects a third Republican (in District 104) when the ensemble of maps typically would not. All of this is achieved by packing exceptionally many Democrats into the 6th through 9th most Democrat district, as shown in Figure 6.1.1 where the enacted plan is consistently at the extreme top of the range seen in the ensemble. All of these facts make the plan an extreme outlier in this cluster.

In fact, ranging over all of the elections considered, the Democratic fraction in the four most republican districts in the ensemble is greater than that in the enacted plan in less than 1.7% of the plans with it dipping as low as around 0.5% in a few cases. More dramatically, the percentage of plans in the ensemble where the fraction of Democrats, in the four most Democratic districts, is always less than 0.11% with it often dipping as low as 0.02% or lower.

As already discussed, it was possible to oust many less people from municipalities than the enacted plan does. Figure 6.1.2 shows the secondary ensemble which constrains municipalities much more strongly. We seen that structures highlighted above persist in this ensemble; again making the enacted map an extreme outlier.

Municipal Splits and Ousted Population: In Figure 6.1.3, we see that the enacted plan ousts people from municipalities at a number that is comparable to the primary ensemble but typically more than the Secondary House ensemble.

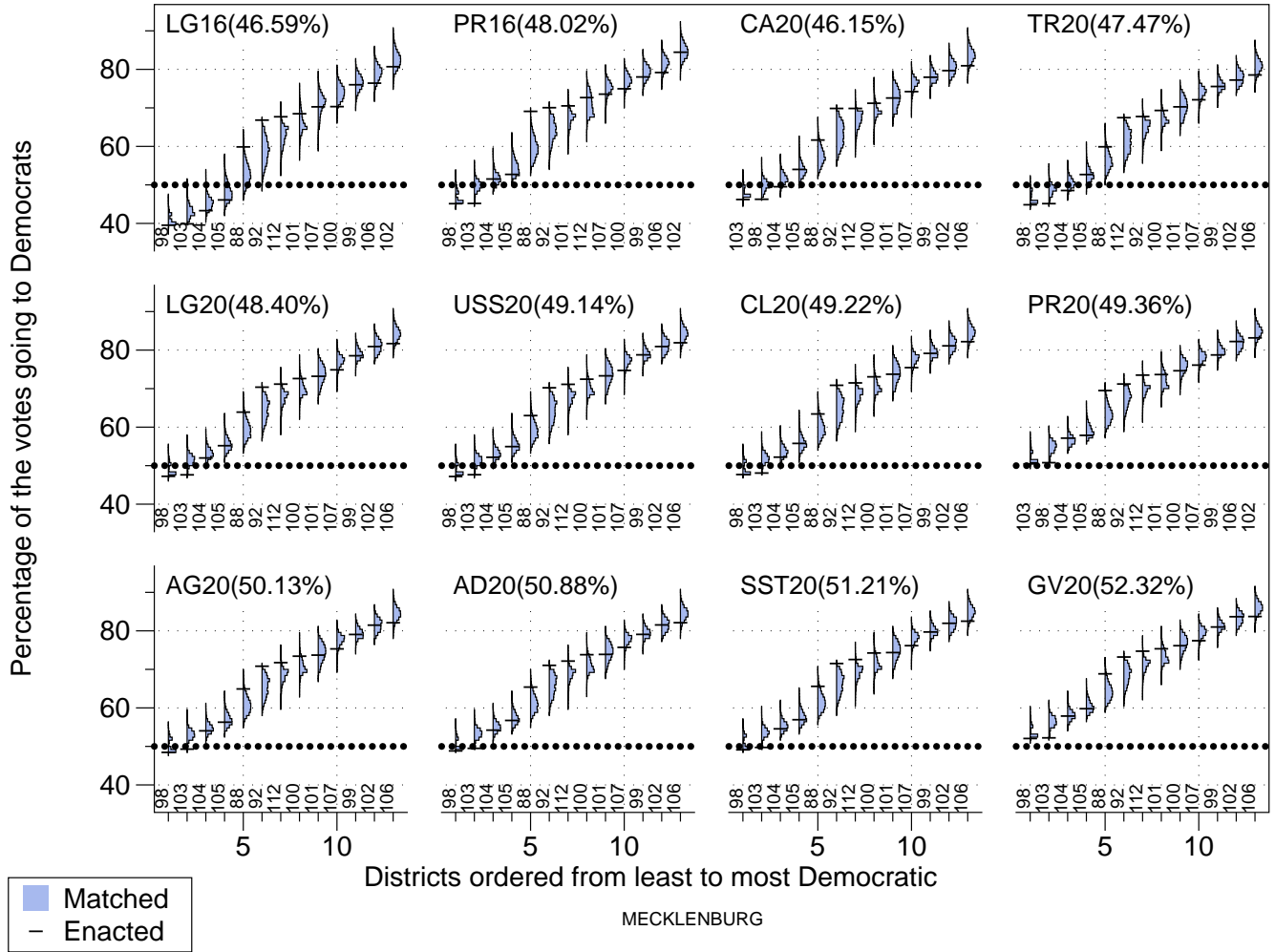


Figure 6.1.1: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Primary ensemble which was tuned to match the municipal preservation of the enacted plan.

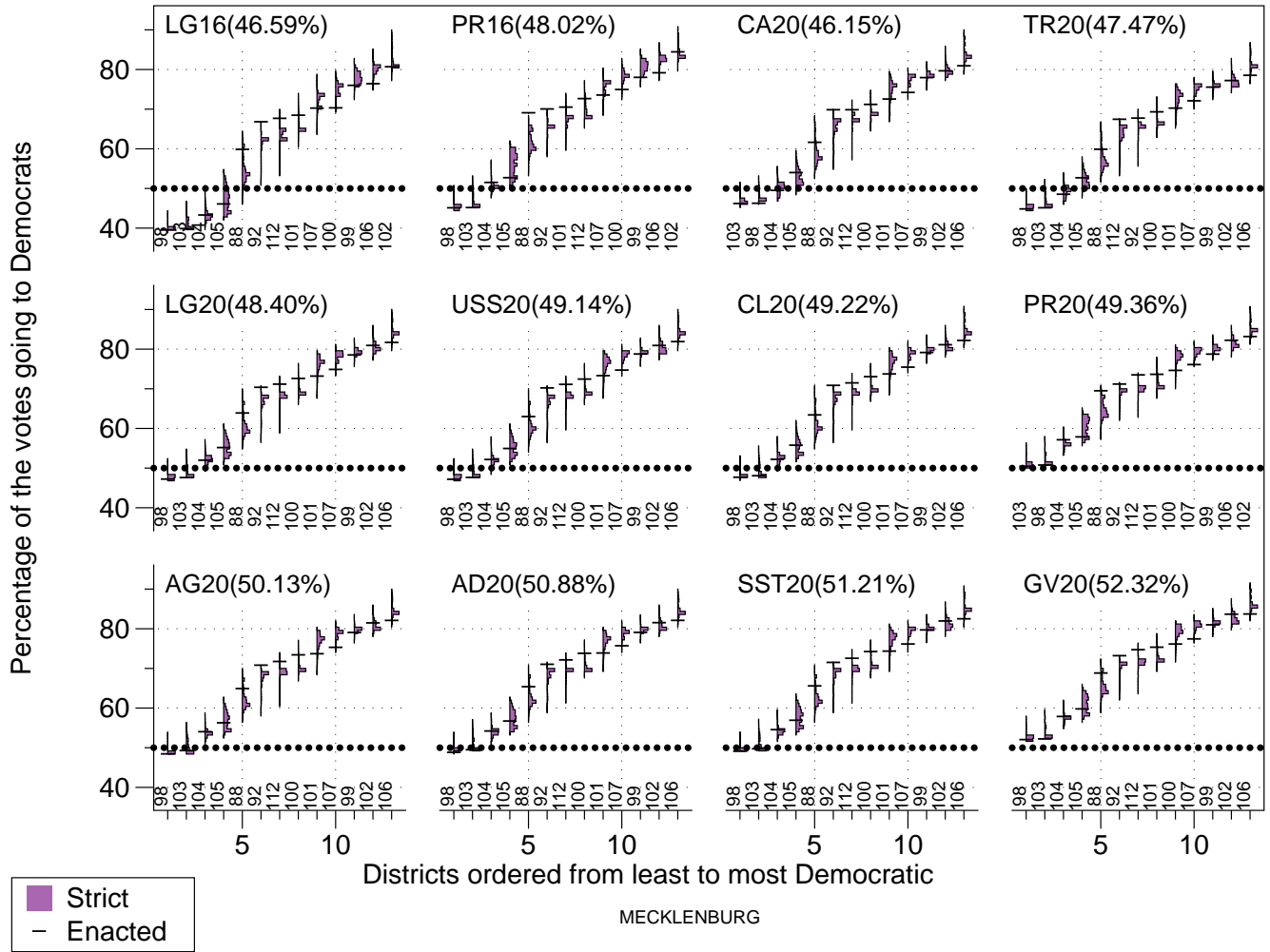


Figure 6.1.2: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Secondary ensemble which better preserves municipalities than the enacted plan.

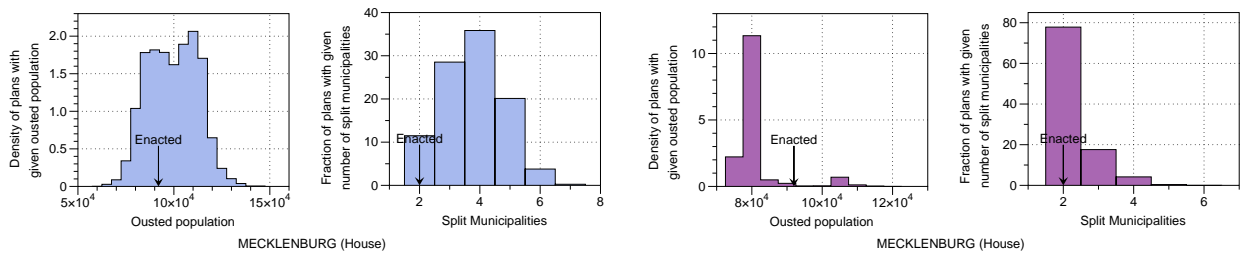


Figure 6.1.3: Plots showing the distribution of the number of people ousted from municipalities in this cluster under the primary and secondary ensemble. The amount of people ousted by the enacted map is also shown.

6.1.2 Wake

In the Wake cluster, we again see the depleting of Democrats from the two most Republican districts (Districts 37 and 35) while packing Democrats into the next several districts, as in the Mecklenburg cluster. The effect is to swing the two most Republican districts into play in elections where they would not be under the ensemble. Furthermore, the enacted plan makes them safer for Republicans in situations when the ensemble maps would typically have it as a toss-up.

Across all of the elections considered, the number of maps in the ensemble which have a lower Democratic vote fraction in the two most Republican districts than in the enacted plan is less than 0.42% except for the CA20 election where it is 1.2%.

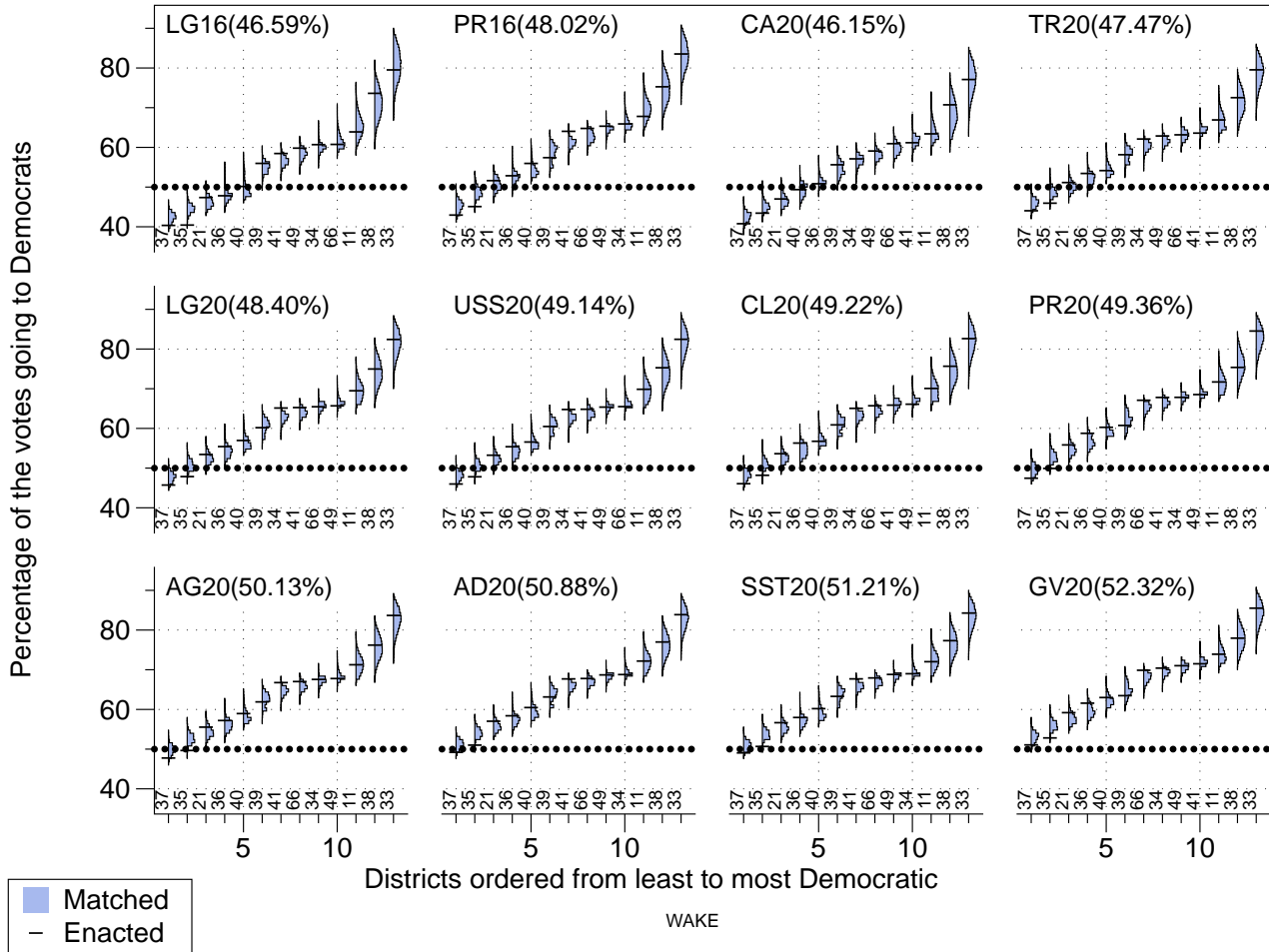


Figure 6.1.4: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Primary ensemble which was tuned to match the municipal preservation of the enacted plan.

As shown in Figure 6.1.5, the trend continues under the secondary ensemble which better preserves municipalities.

Municipal Splits and Ousted Population:

In Wake we see from Figure 6.1.6 that the enacted plan consistently ousts more people than the primary ensemble and significantly more than the secondary ensemble.

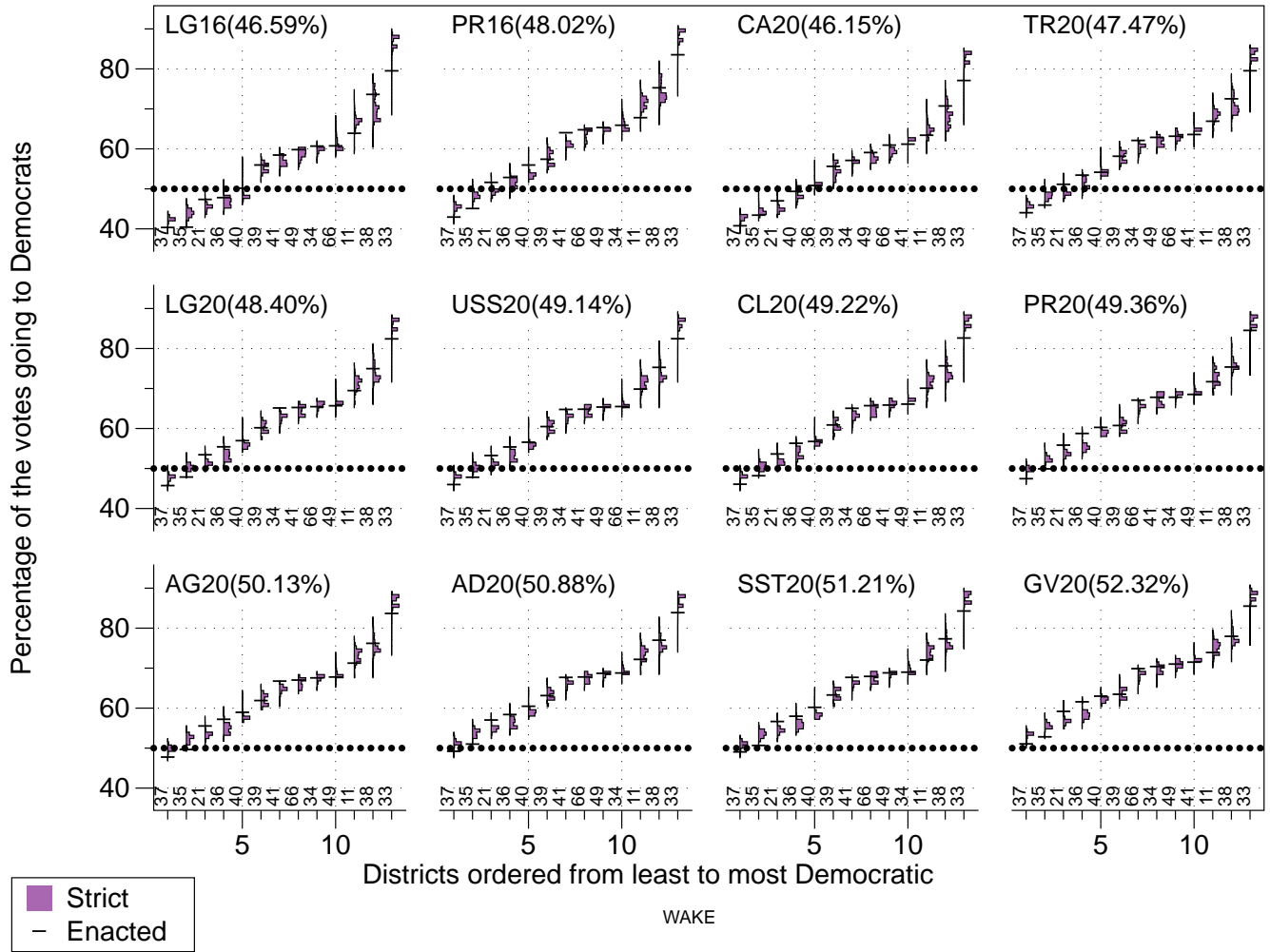


Figure 6.1.5: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Secondary ensemble which better preserves municipalities than the enacted plan.

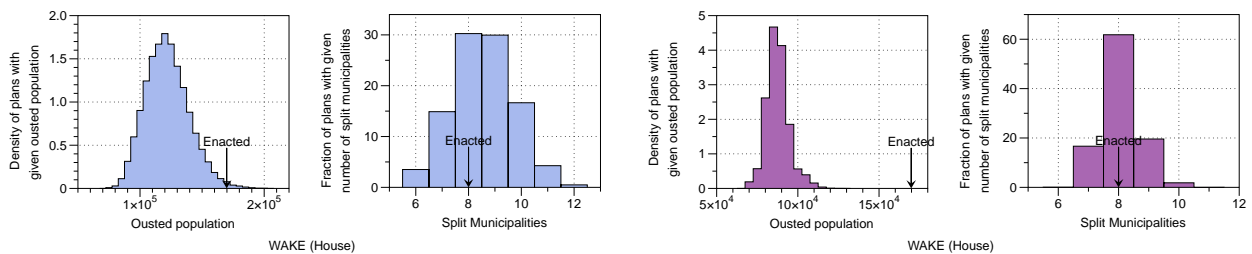


Figure 6.1.6: Plots showing the distribution of the number of people ousted from municipalities in this cluster under the primary and secondary ensemble. The amount of people ousted by the enacted map is also shown.

6.1.3 Forsyth-Stokes

Again in Figure 6.1.7, showing the primary ensemble in the Forsyth-Stokes cluster, we see the most Republican districts depleted of Democrats while excess Democrats are packed in safe democratic districts and in the safest Republican district are moved to competitive districts. The effect is apparent in all of the elections, but varies slightly across different voting patterns. In all cases, we see the Democratic makeup of the 3rd most Republican district pulled below the range typically seen in the ensemble often resulting in this district electing a Republican when it would not typically. In the three elections where the 3rd-most Republican district still elects a Democrat (GV20), the map’s depletion of Democrats from the second most Republican district is enough to reliably elect a Republican in that district when typically the election would vary between being close and strongly favoring the Democrats.

Ranging over all of the elections considered, less than 0.02% of the plans in the ensemble have a lower Democratic fraction in the three most Republican districts than the enacted plan signaling extreme cracking. Additionally, less than 1.3% of the plans in the ensemble have a larger Democratic in the two most Democratic districts than the enacted plan.

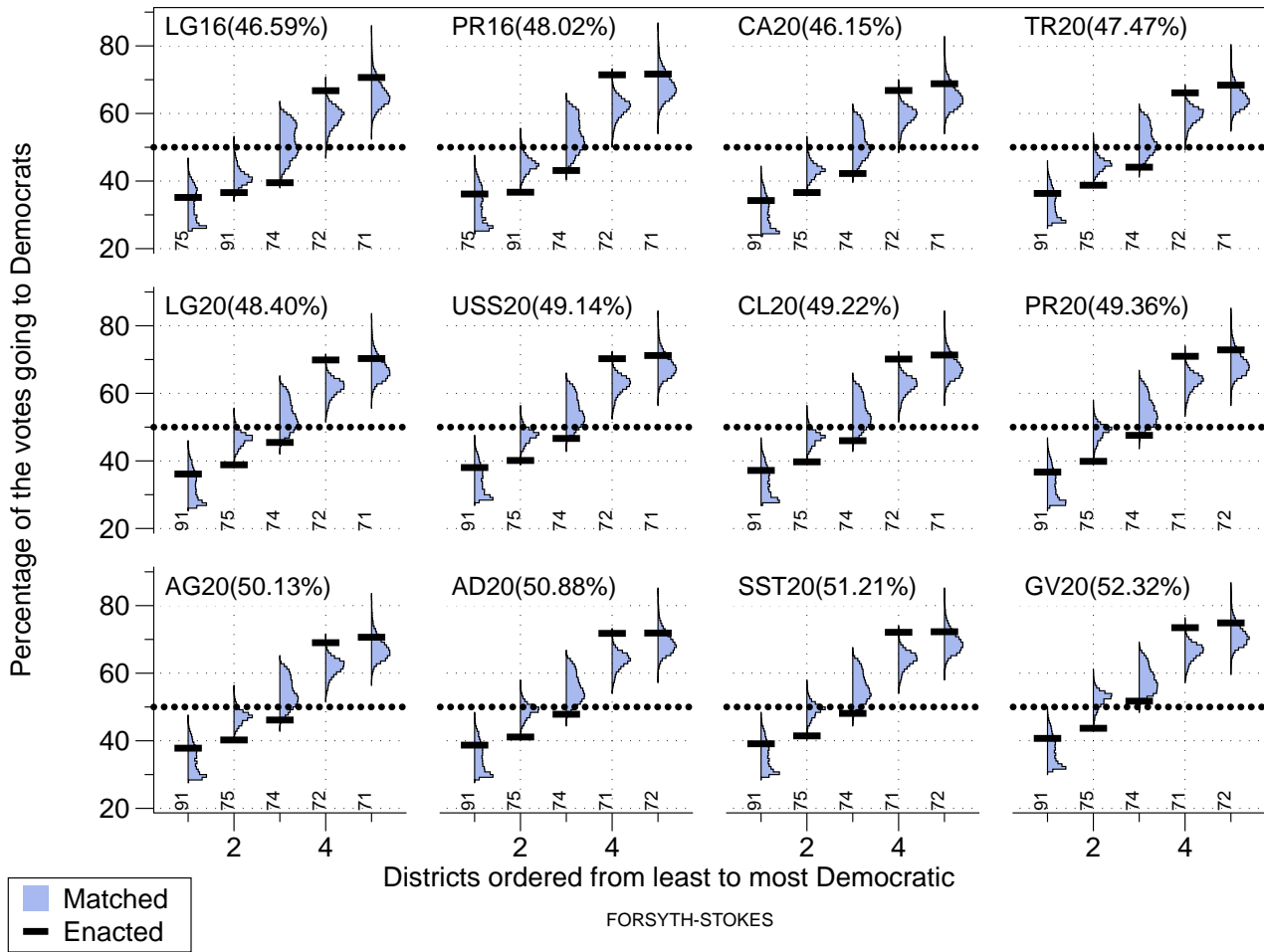


Figure 6.1.7: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Primary ensemble which was tuned to match the municipal preservation of the enacted plan.

As shown in Figure 6.1.8, the trend continues under the secondary ensemble which better preserves municipalities. Some of the effects are more extreme and in this cluster, this ensemble leads to more partisan districts. Nonetheless, the enacted map still regularly elects a Republican in the third most Republican district even though it is typically more firmly Democratic under this ensemble.

Municipal Splits and Ousted Population:

From Figure 6.1.9, we see that in Forsyth-Stokes the enacted plan ousts a number of people comparable to the primary ensemble but consistently more than the secondary ensemble.

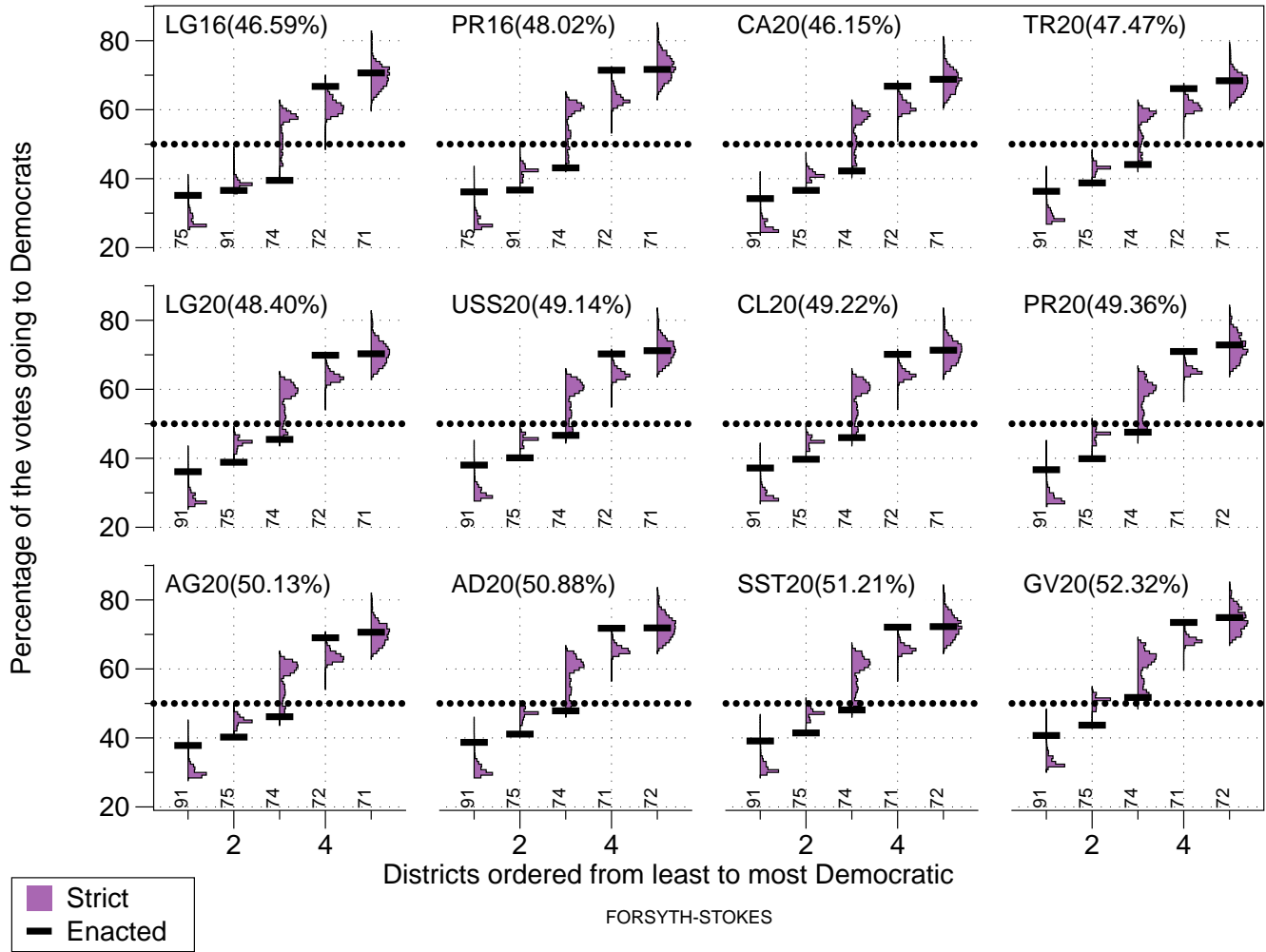


Figure 6.1.8: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Secondary ensemble which better preserves municipalities than the enacted plan.

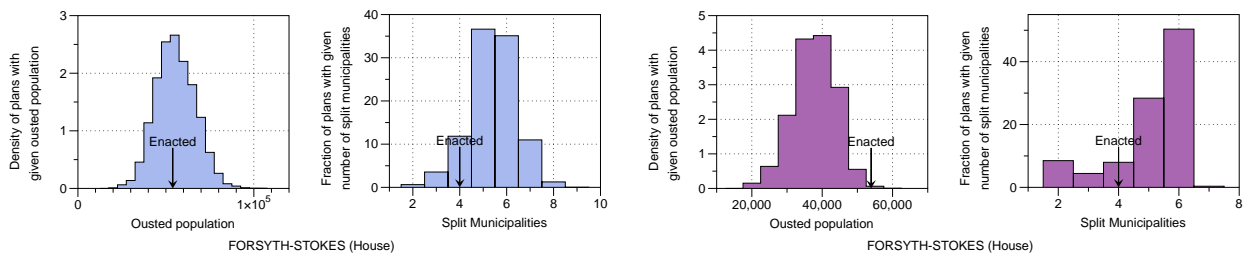


Figure 6.1.9: Plots showing the distribution of the number of people ousted from municipalities in this cluster under the primary and secondary ensemble. The amount of people ousted by the enacted map is also shown.

6.1.4 Guilford

The pattern seen previously is again repeated in an extreme fashion in the Guilford County. The two most Republican Districts (districts 59 and 62) have abnormally few Democrats when compared to what is seen in the primary ensemble and the more Democratic districts (numbered 57, 58, 60, and 61) have exceptionally many Democrats packed into them. The effect is that the enacted plan regularly (and often safely) elects two Republicans under election climates which would rarely or never do so.

Over all of the elections considered and all of the around 80,000 plans in the ensemble, none of the plans have a higher Democratic fraction in the four most Democratic districts or a lower Democratic fraction in the two most Republican districts, in comparison to the enacted plan. In other words, this cluster shows more cracking and packing of Democrats than every single plan in the nonpartisan ensemble.

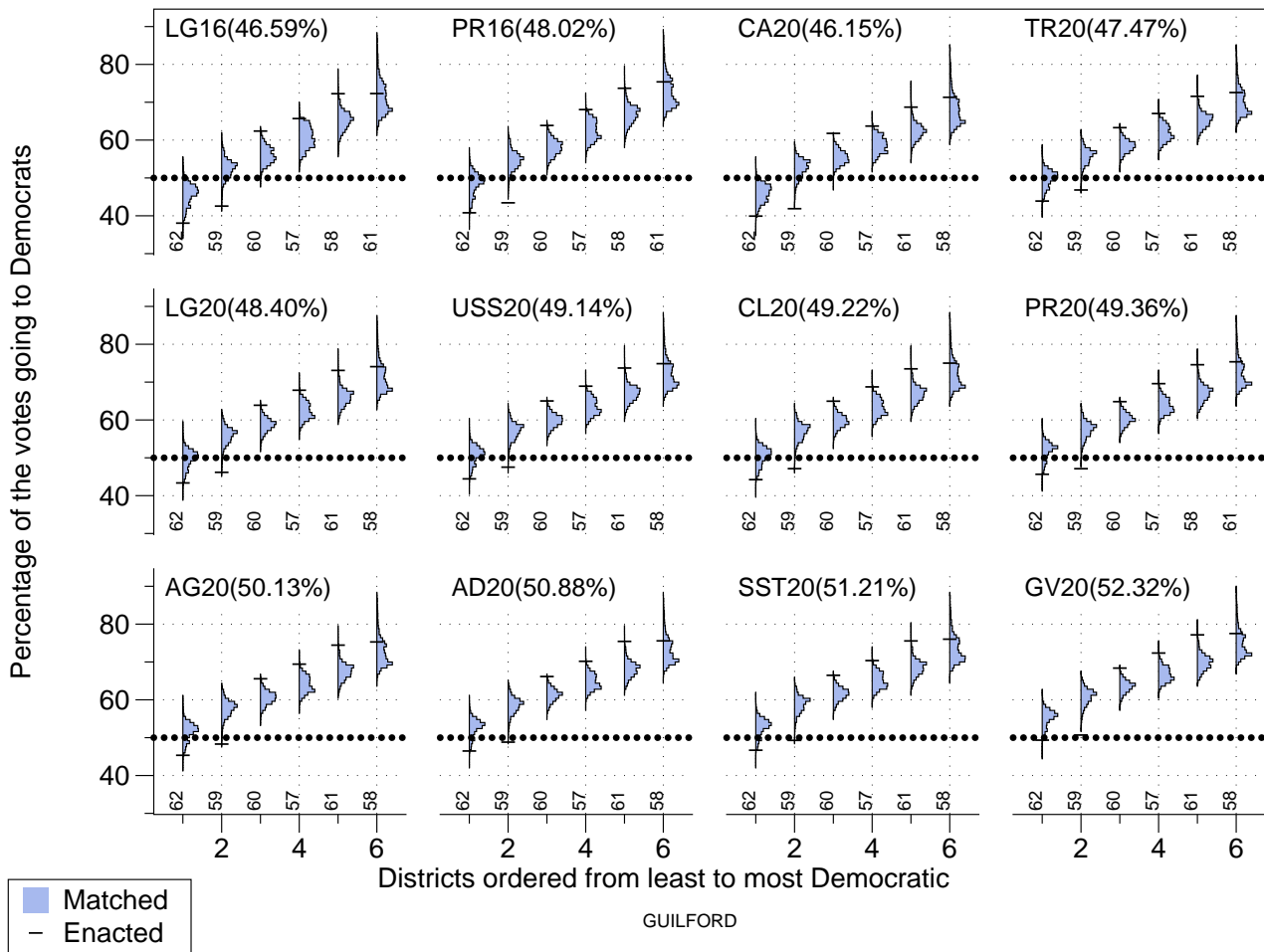


Figure 6.1.10: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Primary ensemble which was tuned to match the municipal preservation of the enacted plan.

In Figure 6.1.11, we see the effect of considering the the ensemble that more strongly preserves municipalities than the enacted plan. The ensemble reliably has four democratic districts and a 5th which typically leans Republican but sometimes is competitive. Yet, the enacted plan gives one clearly Republican district and one which is often safely Republican and at times competitive.

Municipal Splits and Ousted Population: From Figure 6.1.12, we see that in Guilford the enacted plan ousts a number of people comparable to the primary ensemble but constantly more than the secondary ensemble.

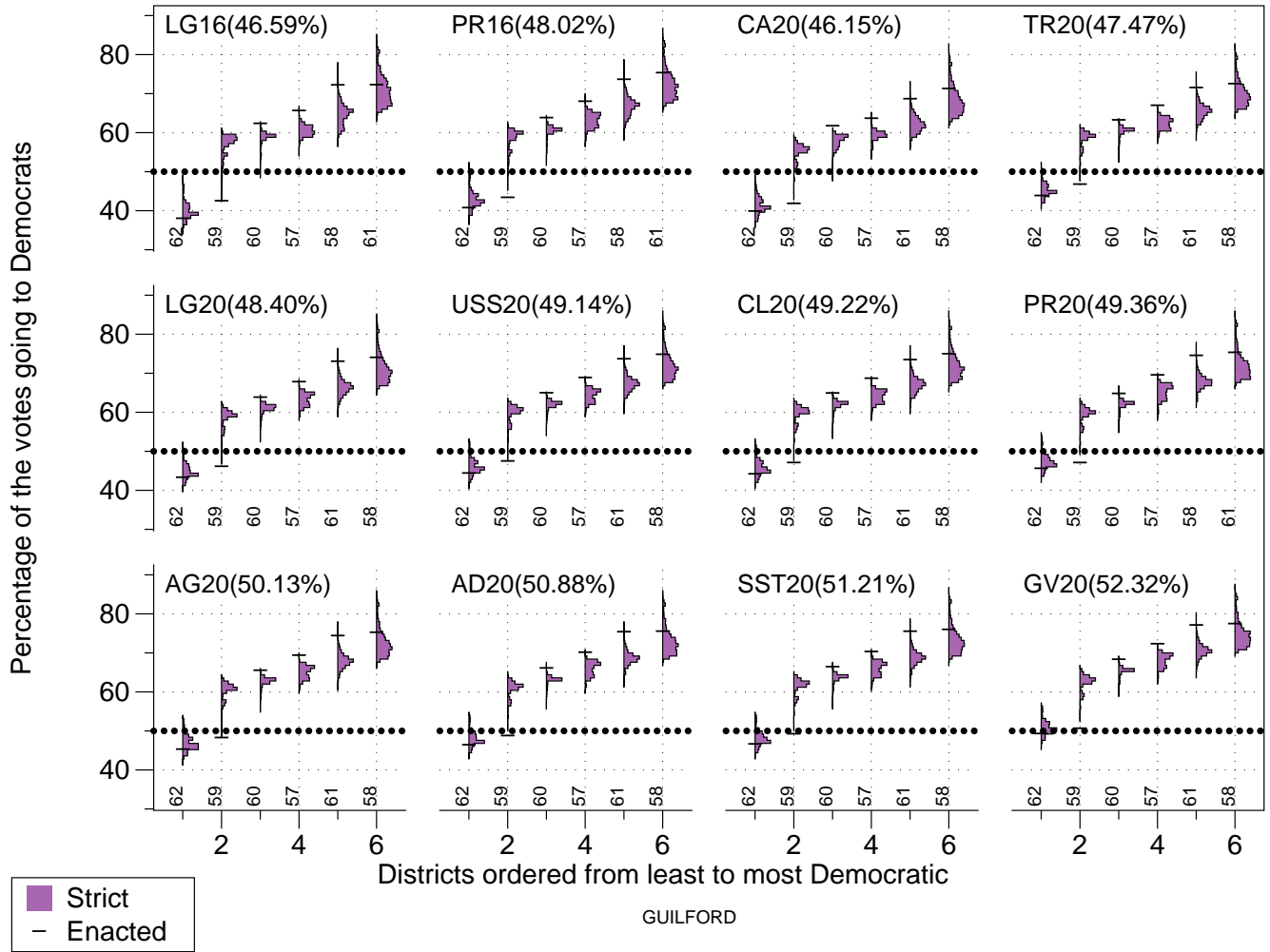


Figure 6.1.11: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Secondary ensemble which better preserves municipalities than the enacted plan.

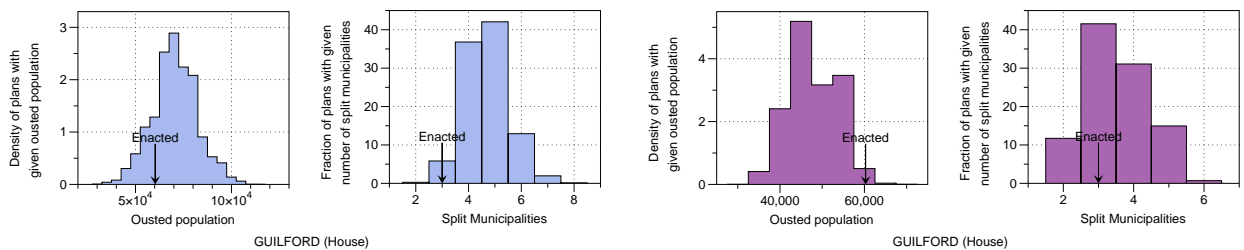


Figure 6.1.12: Plots showing the distribution of the number of people ousted from municipalities in this cluster under the primary and secondary ensemble. The amount of people ousted by the enacted map is also shown.

6.1.5 Buncombe

As seen in Figure 6.1.13, the primary ensemble shows two Democratic districts with a third typically leaning Democratic but sometimes in play. However, the enacted map produces one district which is typically Republican. This is achieved by packing unusually many Democrats in the most Democratic district (district 114) leaving abnormally few Democrats for the most Republican district (district 116).

Ranging over the elections considered, at most 1.2% of the plans in the ensemble have a lower democratic fraction in the most Republican district in the ensemble than the enacted plan does. The percentage of plans with a larger Democratic fraction in the most Democratic district in the ensemble fluctuates around 5%.

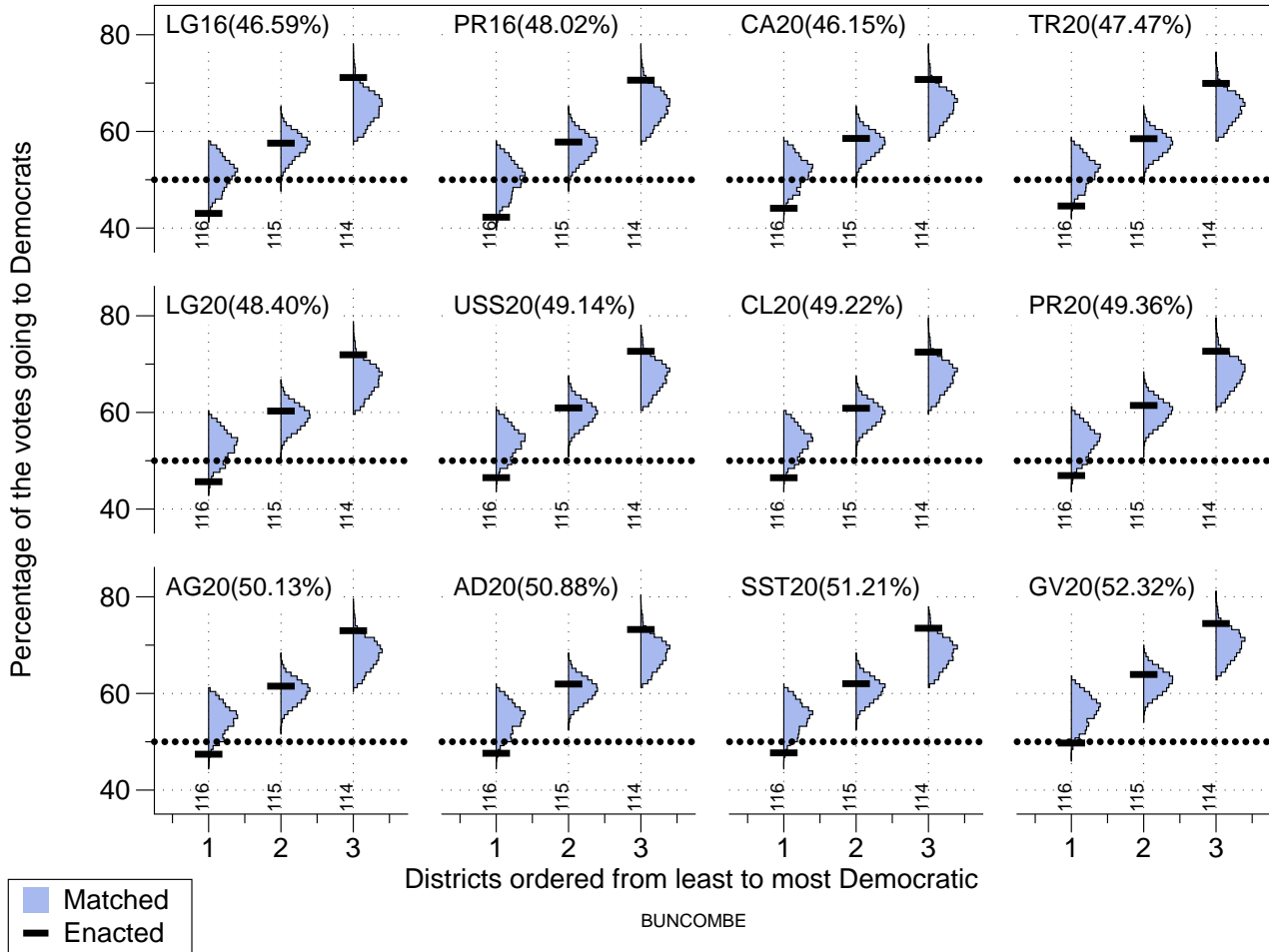


Figure 6.1.13: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Primary ensemble which was tuned to match the municipal preservation of the enacted plan.

The same pattern of depleting Democrats from the most republican district so that it often elects a Republican when it typically would not under the ensemble is again seen in Figure 6.1.14 which shows the results under the secondary ensemble.

Municipal Splits and Ousted Population: From Figure 6.1.15, we see that there is not a lot of difference between the two ensembles in the number of ousted people. Both are comparable to the enacted map.

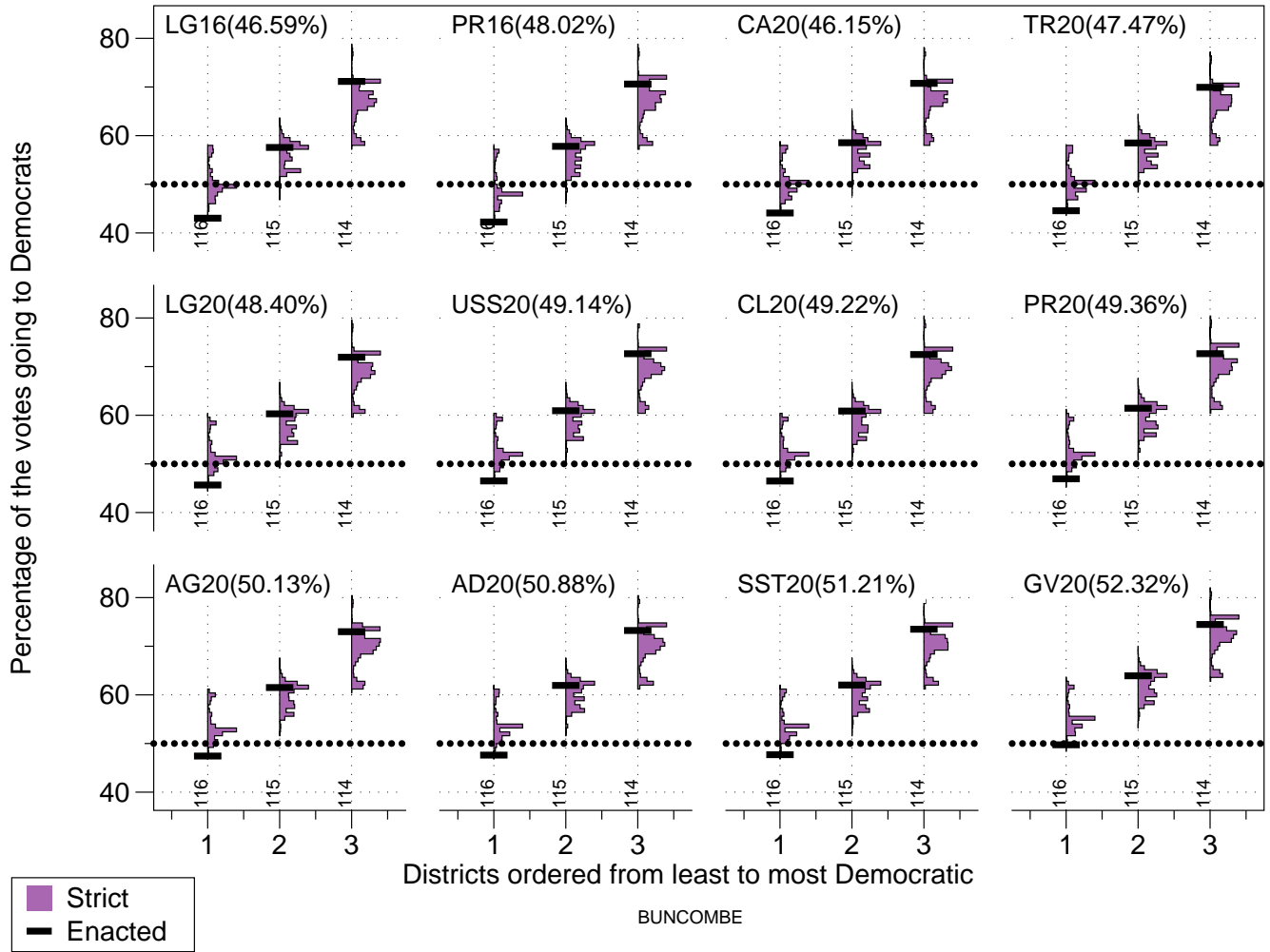


Figure 6.1.14: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Secondary ensemble which better preserves municipalities than the enacted plan.

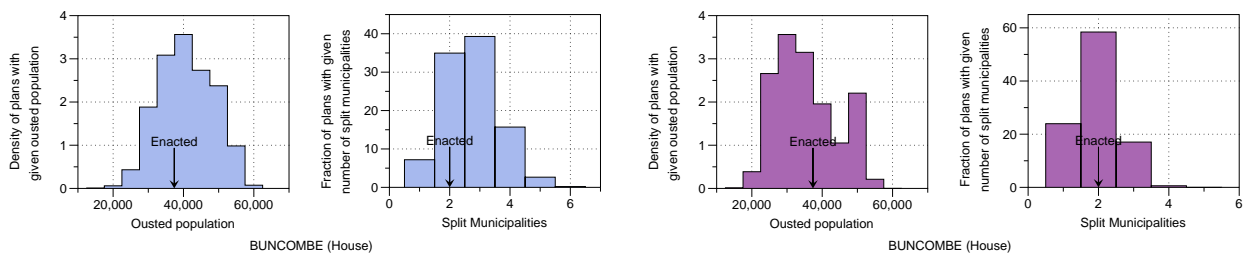


Figure 6.1.15: Plots showing the distribution of the number of people ousted from municipalities in this cluster under the primary and secondary ensemble. The amount of people ousted by the enacted map is also shown.

6.1.6 Pitt

Pitt County only has two districts. The enacted places atypically many Democrats in the most Democratic district (district 8) while placing atypically few in the most Republican district (district 9). This maximizes the chance that the second district will elect a republican. In many cases, it does when many of the ensemble maps would not. By maximizing the difference in the partisan makeup of the two districts, the enacted map minimized the degree to which the enacted map responds to the shifting opinions of the electorate.

Across the elections considered, the percentage of plans in the ensemble which have a higher fraction of Democrats in the most Democratic district than the enacted plan fluctuates between 1.1% and 5.3%.

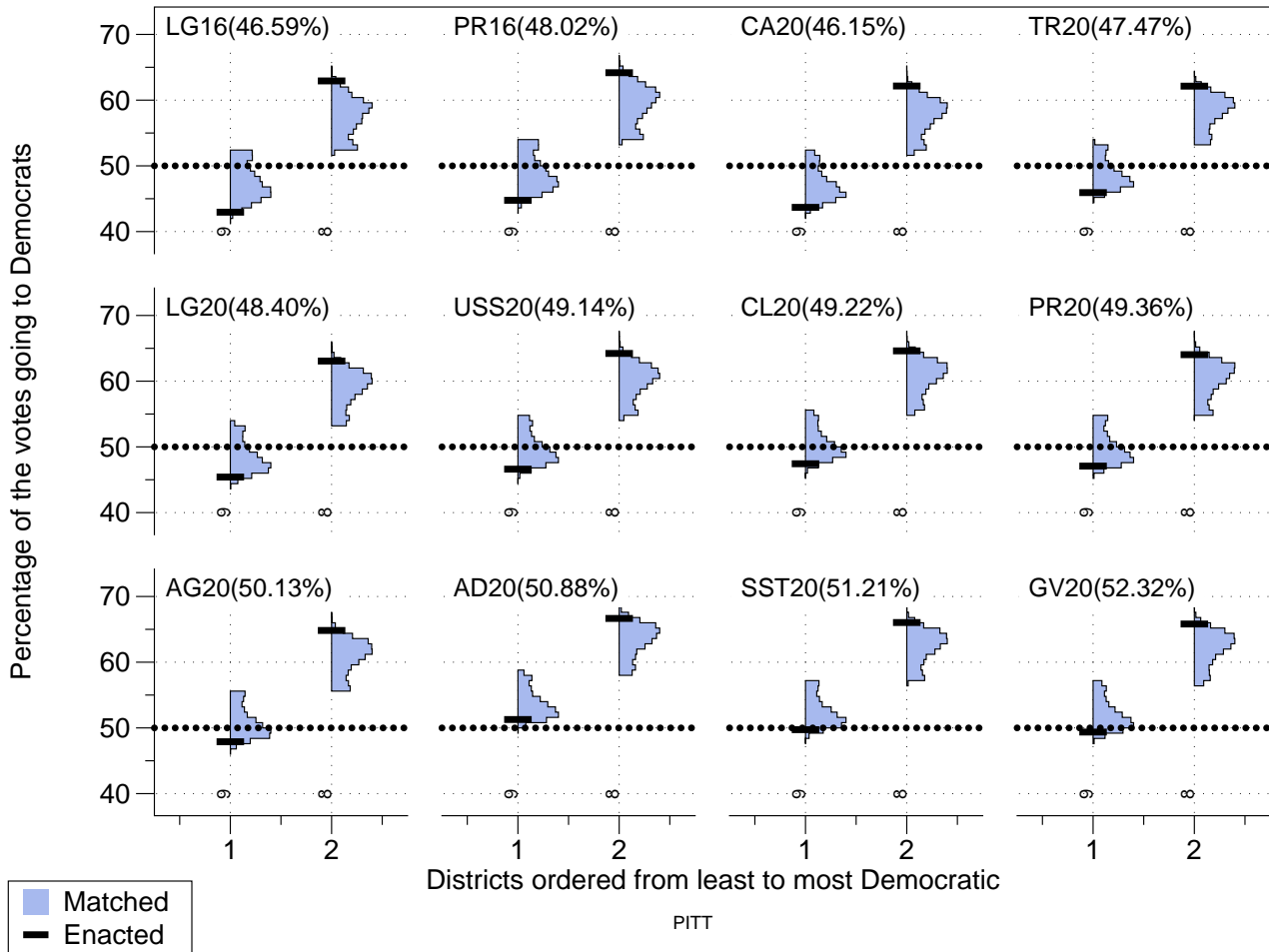


Figure 6.1.16: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Primary ensemble which was tuned to match the municipal preservation of the enacted plan.

The same pattern is repeated in Figure 6.1.17 which uses the secondary ensemble which better preserves municipalities than the enacted map.

Municipal Splits and Ousted Population: From Figure 6.1.18, we the number of ousted people in the primary ensemble is comparable to the enacted plan but more than the secondary ensemble.

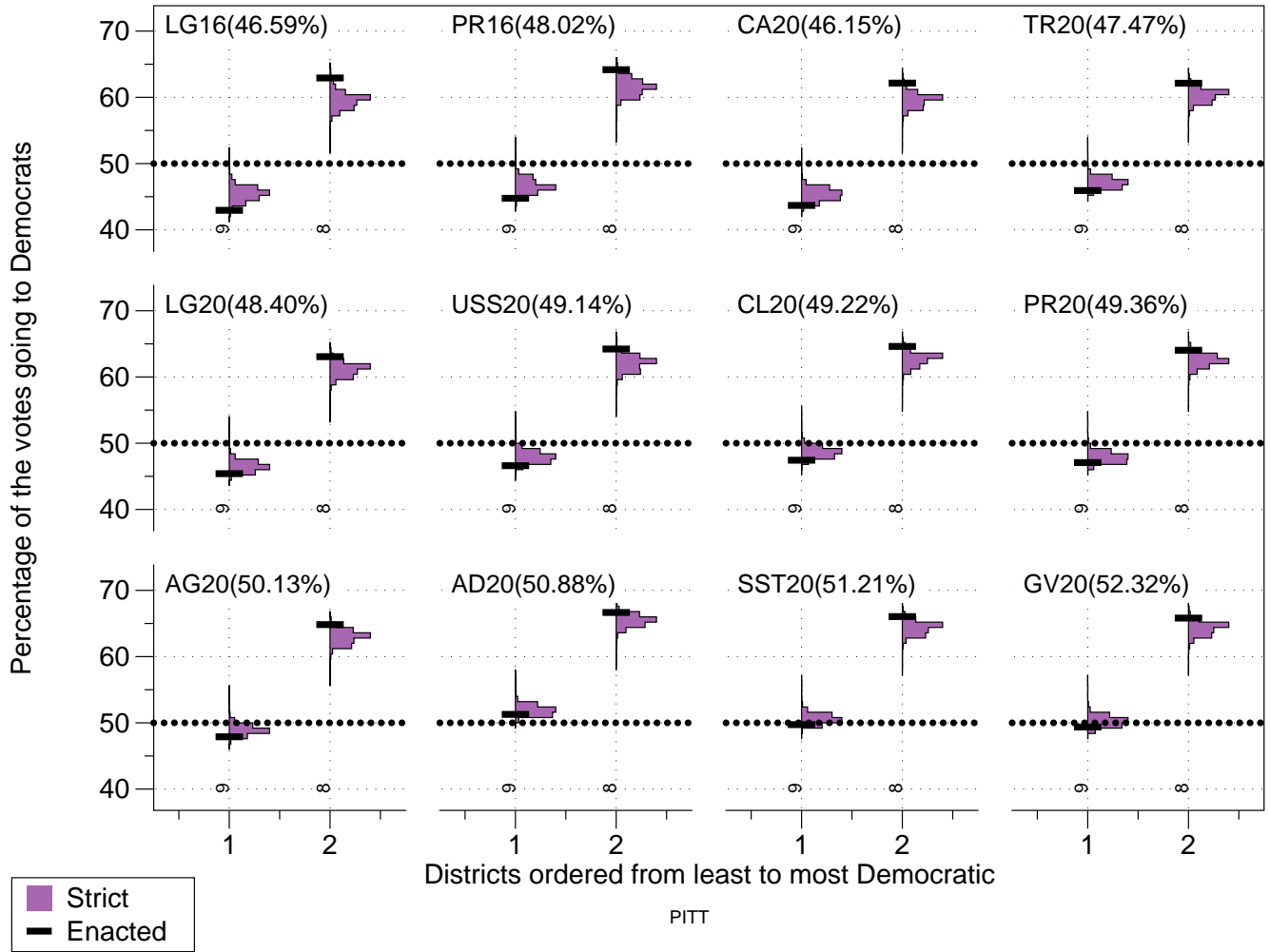


Figure 6.1.17: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Secondary ensemble which better preserves municipalities than the enacted plan.

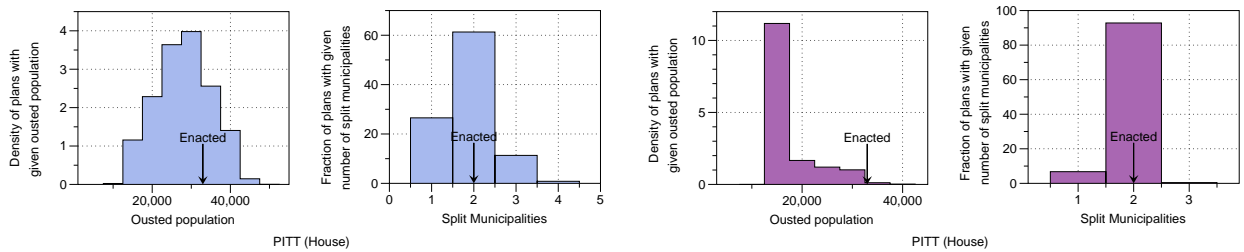


Figure 6.1.18: Plots showing the distribution of the number of people ousted from municipalities in this cluster under the primary and secondary ensemble. The amount of people ousted by the enacted map is also shown.

6.1.7 Duplin-Wayne

In the Duplin-Wayne county cluster the two districts are safely Republican under the elections considered. The enacted map is typical, falling in the middle of the observed democratic fraction on the Histograms.

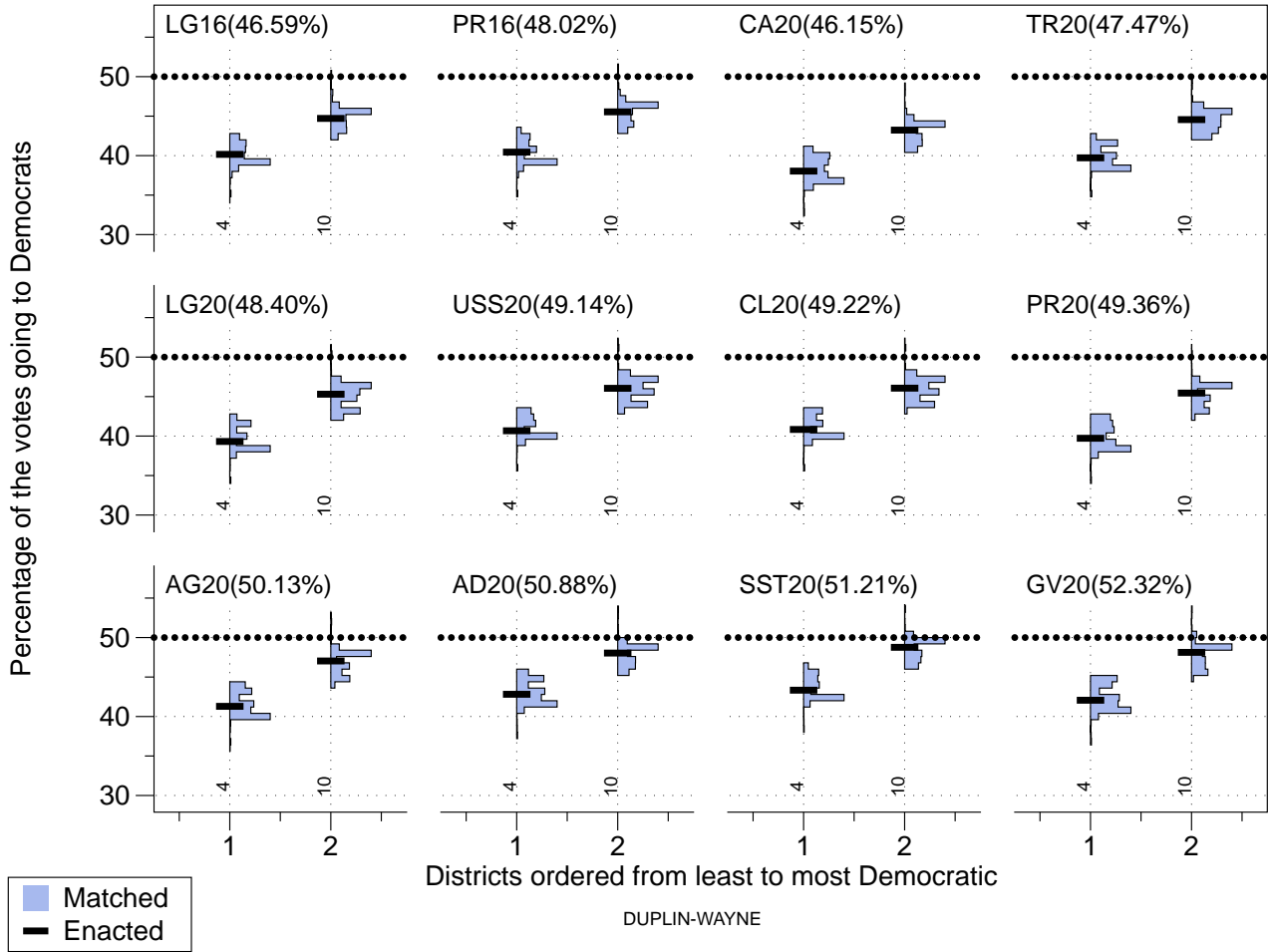


Figure 6.1.19: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Primary ensemble which was tuned to match the municipal preservation of the enacted plan.

As seen in Figure 6.1.20, the distribution has extremely small variance when municipalities are better preserved. Here there seem to be a little less Democrats in the most Democratic district than typical, but this has little effect as the two districts are firmly Republican and the distribution is highly concentrated.

Municipal Splits and Ousted Population: From Figure 6.1.21, we seen that the number of people ousted by the enacted plan is at the lower end of the typical amounts seen in the Primary ensemble or the secondary ensemble.

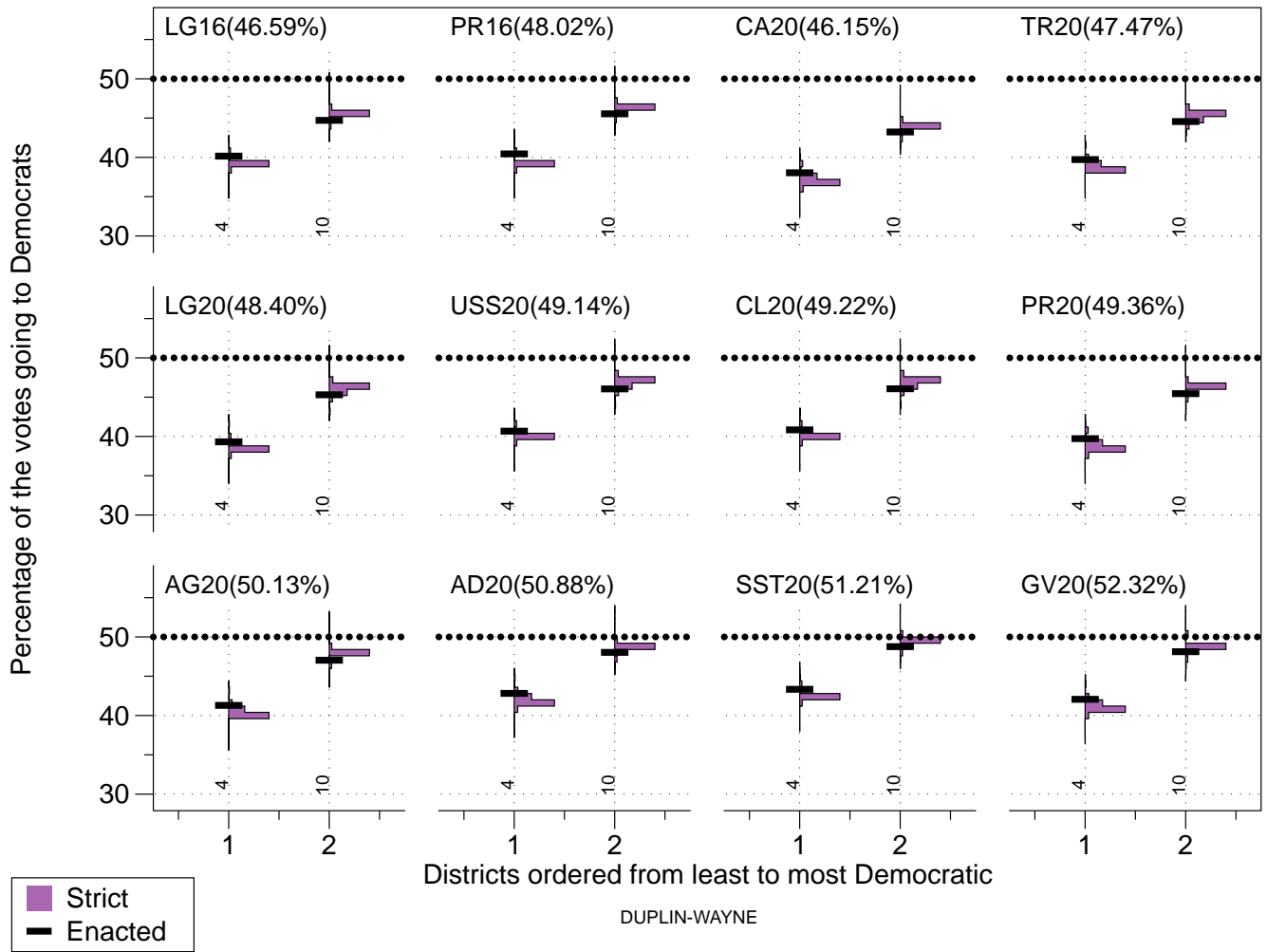


Figure 6.1.20: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Secondary ensemble which better preserves municipalities than the enacted plan.

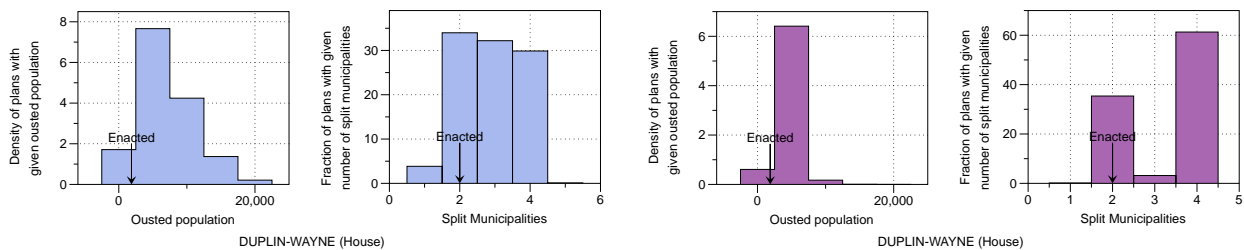


Figure 6.1.21: Plots showing the distribution of the number of people ousted from municipalities in this cluster under the primary and secondary ensemble. The amount of people ousted by the enacted map is also shown.

6.1.8 Durham-Person

As seen in Figure 6.1.22, under the primary ensemble Durham-Person cluster typically has three exceedingly Democratic districts and one more moderately Democratic district. The enacted plan places abnormally few Democrats in the most Republican district (district 2). This is accomplished by packing more Democrats in the most Democratic districts (districts 29 and 30). The effect is sufficient to pick up a Republican seat in a few elections where the seat typically would have remained democratic according to the non-partisan primary ensemble.

Not a single map in the non-partisan ensemble across any of the elections considered has a smaller fraction of Democrats in the most Republican district than the enacted plan does. This signals extreme cracking. In all but two elections the fraction of plans which have a higher Democratic vote fraction than the enacted plan is less than 0.62%. The two exceptions are LG16 (3.5%) and CA20 (1.2%).

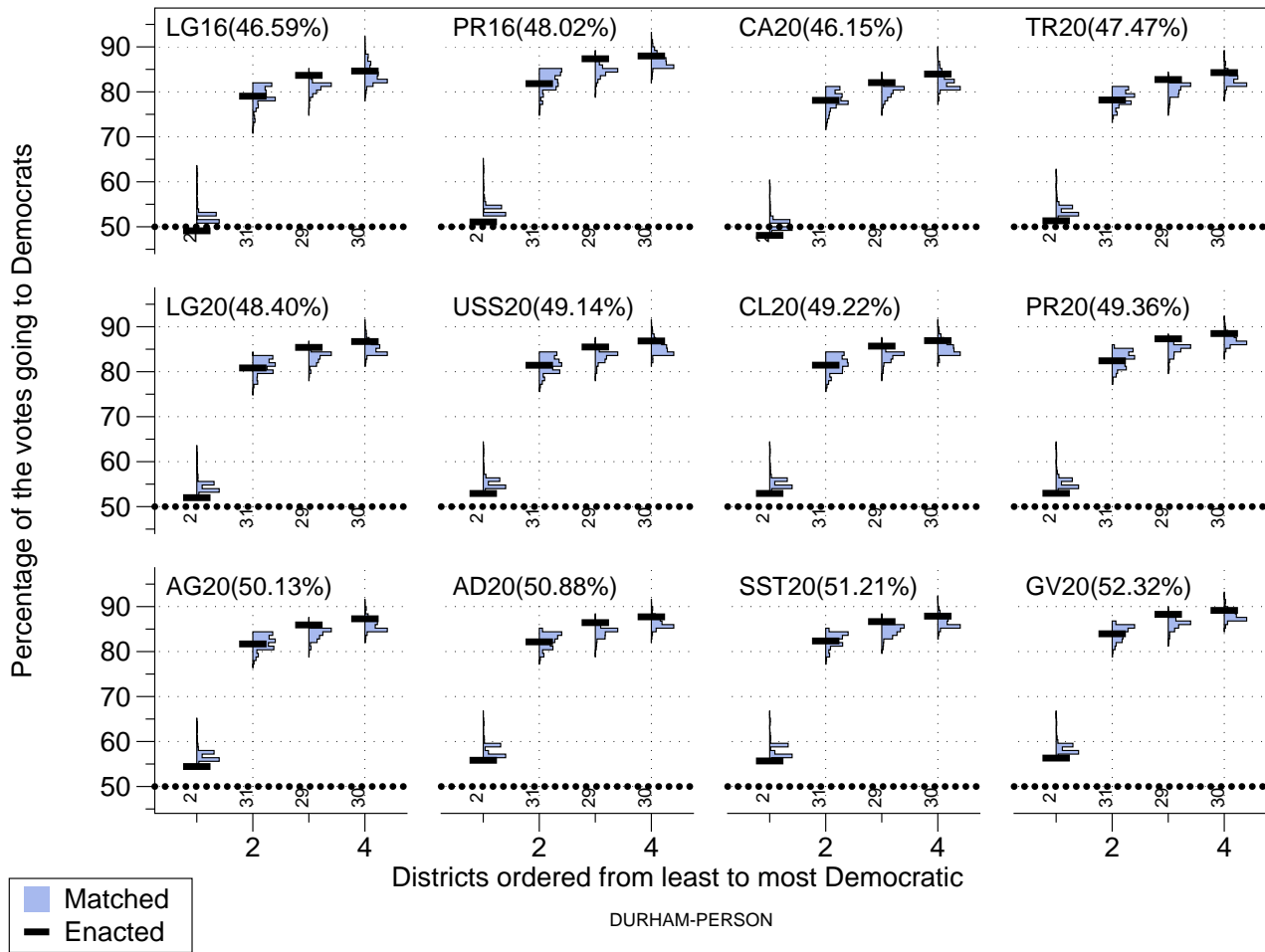


Figure 6.1.22: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Primary ensemble which was tuned to match the municipal preservation of the enacted plan.

A similar effect is seen in 6.1.23, for the ensemble which better preserves municipalities.

Municipal Splits and Ousted Population:

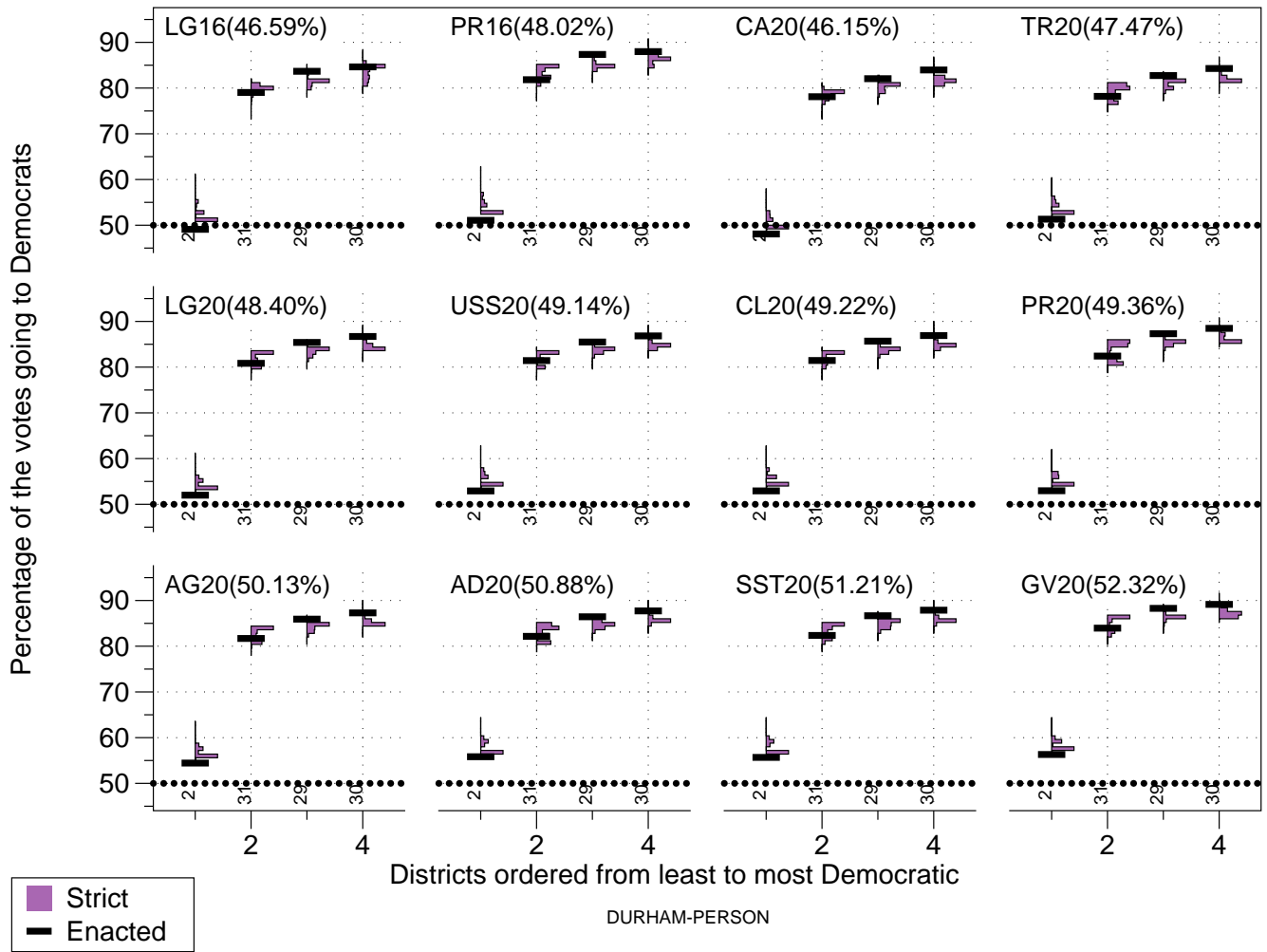


Figure 6.1.23: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Secondary ensemble which better preserves municipalities than the enacted plan.

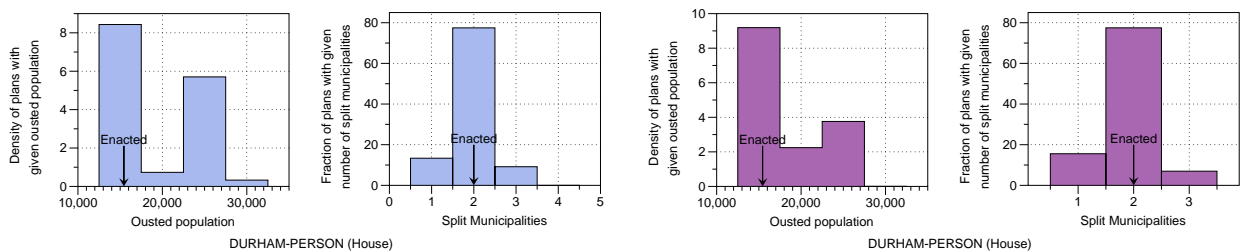


Figure 6.1.24: Plots showing the distribution of the number of people ousted from municipalities in this cluster under the primary and secondary ensemble. The amount of people ousted by the enacted map is also shown.

6.1.9 Alamance

From Figure 6.1.25, we see that though the enacted map tends have more Democrats in the more Democratic district and less in the less democratic district it not an outlier on its own.

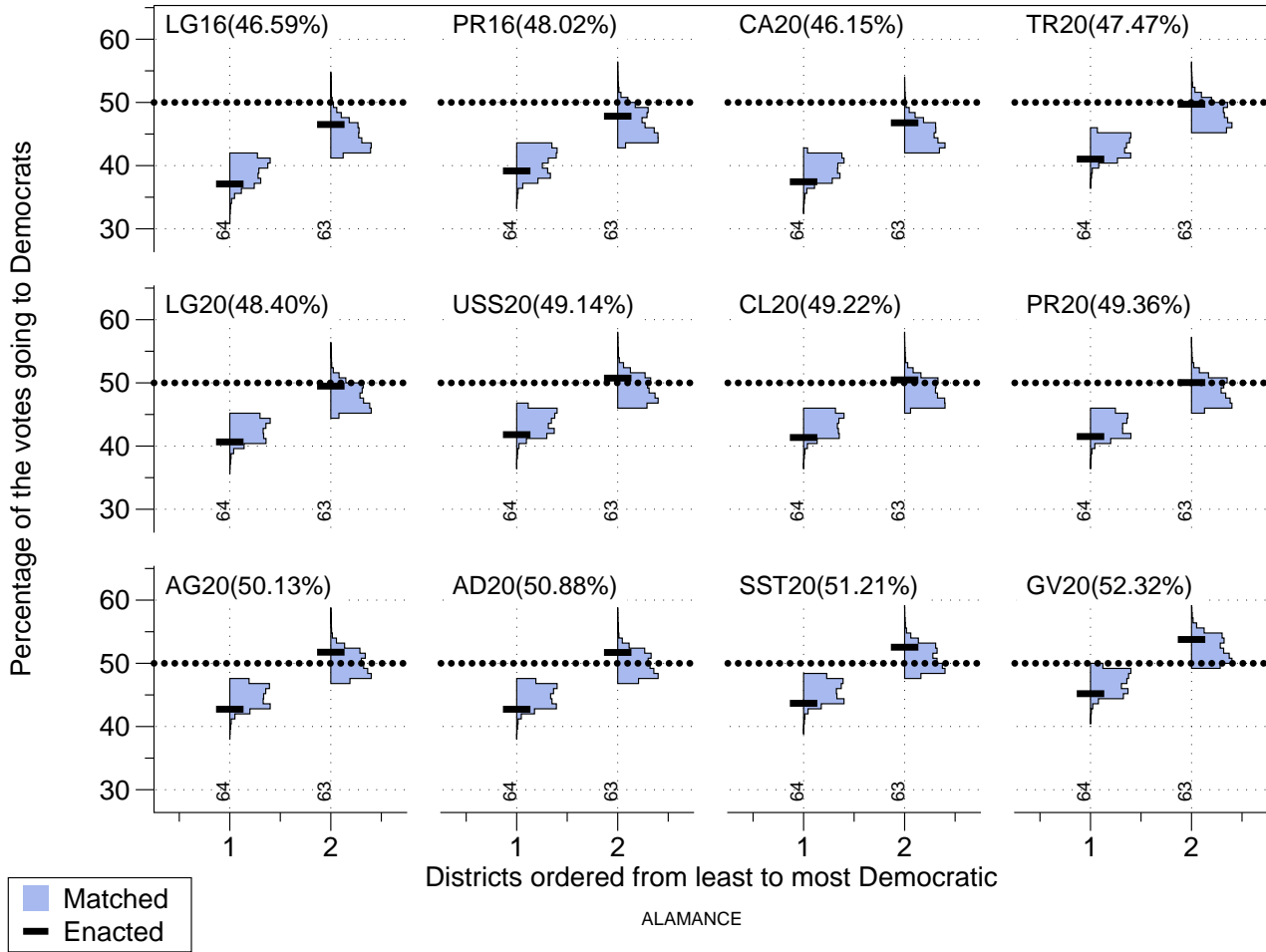


Figure 6.1.25: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Primary ensemble which was tuned to match the municipal preservation of the enacted plan.

Figure 6.1.26 tells a similar story to Figure 6.1.25,
Municipal Splits and Ousted Population:

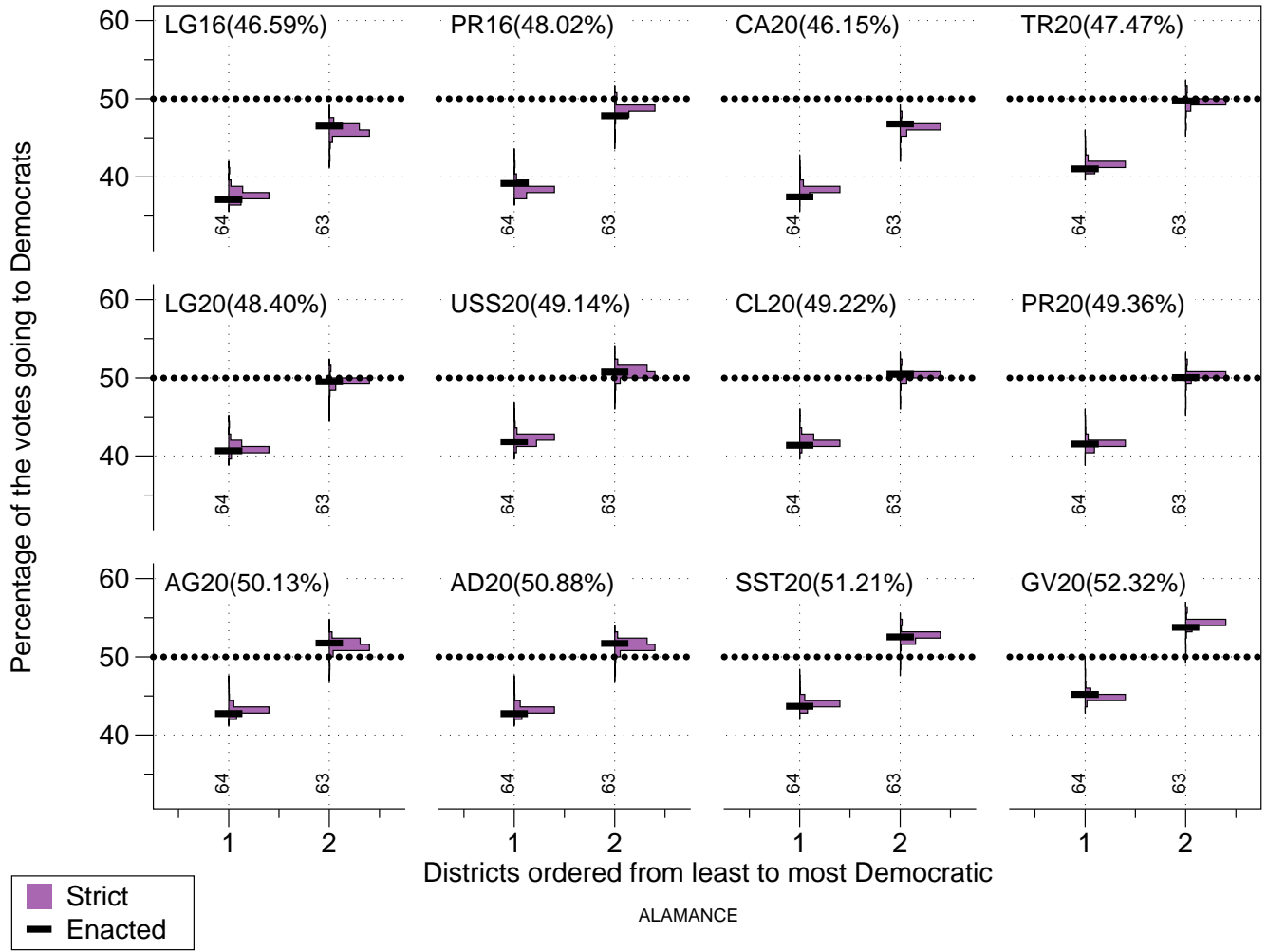


Figure 6.1.26: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Secondary ensemble which better preserves municipalities than the enacted plan.

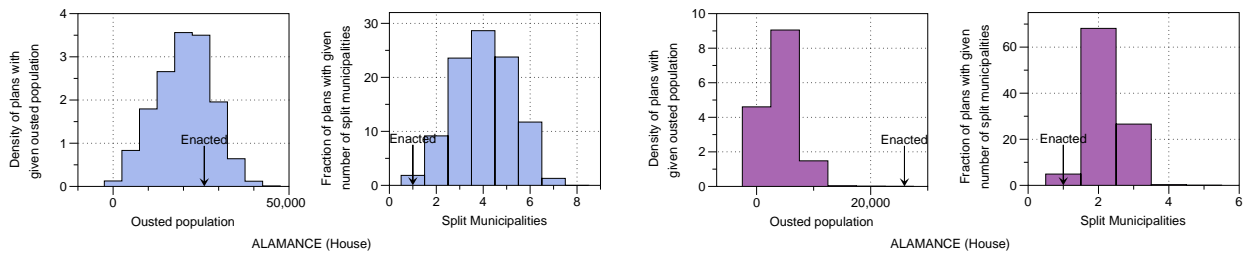


Figure 6.1.27: Plots showing the distribution of the number of people ousted from municipalities in this cluster under the primary and secondary ensemble. The amount of people ousted by the enacted map is also shown.

6.1.10 Cumberland

Looking at Figure 6.1.28, we again see outlier behavior in Cumberland County. We see that the districts in the enacted plan have been constructed so that the two most Republican districts (district 43 and 45) have a similar partisan makeup. Typically, one is more Democratic and one is more Republican. This is achieved by removing republicans from the most republican district and Democrats from the most democratic two districts. While the effect on the most Republican district individually is within the typical range, the combined effect creates an enacted cluster which is an strong outlier.

For each of the elections considered, the number of plans in the ensemble with smaller fraction of democrats in the second most republican district is typically around 1% with, for a few elections, the percentage reaching as high as 7% or as low as 0.4%.

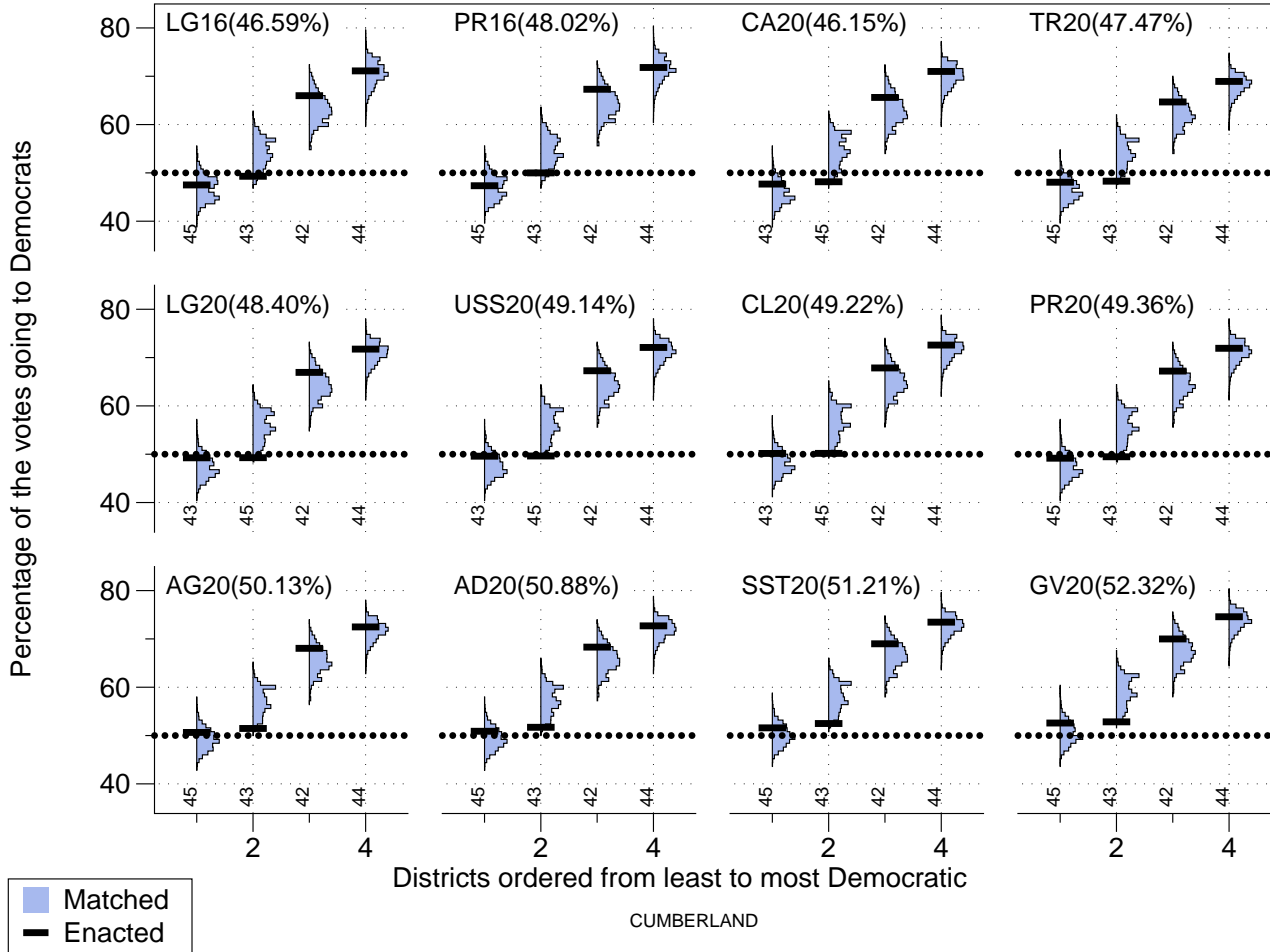


Figure 6.1.28: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Primary ensemble which was tuned to match the municipal preservation of the enacted plan.

Looking at Figure 6.1.29, we see that the structure of the enacted map is a more extreme outlier for the secondary ensemble which better preserves municipalities. In an ensemble that better preserves municipalities, the most Republican district is typically more republican and the second most Republican district more Democratic. This makes the enacted plan which squeezes the two together with an large outlier.

Municipal Splits and Ousted Population:

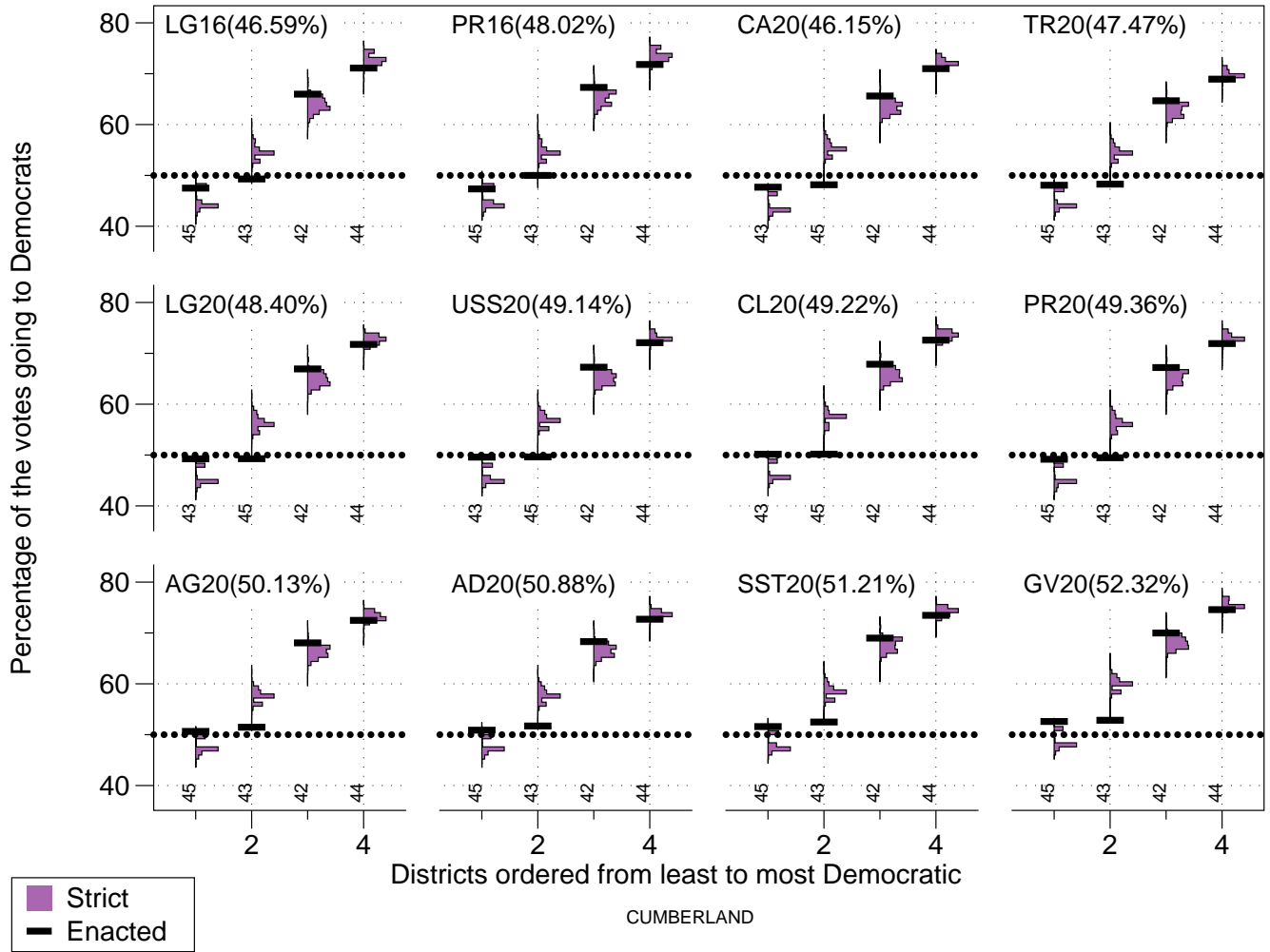


Figure 6.1.29: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Secondary ensemble which better preserves municipalities than the enacted plan.

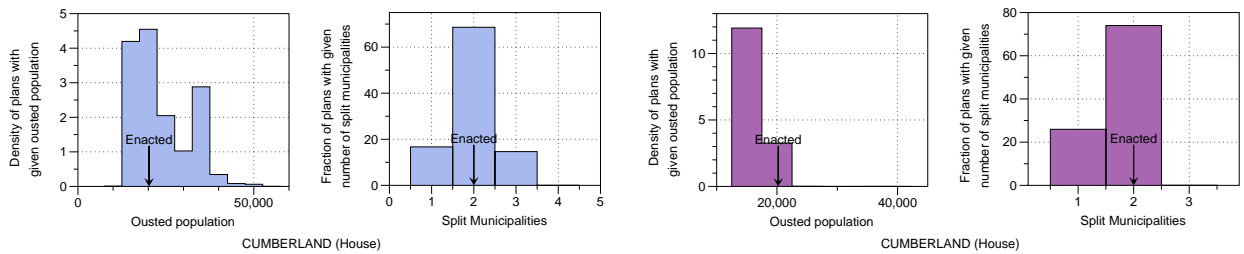


Figure 6.1.30: Plots showing the distribution of the number of people ousted from municipalities in this cluster under the primary and secondary ensemble. The amount of people ousted by the enacted map is also shown.

6.1.11 Cabarrus-Davie-Rowan-Yadkin

In the Cabarrus-Davie-Rowan-Yadkin county cluster, there are abnormally few Democrats in the most Democratic district (district 82). This is accomplished by placing abnormally many Democrats in the next three most democratic districts (districts 73, 76, and 83 – all of which are safe Republican districts). The effect is to make the most Democratic district a relatively reliable Republican seat (being won by the Republicans in all of the elections considered). Under the ensemble, it would switch parties in a number of the elections and regularly be a close contest.

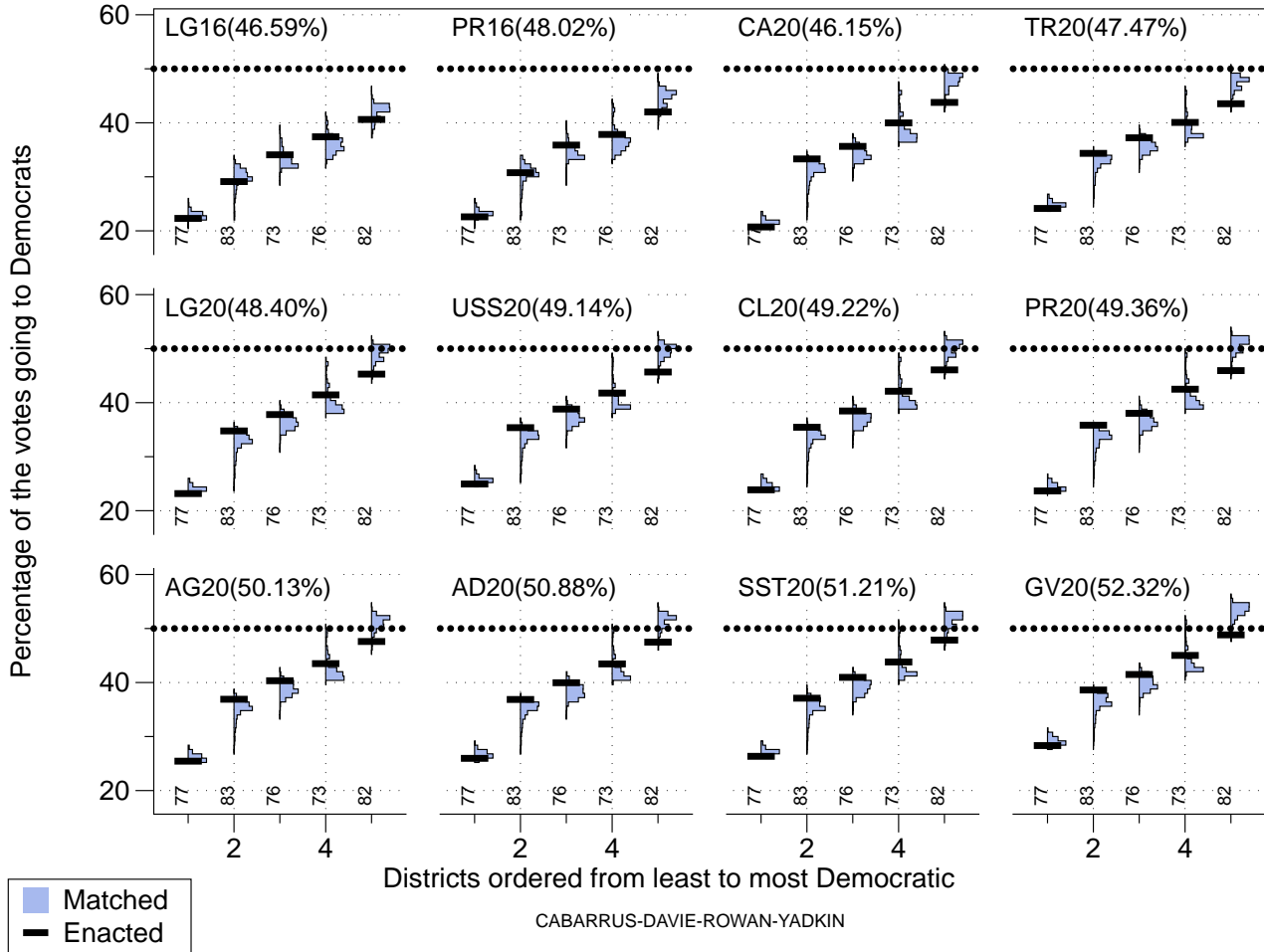


Figure 6.1.31: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Primary ensemble which was tuned to match the municipal preservation of the enacted plan.

Looking at Figure 6.1.32, we see that the same pattern persists under the secondary ensemble which better preserves municipalities.

Municipal Splits and Ousted Population:

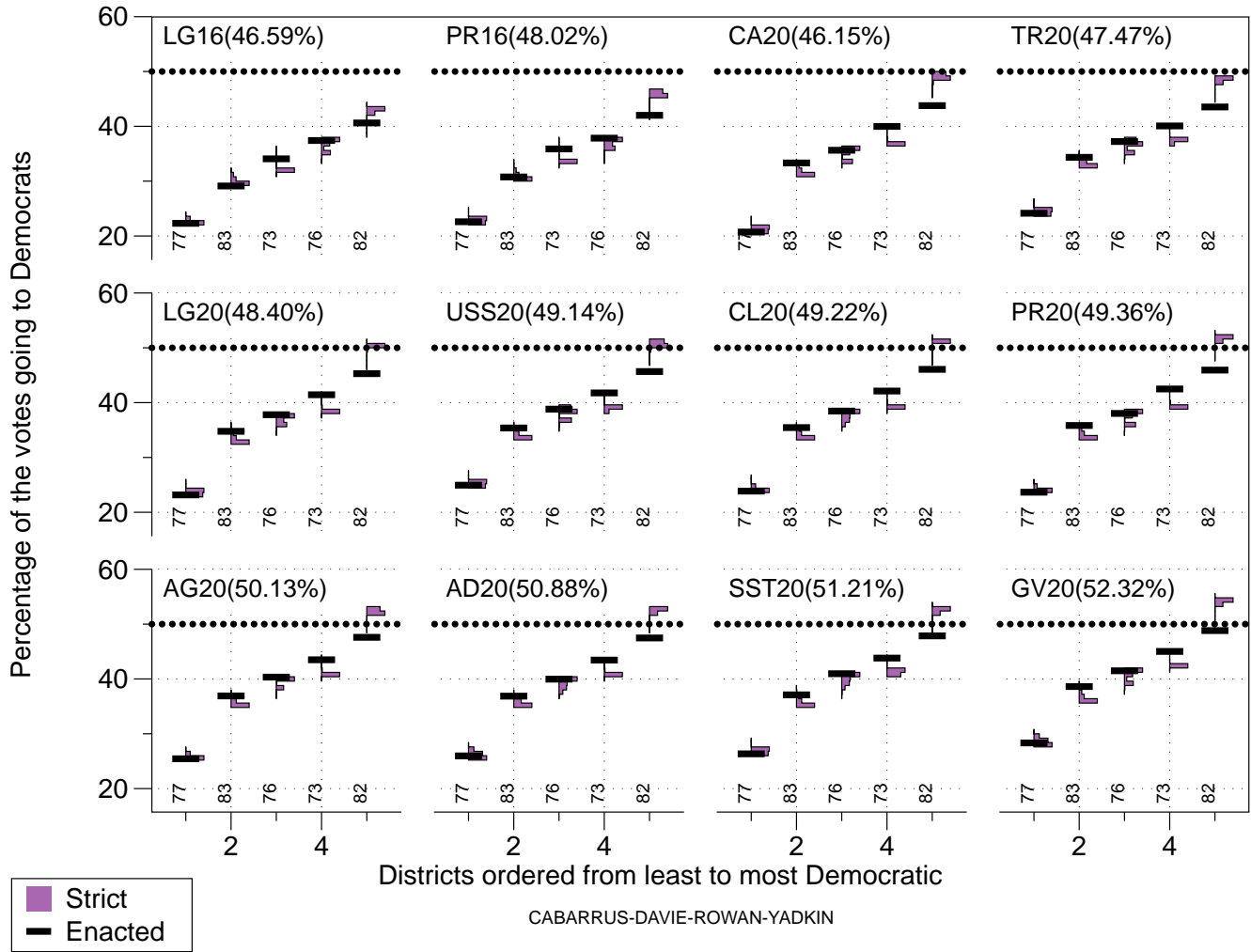


Figure 6.1.32: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Secondary ensemble which better preserves municipalities than the enacted plan.

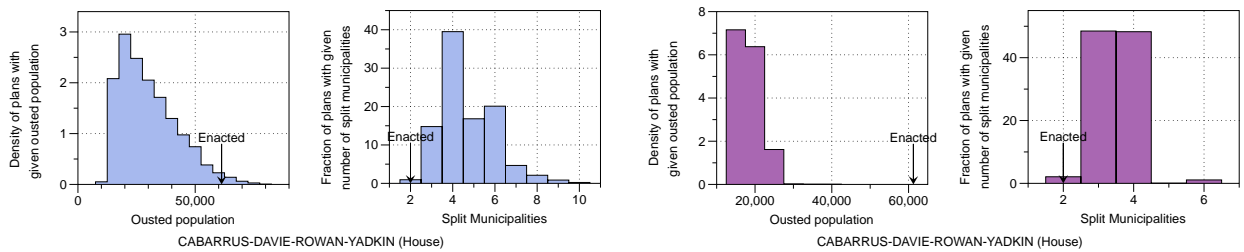


Figure 6.1.33: Plots showing the distribution of the number of people ousted from municipalities in this cluster under the primary and secondary ensemble. The amount of people ousted by the enacted map is also shown.

6.1.12 Brunswick-New Hanover

In the Brunswick-New Hanover county cluster, Figure 6.1.34 shows that the most Democratic district (district 18) has had abnormally many Democrats packed into it and the most Republican has had abnormally few Republicans placed in it, while the second-most Democratic district (district 20) has been depleted of Democrats. This makes the enacted plan much less responsive to changes in the the enacted plan preferences of the voters. The Republican party typically wins the second most democratic district in the enacted plan even though it would go to the Democrats under a number of elections when the neutral maps in the primary ensemble are used. Over each of the elections considered, the fraction of plans in the ensemble

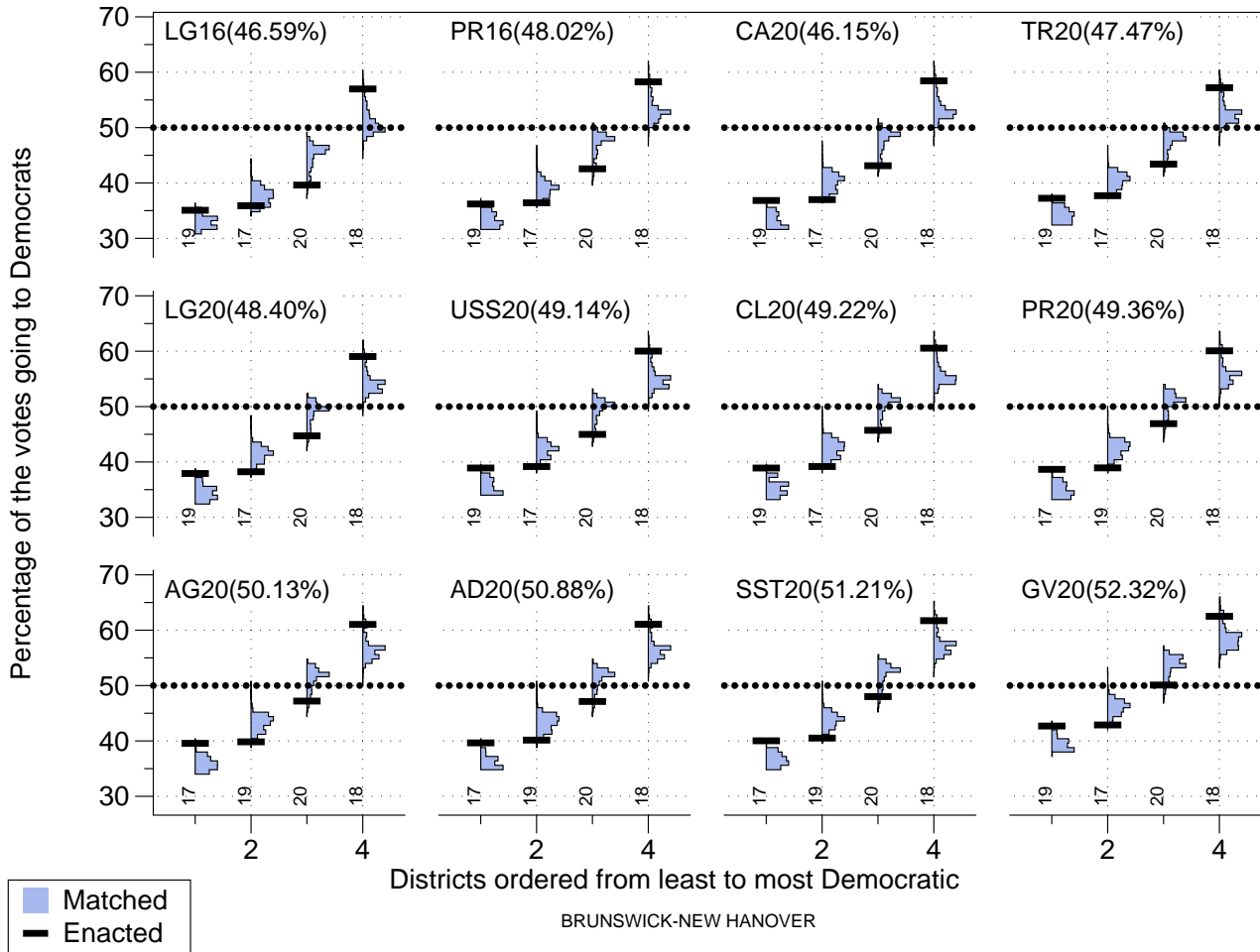


Figure 6.1.34: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Primary ensemble which was tuned to match the municipal preservation of the enacted plan.

when a lower Democratic vote fraction in the second and third most Republican districts in the ensemble compared to the enacted plan map is always less than 0.5% and often much smaller.

Under the secondary ensemble which better preserves municipalities shown in Figure 6.1.35, we see that the same structure persists. The enacted map becomes a more extreme outlier since this ensemble reduced the variance of the marginals and aligns the outcome gradual progression which ensures the map is fairly responsive to changes in the voter’s preference, a property not shared by the enacted map.

Municipal Splits and Ousted Population:

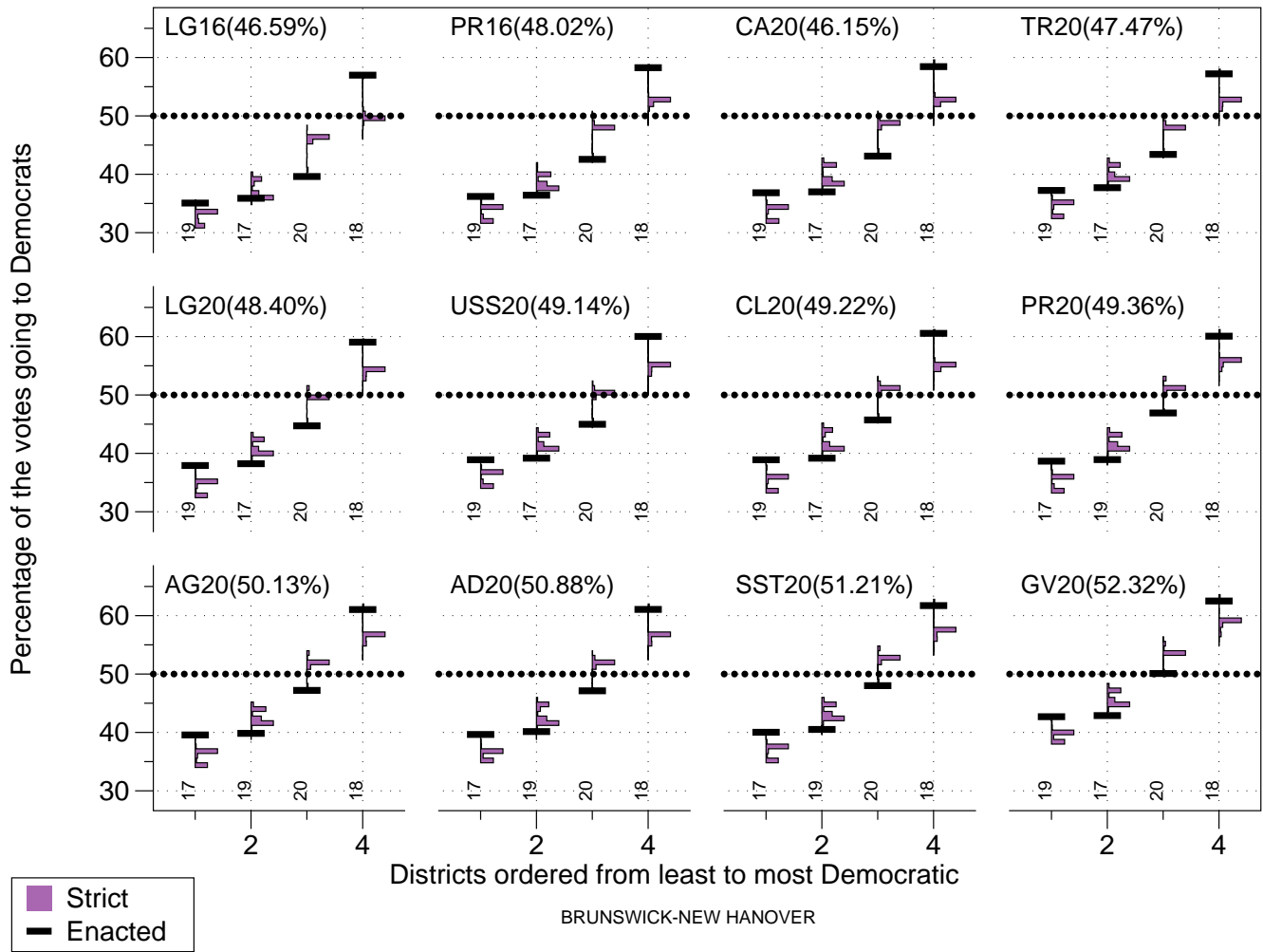


Figure 6.1.35: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Secondary ensemble which better preserves municipalities than the enacted plan.

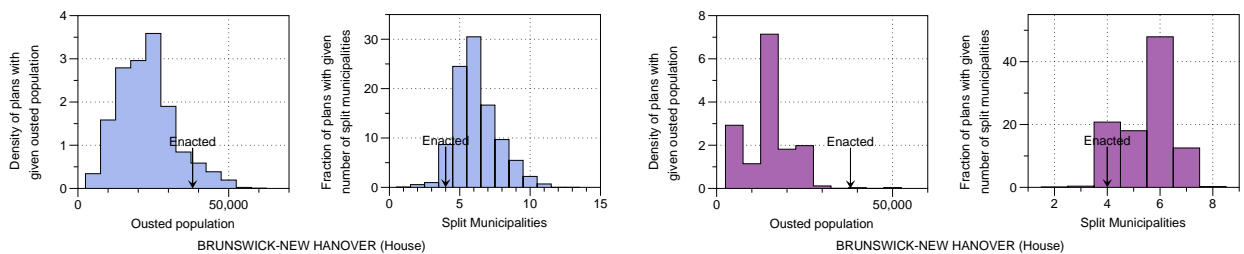


Figure 6.1.36: Plots showing the distribution of the number of people ousted from municipalities in this cluster under the primary and secondary ensemble. The amount of people ousted by the enacted map is also shown.

6.2 NC State Senate

Though the principal Senate ensemble, which prioritizes municipality preservation in line with the enacted plan, does not have as dramatic a shift towards the Republicans at the statewide level in comparison to the House, we still see a number of cases of extreme packing and cracking at the individual cluster level. Without exceptions, the effect is to minimize the effect of the Democratic votes and make the outcome of the election insensitive to a wide range of swings in the partisan vote fraction.

In the NC Senate, we again see the effect of prioritizing municipal preservation in our ensemble. When municipal preservation was not prioritized, there are two major effects. First, the enacted maps become extreme outliers, as the typical results swings are much less tilted to the Republican Party. Second, the two parties are much less separated. Requiring a high level of municipal preservation often leads the separation of the two political parties between disjoint districts. This in turn produces maps that are much less responsive to swinging public opinion. In other words, the results of the elections do not change over a wider range of statewide vote ranges.

6.2.1 Iredell-Mecklenburg

In this cluster, the second most Republican district (District 41 in the enacted plan) is the principal district whose outcome varies from election to election. In the enacted plan, unusually few democrats have been placed in this district to maximize the chance that the district elects a Republican. See Figure 6.2.1. In many elections, this means that the Republican wins this district under the enacted plan, whereas a Democrat would win the district under the a majority of ensemble plans.

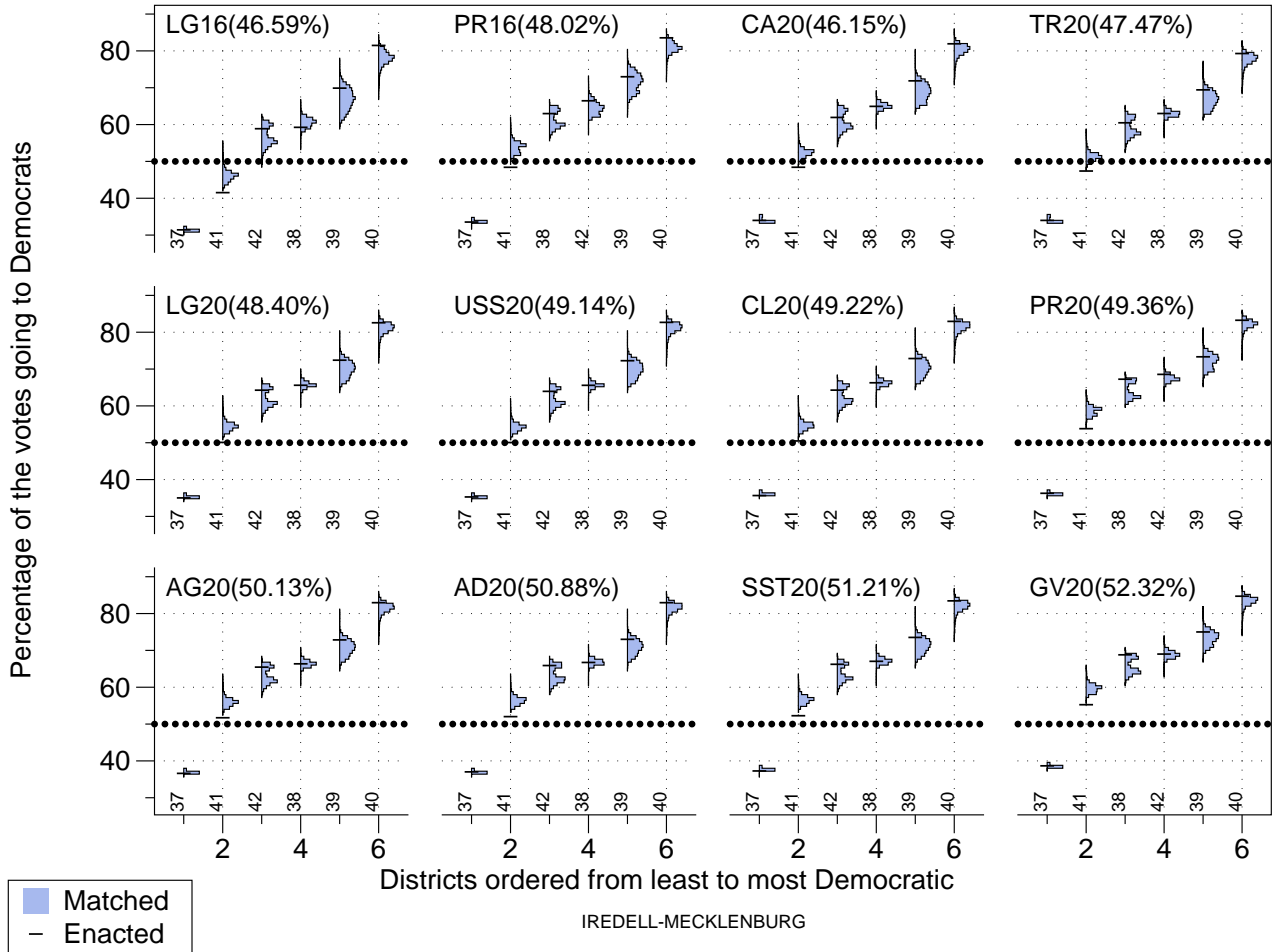


Figure 6.2.1: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Primary ensemble which was tuned to match the municipal preservation of the enacted plan.

For each of the 2020 and 2016 elections we have consider, we found that none of approximately 80,000 plans in our ensemble had as low a fraction of Democrats in the two most Republican districts in the Iredell-Mecklenburg cluster as the enacted plan. Similarly, in the vast majority of the elections the ensemble had no plans with a higher fraction of democrats packed in the four most Democratic districts. In two elections 0.01% of the plans had a higher fraction of Democrats packed in the four most Democratic districts.

The effect discussed above is essentially the same when the municipality preservation is not prioritized. See Figure 6.2.2.

Municipal Splits and Ousted Population:

We see that in the Iredell-Mecklenburg cluster, the number of ousted people in the enacted plan is comparable the number of ousted people in the ensemble prioritizing municipalities. The enacted plan splits two municipalities which coincides with the most typical number split by the ensemble prioritizing municipalities. Though this ensemble sometimes splits a number more municipalities, it typically displaces a comparable number of people to the enacted plan.

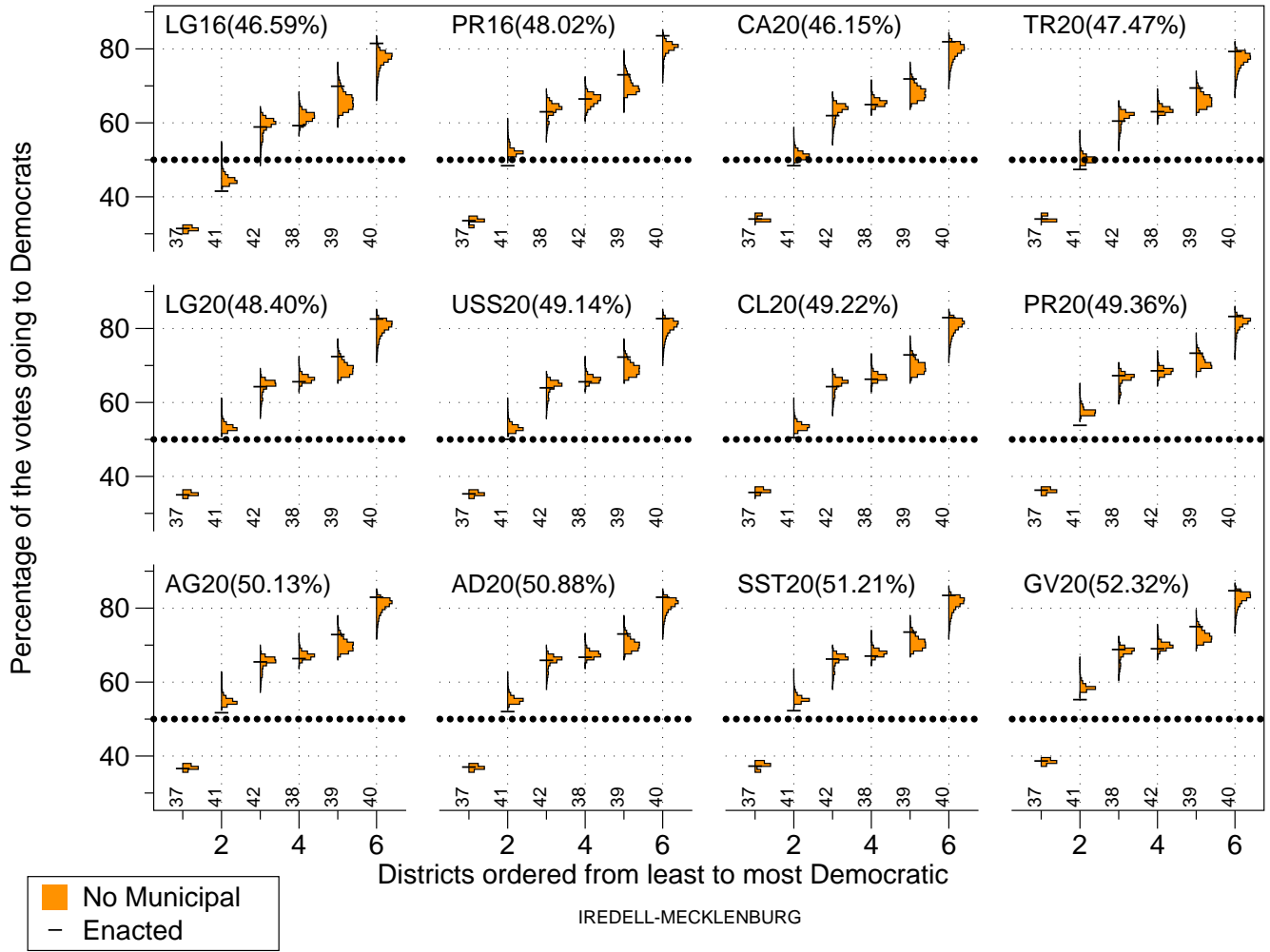


Figure 6.2.2: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “—” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “—”. This plot uses the NC Senate Secondary ensemble which does not explicitly preserves municipalities.

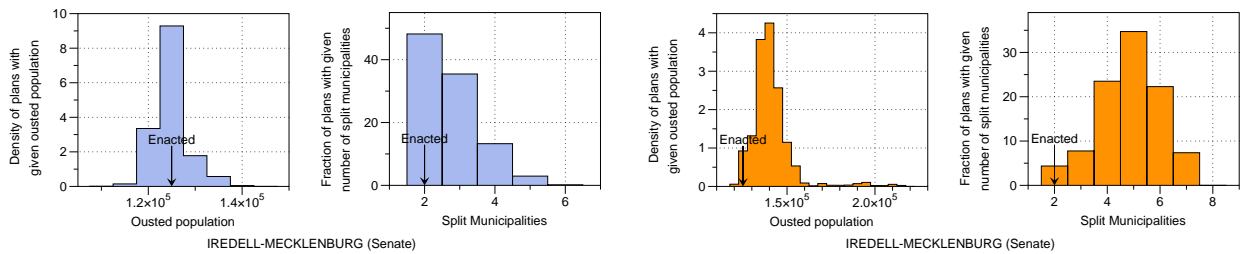


Figure 6.2.3: Plots showing the distribution of the number of people ousted from municipalities in this cluster under the primary and secondary ensemble. The amount of people ousted by the enacted map is also shown.

6.2.2 Granville-Wake

The enacted plan is chosen to be at the extreme edge of the ensemble. It maximizes the chance of the Republicans winning Districts 17 and 18 by packing a larger than typical number of Democrats in districts 14, 15, 16, and 18. The effect is shown in Figure 6.2.4 across the 12 elections. For each of the 2020 and 2016 elections we have consider, we found that none of

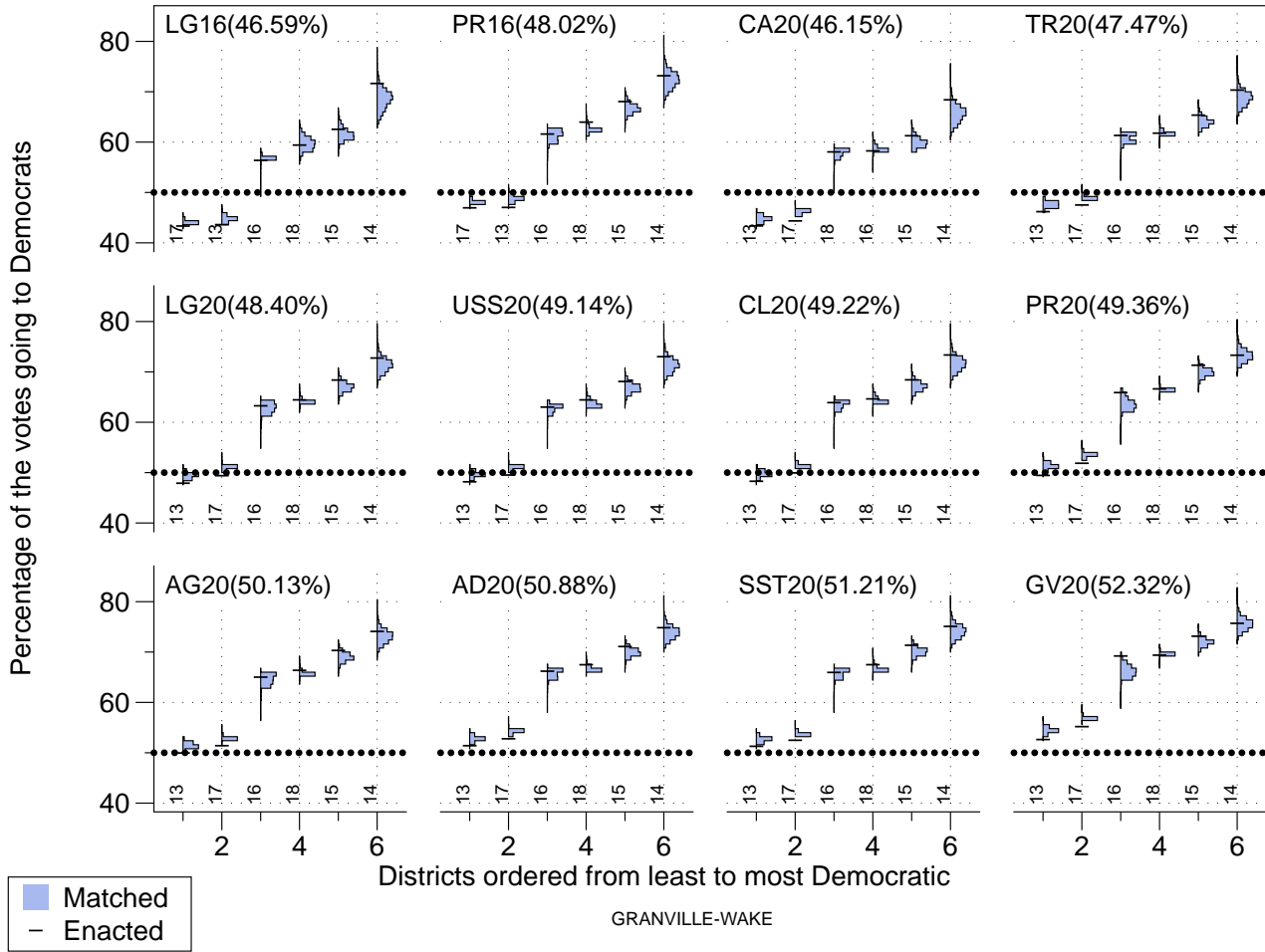


Figure 6.2.4: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Primary ensemble which was tuned to match the municipal preservation of the enacted plan.

approximately 40,000 plans in our ensemble had as low a fraction of Democrats in the two most Republican districts in the Granville-Wake cluster as the enacted plan. Similarly, in six of the elections, the ensemble has no plans with more democrats packed in the four most Democratic districts. In six elections at most 0.022% of the plans had a higher fraction of Democrats packed in the four most Democratic districts than the enacted plan.

In this cluster, the prioritization of municipal preservation has a dramatic effect of packing Democrats in four districts and Republicans into two districts. The effect is show in Figure 6.2.5 across the 12 elections.

Municipal Splits and Ousted Population:

We see that in the Granville-Wake cluster, the number of ousted people in the enacted plan is significantly more than the number of ousted people in the ensemble prioritizing municipalities. The enacted plan splits three municipalities which coincides with the most typical number split by the ensemble prioritizing municipalities. Though this ensemble sometimes splits a number more municipalities, it typically displaces significantly fewer people than the enacted plan. From the perspective of the number of people ousted, the enacted plan is situated squarely between our ensemble prioritizing municipal preservation and that which does not.

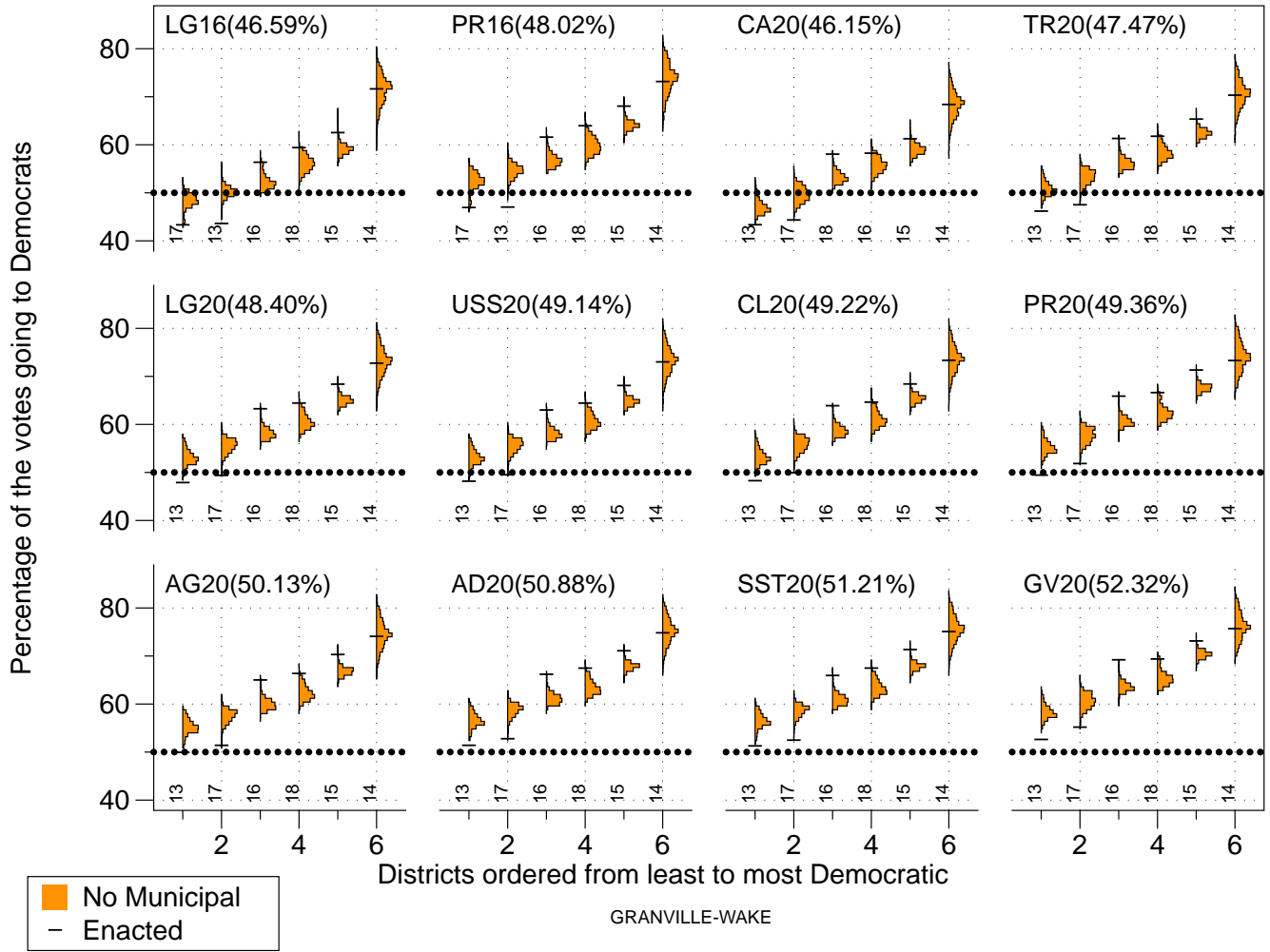


Figure 6.2.5: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “—” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “—”. This plot uses the NC Senate Secondary ensemble which does not explicitly preserves municipalities.

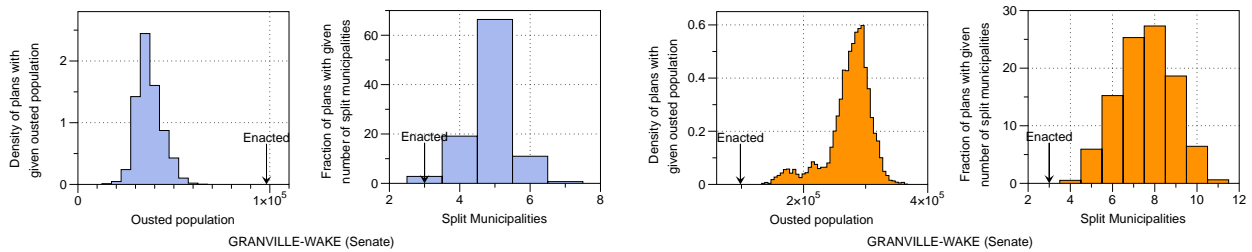


Figure 6.2.6: Plots showing the distribution of the number of people ousted from municipalities in this cluster under the primary and secondary ensemble. The amount of people ousted by the enacted map is also shown.

6.2.3 Forsyth-Stokes

There are only two districts in this cluster. The districts in the enacted plan are chosen to maximize the number of Democrats in the more democratic district and the number of republicans in the most Republican district. The map is an extreme outlier in both of these regards. The effect is a maximally non-responsive map. The effect is shown in Figure 6.2.7 across the 12 elections. Of the almost 80,000 maps in the ensemble, less than 1% had as low a fraction of Democrats in the most

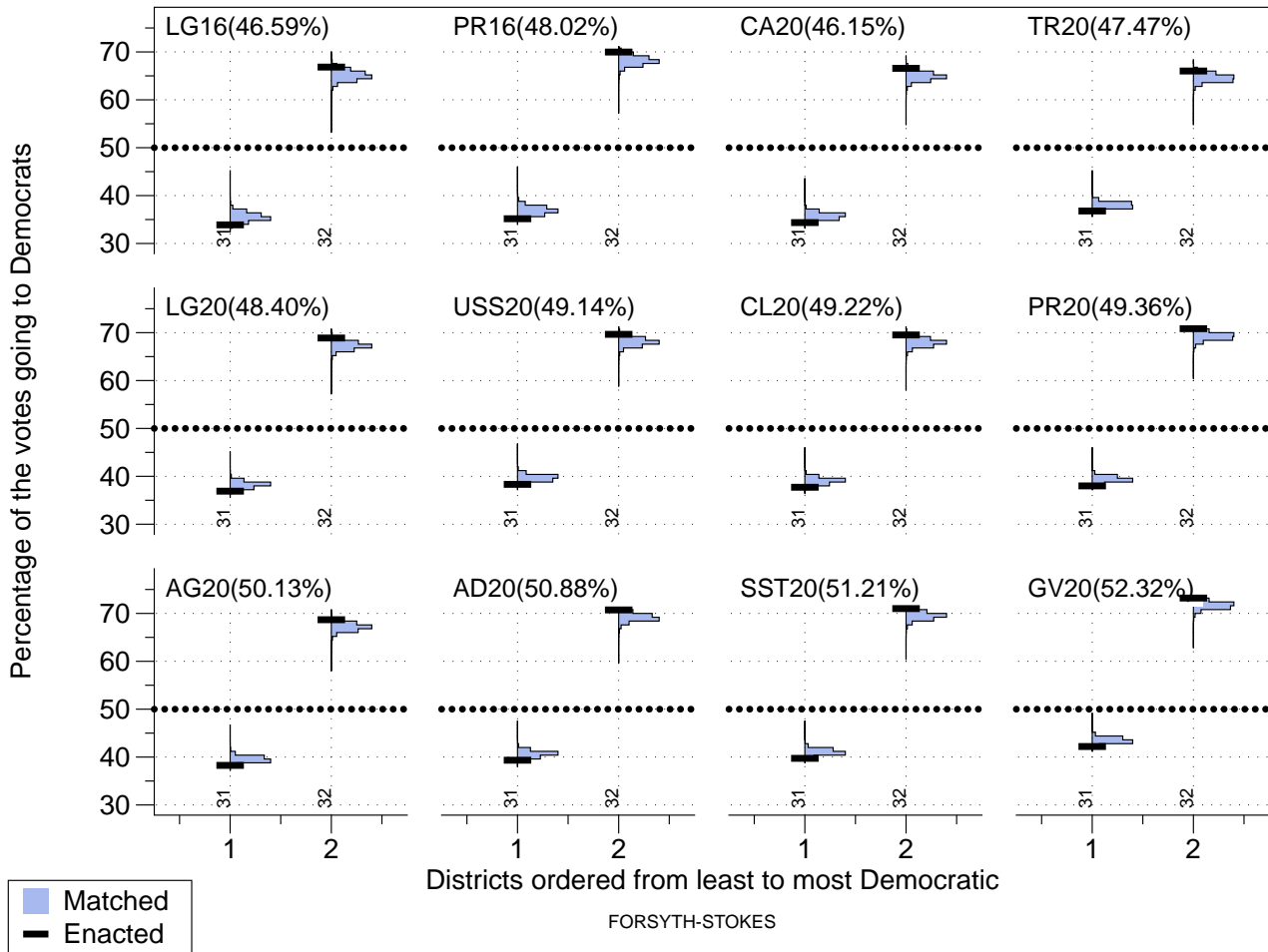


Figure 6.2.7: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Primary ensemble which was tuned to match the municipal preservation of the enacted plan.

Republican district under the 2020 and 2016 elections considered. And between 1% and 5% of the plans had such a high Democratic fraction in the most Republican District.

When municipal preservation is not prioritized, the enacted map becomes an even more extreme outlier; showing an extreme level of packing of Democrats into one district and Republicans into the other. The effect is shown in Figure 6.2.8 across the 12 elections.

Municipal Splits and Ousted Population: In the Forsyth-Stokes Cluster we see that the number of people ousted from municipalities is comparable between the enacted plan and the municipality prioritizing ensemble. Additionally, the enacted plan splits one municipality which is the most common number of splits in the municipality prioritizing ensemble.

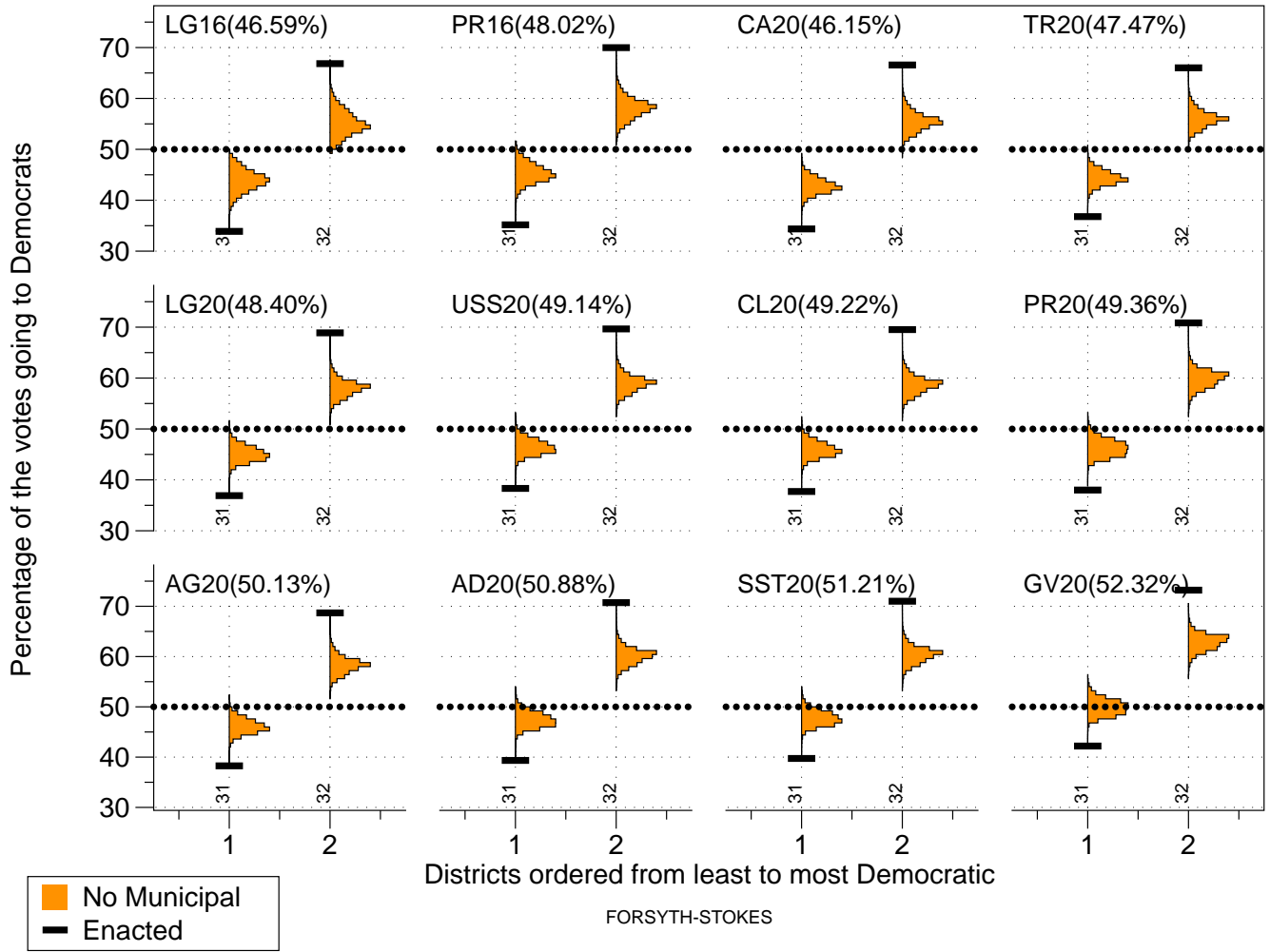


Figure 6.2.8: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the NC Senate Secondary ensemble which does not explicitly preserves municipalities.

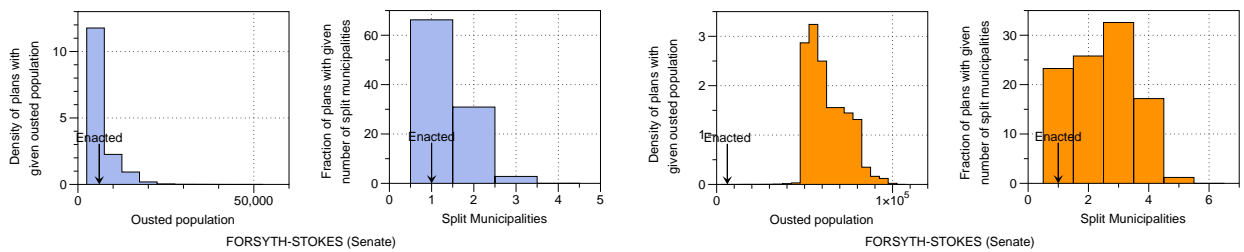


Figure 6.2.9: Plots showing the distribution of the number of people ousted from municipalities in this cluster under the primary and secondary ensemble. The amount of people ousted by the enacted map is also shown.

6.2.4 Cumberland-Moore

There are only two districts in this cluster. The districts in the enacted are chosen to maximize the number of Democrats in the more democratic district and the number of republicans in the most Republican district. The map is an extreme outlier in both of these regards. The effect is a maximally non-responsive map. The effect is shown in Figure 6.2.10 across the 12 elections. In each of the elections considered, no more than 0.06% of the ensemble plans have a lower fraction of Democrats

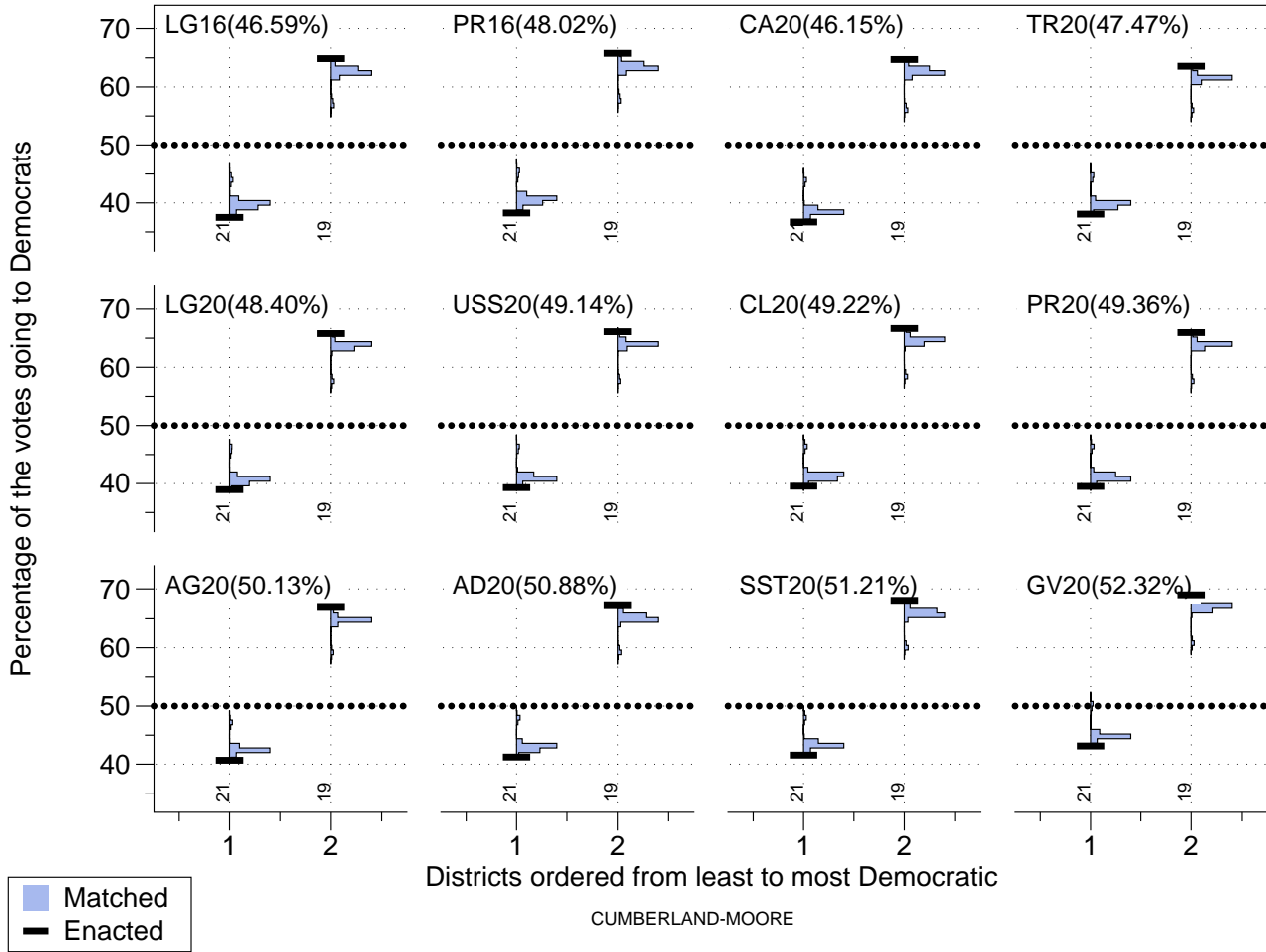


Figure 6.2.10: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Primary ensemble which was tuned to match the municipal preservation of the enacted plan.

in the most Republican districts. Also no more than 0.06% of the ensemble plans have a higher fraction of Democrats in the most Democratic districts.

The prioritization of municipal preservation leads a dramatically less responsive pair of districts. When municipalities are less prioritized, both district have politically more centrist make up. Additionally, the more Republican district would regularly lean democratic without the prioritization of municipal preservation. The effect is show in Figure 6.2.11 across the 12 elections.

Municipal Splits and Ousted Population: In the Cumberland-Moore cluster, the enacted plan ousts a number of people close to the minimum number of ousted people seen in the ensemble prioritization municipal preservation. The enacted plan splits two municipalities which is the most common number of splits found in the ensemble prioritization municipal preservation.

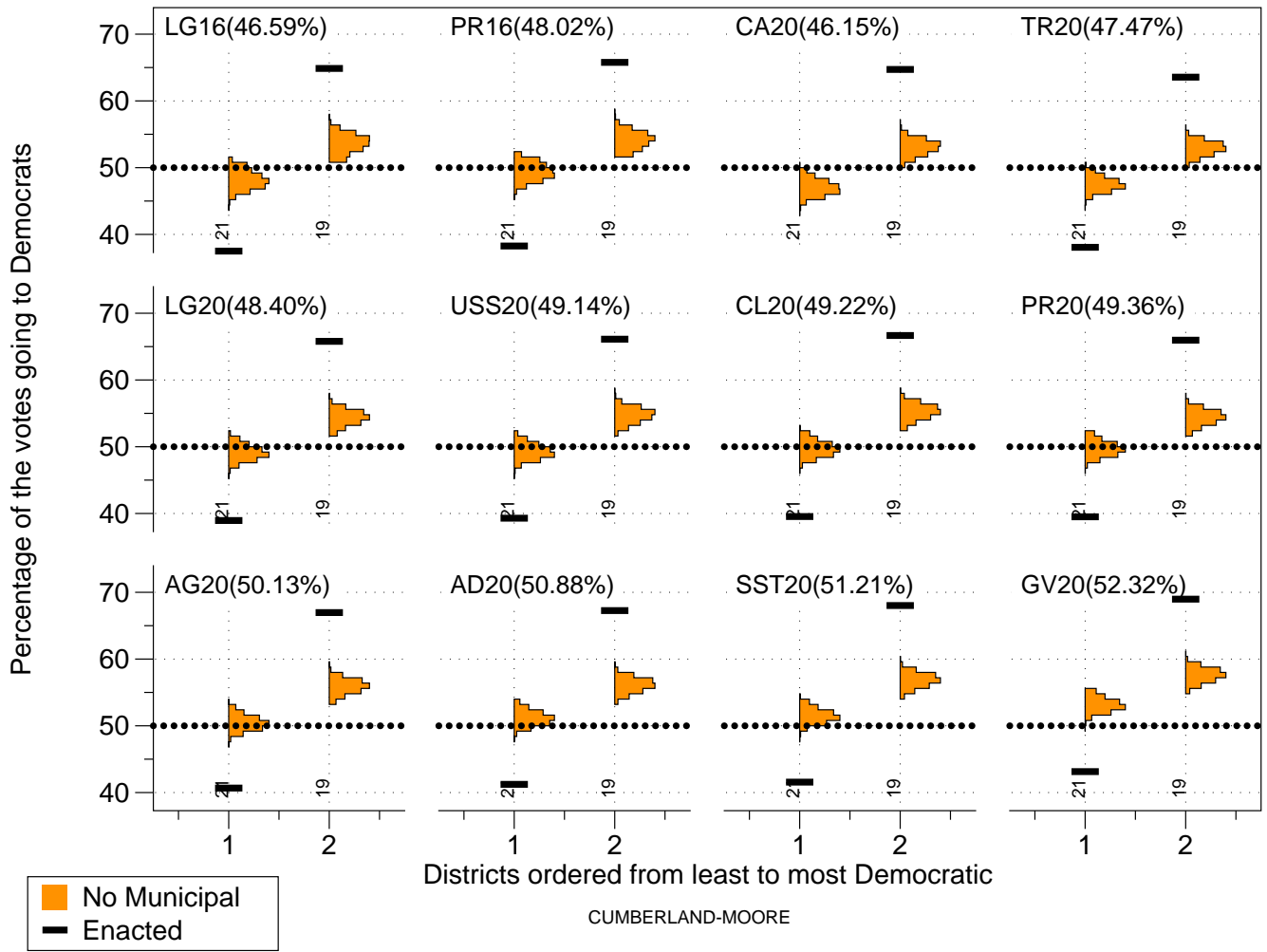


Figure 6.2.11: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “—” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “—”. This plot uses the NC Senate Secondary ensemble which does not explicitly preserves municipalities.

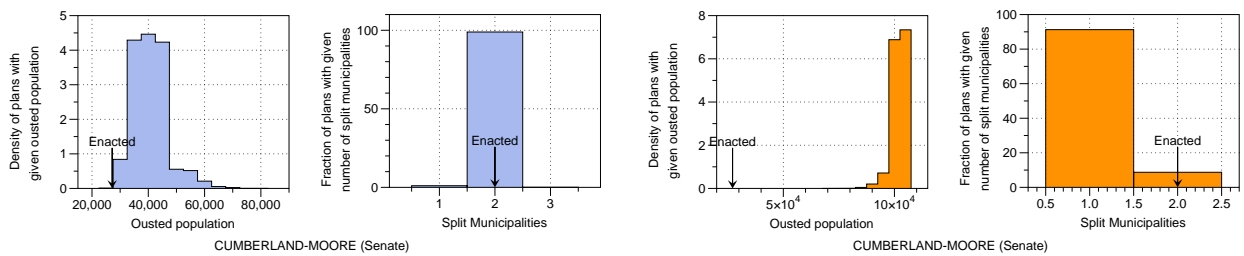


Figure 6.2.12: Plots showing the distribution of the number of people ousted from municipalities in this cluster under the primary and secondary ensemble. The amount of people ousted by the enacted map is also shown.

6.2.5 Guilford-Rockingham

The three districts in the Guilford-Rockingham cluster are constructed to pack an exceptional number of democrats in the most democratic district (district 28) and exceptionally few Democrats in the most Republican district (district 26). The effect is to ensure a Republican victory in the district 26, when in some elections the most republican district would be at risk of going to the Democratic Party. The effect is shown in Figure 6.2.13 across the 12 elections. In the Guilford-Rockingham

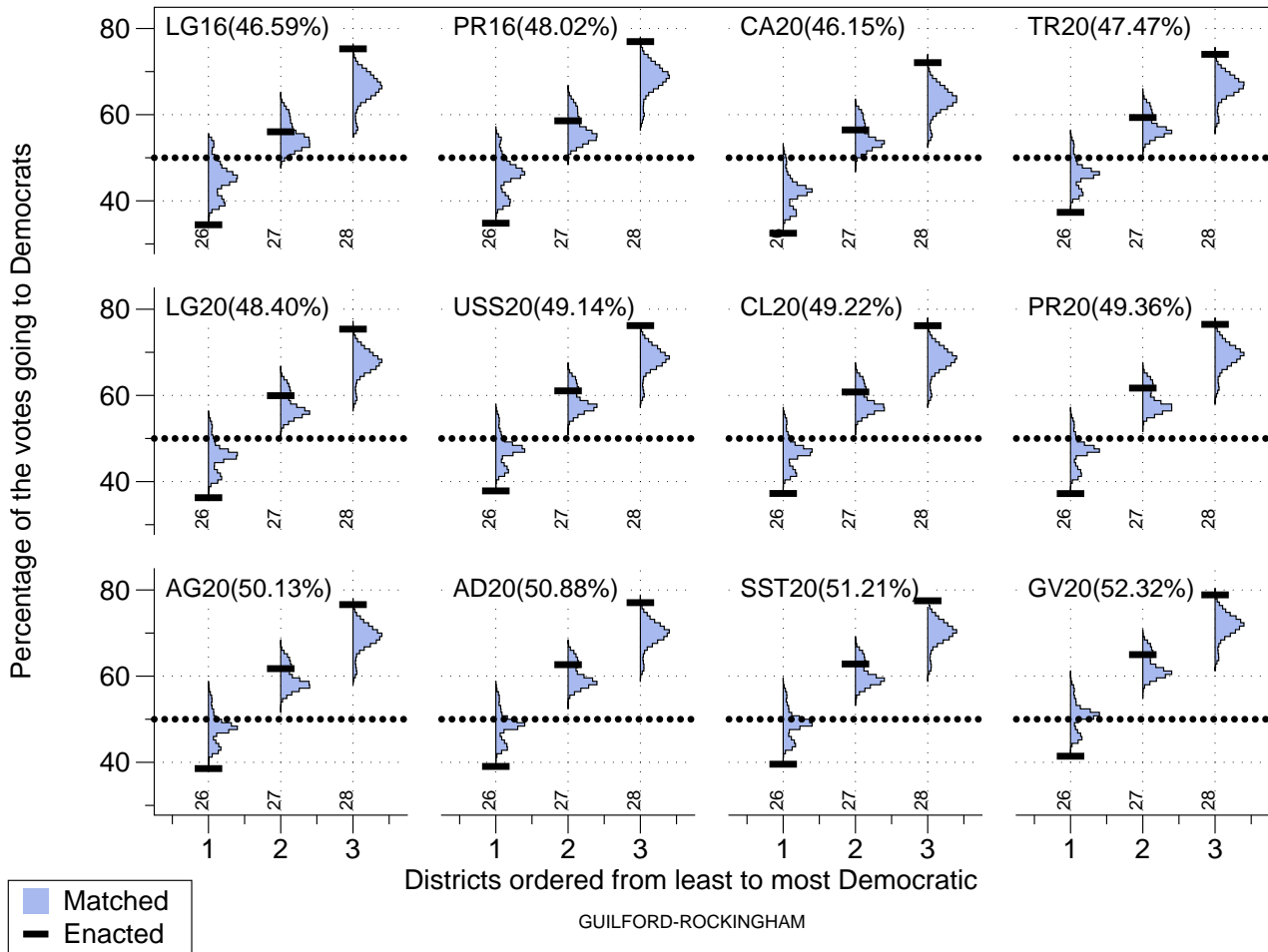


Figure 6.2.13: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the Primary ensemble which was tuned to match the municipal preservation of the enacted plan.

across all of the elections considered, none of the plans have lower fraction of Democrats in the most Republican district than the enacted plan. Conversely, in none of the elections considered do more than 0.08% of the plans have more Democrats packed in the most Democratic district than the enacted plan.

When municipalities are prioritized less, the effect is even more dramatic. In that setting, the extreme number of Democrats packed into the most democratic district and Republicans into the most Republican distinct is even more extreme. The effect is shown in Figure 6.2.14 across the 12 elections.

Municipal Splits and Ousted Population: In the Guilford-Rockingham cluster, the enacted plan splits one municipality and ousts a number of people which is typically found in the ensemble prioritizing municipality preservation which has an average ousted population which is slightly higher than the enacted plan.

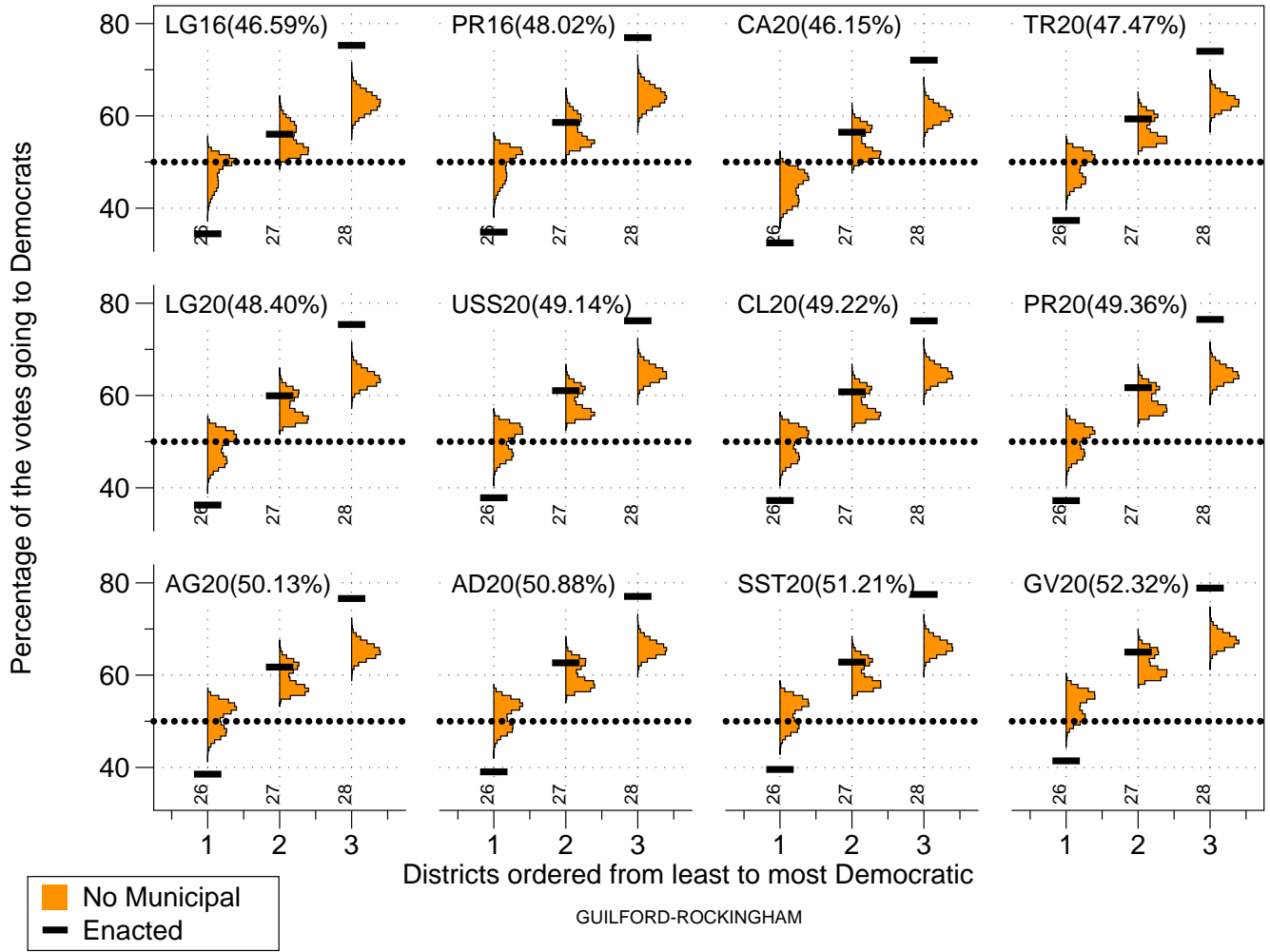


Figure 6.2.14: Shown are the distributions of the Democratic vote fraction of the districts in the plan when ordered from most Republican (on the left) to most Democrat (on the right). The “–” on each marginal histogram denotes the vote fraction of the corresponding district in the enacted plan. The numbers along the horizontal axis give the district numbers in the enacted plan corresponding to the “–”. This plot uses the NC Senate Secondary ensemble which does not explicitly preserves municipalities.

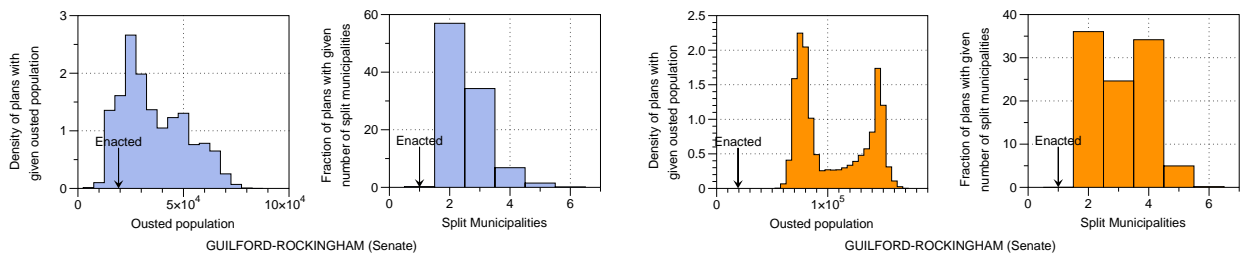


Figure 6.2.15: Plots showing the distribution of the number of people ousted from municipalities in this cluster under the primary and secondary ensemble. The amount of people ousted by the enacted map is also shown.

6.2.6 Northeastern County Cluster

In the NC Senate, there is more than one possible group of county clusters in the northeast corner of the state. As described in Figure 4.3.1 from Section 4.3, there is a choice between two different groups of county clusters. Each group consists of two different county clusters. Based on their population, each of these clusters has only one district. Thus, there is no choice on how to redistrict this region once the county grouping is set. We now explore partisan implications of choosing one county grouping over the other. As shown in the table below, under the enacted county groupings, Republicans win both districts in every election we consider. By contrast, under the alternative county grouping, each party won one of the two districts under every election we consider.

County Clusters	Enacted Cluster 1	Enacted Cluster 2	Alternative Cluster 1	Alternative Cluster 2
	Martin, Warren, Halifax, Hyde, Pamlico, Chowan, Washington, Carteret	Gates Currituck Pasquotank Dare Bertie Camden Perquimans Hertford Tyrrell Northampton	Pasquotank, Dare, Perquimans, Hyde, Pamlico, Chowan, Washington, Carteret	Gates, Currituck, Camden, Bertie, Warren, Halifax, Hertford, Tyrrell, Northampton, Martin
Democratic Vote % (LG16)	46.07%	47.74%	38.51%	55.42%
Democratic Vote % (PR16)	45.60%	46.70%	37.83%	54.59%
Democratic Vote % (CA20)	42.28%	44.47%	36.48%	50.75%
Democratic Vote % (USS20)	45.31%	45.36%	38.45%	52.75%
Democratic Vote % (TR20)	44.12%	44.58%	37.61%	51.59%
Democratic Vote % (GV20)	46.79%	47.56%	40.75%	54.12%
Democratic Vote % (AD20)	47.79%	47.72%	41.02%	54.99%
Democratic Vote % (SST20)	47.56%	47.85%	41.03%	54.89%
Democratic Vote % (AG20)	45.88%	46.11%	39.15%	53.40%
Democratic Vote % (PR20)	44.09%	45.54%	38.30%	51.84%
Democratic Vote % (LG20)	43.80%	45.12%	37.74%	51.69%
Democratic Vote % (CL20)	45.23%	46.42%	39.12%	52.00%

Table 3: Voting History for the two different choices of county grouping northeast corner in the NC Senate.

7 State Legislature: Additional Details

7.1 State Legislature: Details on the Sampling Method

To effectively generate a representative ensemble of maps from the desired non-partisan distributions, we use the well-established method of parallel tempering. It allows one to effectively sample from a possibly difficult to sample distribution by connecting it to an easy to sample distribution through a sequence of intermediate “interpolating” distributions.

We connect our desired distributions to a distribution on redistricting plans that favors plans with a larger number of spanning trees. This alternative distribution satisfies the same constraints, however, it does not consider compactness nor municipal preservation. We make this choice because it can be effectively sampled using a variation on the Metropolized Multiscale Forest RECOM sampling algorithm outlined in [1, 2] coupled with the Metropolis-Hasting algorithm. Using Parallel Tempering, we interpolate between the desired distribution on redistricting and a distribution which is chosen so that the Markov Chain Monte Carlo algorithm converges to its target distribution quickly.

In sampling the interpolating ladder of distributions between the easier-to-sample distribution and our target distribution with the needed policy considerations, we use parallel tempering with a classical Metropolis-Hasting sampling scheme to sample each level of the interpolating ladder of distributions. As proposals in the Metropolis-Hasting sampling scheme, we use a mixture of the Multiscale Forest RECOM proposals and single node flip proposals, depending on what is appropriate for the distribution associated with the given level in the interpolation. The Multiscale Forest RECOM has a number of advantages. Its multiscale nature seems to provide improvements in computational efficiency and the global moves of RECOM lead empirically to faster mixing. Additionally, it can efficiently preserve counties and other groupings. Lastly, it can be effectively combined with the Metropolis-Hasting algorithm to produce an algorithm that samples from the specified

distribution.

To facilitate mixing and for computational practicality, we often split the interpolating groups of manageable size, typically between 10 and 30 interpolating levels. Each grouping is then run to produce an ensemble at the top level which approaches; which is closer to the desired ensemble. This ensemble is then used as an *independent sample reservoir* to generate independent samples for the next group of interpolating levels. This process is repeated until the desired level is reached. We typically use between 60 and 100 interpolating levels in our sampling schemes. The number of plans sampled differs from cluster to cluster. We also sometimes group clusters together for sampling. Usually the number of samples in around 80,000 but in all cases we have check various empirical measure to evaluate if the sampling has converged and is well mixed.

7.2 State Legislature: Mathematical Description of Ensemble Distribution

In designing our distributions, we have chosen to define explicit distributions and then use an implementation of the Metropolis-Hastings algorithm to generate the ensemble. We feel this choice promotes transparency because an explicit distribution can better be discussed and critiqued. It also allows us to more explicitly translate the policy considerations into the ensemble.

In order to formally define our distributions, we consider the labeling ξ of the precincts of the map of NC with the number $\{1, \dots, d\}$, where d is the total number of districts. So for the i -th precinct, $\xi(i)$ gives the district to which the precinct belongs. If we let $A_j(\xi)$ and $B_j(\xi)$ be respectively the surface area and perimeter (or length of the boundary) of the j -district then our compactness score is

$$J_{\text{compact}}(\xi) = \sum_{j=1}^d \frac{A_j(\xi)}{B_j^2(\xi)}.$$

Then the probability of drawing the redistricting ξ is

$$\text{Prob}(\xi) = \begin{cases} \frac{1}{Z} e^{-w_{\text{compact}} J_{\text{compact}}(\xi)} & \text{for } \xi \text{ which is allowable} \\ 0 & \text{for } \xi \text{ which is not allowable} \end{cases}$$

Here Z is a number that makes the sum of $\text{Prob}(\xi)$ over all redistricting plans are equal to one.

The collection of allowable redistricting plans ξ is defined to be all redistricting plans which satisfy the following conditions:

1. all districts are connected
2. the populations of each district is within %5 of the ideal district population unless the district in the wake county cluster in the senate or the Craven-Carteret county cluster in the house.²
3. The number of split counties is minimized.
4. We minimize the occurrence of districts traversing county boundaries.

The second distribution includes a municipality score, $J_{MCD}(\xi)$. This score describes the number of people who have been displaced from a district that could have preserved the voters within their municipality, and is defined as

$$J_{MCD}(\xi) = \sum_{m \in M} \text{pop}_{\text{oust}}(\xi, m),$$

where M is the set of all MCDs, and $\text{pop}_{\text{oust}}(\xi, m)$ is the number of displaced people from the municipality m under the redistricting plan ξ . We define pop_{oust} in one way if the population of the municipality is less than the size of a district and another if it is greater.

²In the two exceptional clusters, it is impossible to draw districts that preserve precincts and also achieve population balance within 5%. For Wake in the senate, we sample with a deviation of 6% and generate an associated ensemble; past experience has shown that this does not create a partisan effect and we will be confirming this in follow on analyses. In Craven-Carteret, precinct 02 in Craven is the only precinct that connects the bulk of Craven with Carteret and it must be split to achieve population balance between the two districts within this cluster. We have examined the voting patterns when assigning this precinct to the district with the bulk of Craven or with all of Carteret and found minimal effects on the outcome.

If m has a population that is less than the population of a district, we consider the district that holds the most people from the municipality m as the representative district for that municipality. Any person within municipality m , but not within the representative district is considered to have been displaced.

If m has a population that is greater than the population of a district, we consider the number of districts that could fit within m to be $d(m) = \lfloor \text{pop}(m)/\text{pop}_{\text{ideal}} \rfloor$, where $\text{pop}(m)$ is the population of the MCD m and $\text{pop}_{\text{ideal}}$ is the ideal district population. We also consider the remaining population in the municipality that cannot fit within a whole district to be $r(m) = \text{pop}(m) - d(m) \times \text{pop}_{\text{ideal}}$. To determine the displaced population, we look at the $d(m)$ districts that contain the largest populations from the municipality m . Hypothetically, everyone in these districts could live in the municipality m . Therefore, anyone who is in one of these districts and that does not live in the municipality m could be replaced by someone who does live in the municipality. Thus, we sum the number of people not in m in the $d(m)$ districts that contain the largest populations of m . We also note that the remaining population $r(m)$ could hypothetically be kept intact when drawing a $(d(m) + 1)$ th district. We, therefore, look at the number of people in the municipality m who are living in the district with the $(d(m) + 1)$ th most population of the municipality. If the number of people in m is less than $r(m)$, then we add this difference to the number of ousted people (since each of these people in the municipality could have conceivably been placed in the district).

Formally, we let the $|M| \times d$ matrix, $MCD(\xi)_{m,j}$ represent the number of people who are in the municipality m and the district ξ_j . Then

$$\text{pop}_{\text{oust}}(\xi, m) \begin{cases} \sum_j MCD(\xi)_{m,j} - \max_j(MCD(\xi)_{m,j}) & \text{pop}(m) < \text{pop}_{\text{ideal}} \\ \sum_{j \in D(m)} (\text{pop}(\xi_j) - MCD(\xi)_{m,j}(\xi)) & \text{pop}(m) \geq \text{pop}_{\text{ideal}} \\ + \max(0, MCD(\xi)_{m,N(m)} - r(m)) & \end{cases}$$

where $\text{pop}(\xi_j)$ is the population of district ξ_j , $D(m)$ is the set of district indices that represent the $d(m)$ districts with the largest populations of municipality m , and $N(m)$ represents the district index with the $d(m) + 1$ most population of municipality m .

7.3 State Legislature: Additional Ensemble Statistics

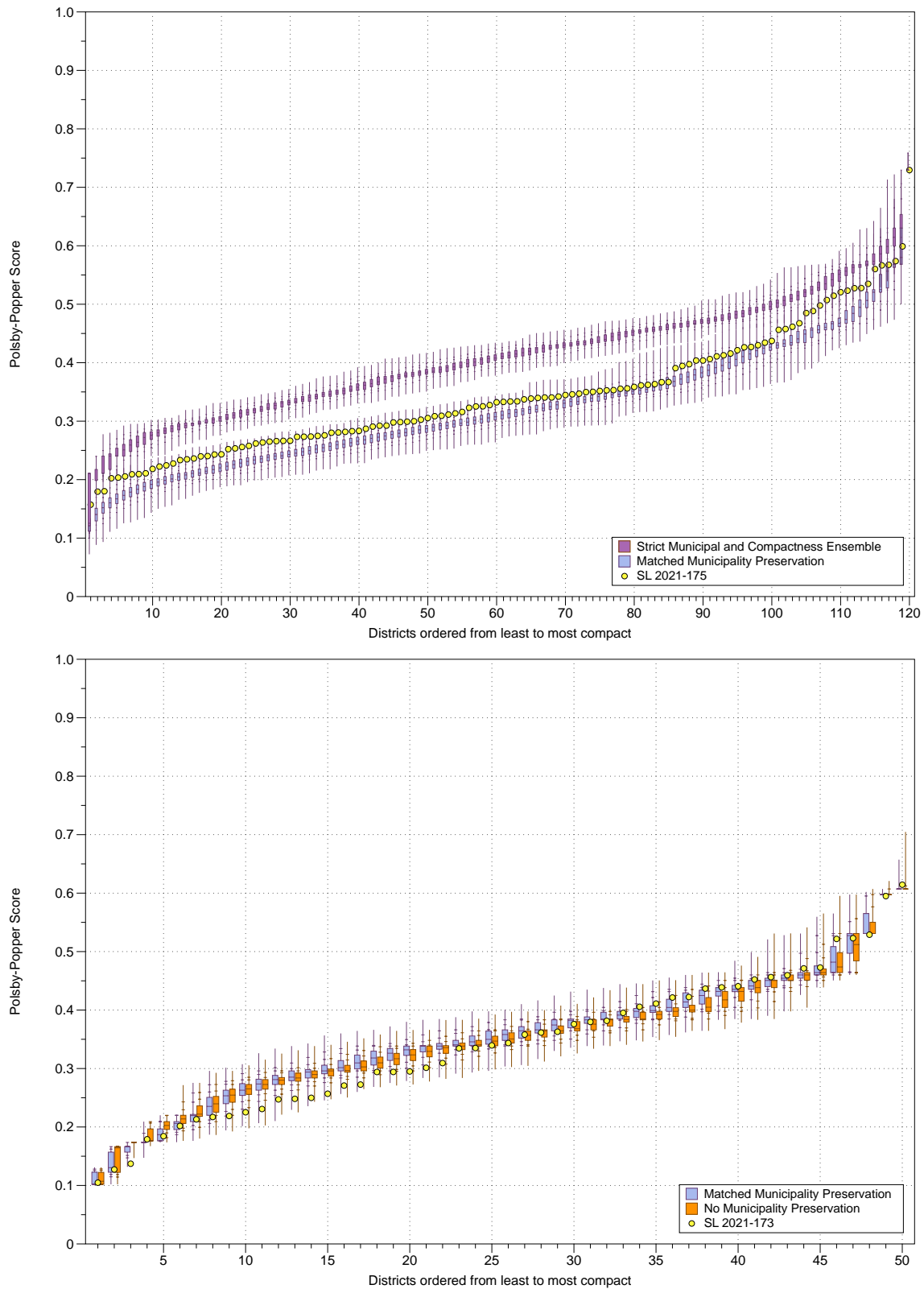


Figure 7.3.1: These plots compare the Polsby-Popper Score of the enacted maps (shown we the yellow dots) with the marginal histograms of the primary and secondary ensembles.

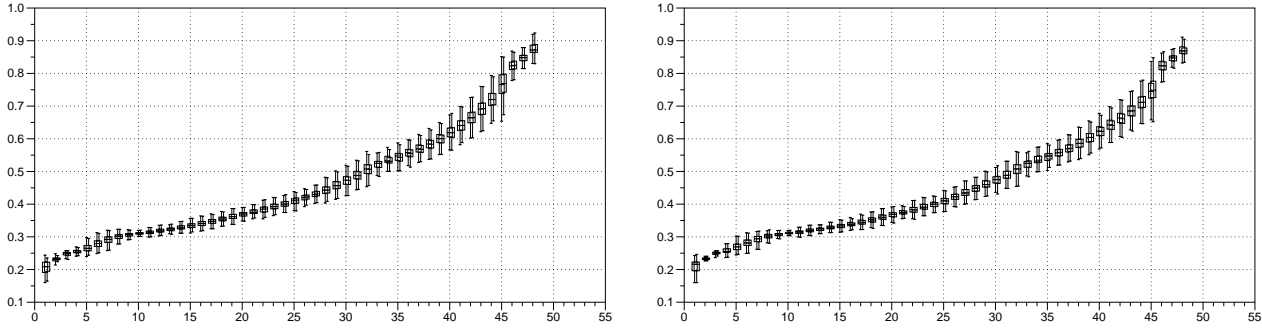


Figure 7.4.1: We compare a subset of the threads to the remaining threads. Each thread represents a different initial condition, and thus takes a different trajectory through the phase space. We compare our standard observables, such as the ranked ordered marginal distributions and confirm that they yield equivalent results. On the left we show an example of comparing one thread with all threads in a parallel tempering run; on the right we show an example of comparing half of the thread with the other half of the threads in a parallel tempering run.

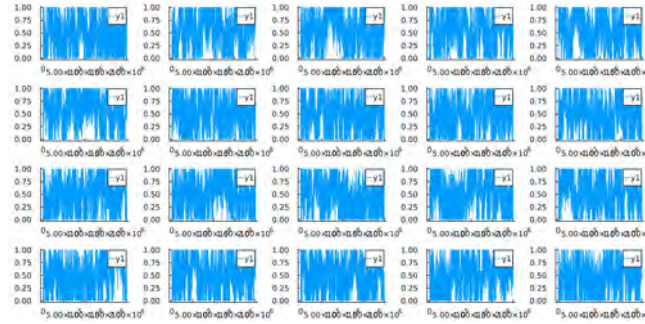


Figure 7.4.2: We examine how each of the parallel tempering threads swaps as a function of the proposal number. The vertical axis represents different measures and the horizontal axis represents the proposal in the Markov Chain. When the thread (or redistributing) is near the bottom of the vertical axis it mixes quickly when drawing from the reservoir; when it is at the top of the vertical axis it is at the desired measure which is either the desired measure we are sampling from or an intermediate measure that will act as a subsequent reservoir.

7.4 State Legislature: Convergence Tests

We performed a number of tests to assess if our sampling of the desired distribution was sufficient to provide an accurate representation of the desired distribution. Sometimes many samples are needed, yet in other cases a much smaller number is sufficient. We use a number of different methods to assess convergence.

Many of our runs were generated with an implementation of the *parallel tempering algorithm* with an *independent sample reservoir*. The use of parallel tempering provides a number of different threads that can be grouped and then compared against each other. As each thread starts from a different initial condition, if the distributions look similar then there is evidence that the system is mixing. Similarly, if a subset of the threads has a similar distribution to all of the threads, then there is evidence that enough samples were used.

The following plots show representative ranked ordered histograms for some NC House and NC Senate runs where different threads in a parallel tempering run are compared.

Each time a thread exchanges its state with the independent sample reservoir, it receives a new configuration that is independent of the previous state of the system. Additionally, if the thread then progresses up to the parameter level of interest, then we have strong evidence that we are producing decorated samples. The following plots show the current level of each for the different threads in a parallel tempering run. Switching regularly from the highest level (the desired sample distribution) to the lowest level (the level with the independent sample reservoir) is a strong indication that the system will be well mixed and converged.

In some cases, we run two or more complete sampling runs for the same target distribution. If the ensembles generated are close then we have strong evidence that the ensembles are converged as each run started from different initial conditions and used different randomness.

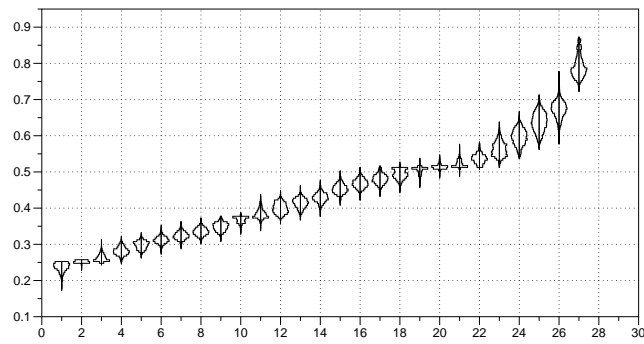


Figure 7.4.3: We compare the ranked ordered marginals on two independent parallel tempering runs.

8 Congressional Plan

As with the NC House and NC Senate plans, we place a probability distribution on Congressional plans for North Carolina. The distributions embody different policy choices. With each distribution, we produce representative ensembles of maps to serve as benchmarks against which to compare specific maps. The ensembles are generated by using the Metropolis-Hasting Markov Chain Monte Carlo Algorithm in a parallel tempering framework which employs the proposal from the Multiscale Forest RECOM algorithm [2, 1].

This analysis parallels the analysis already presented for the NC House and NC Senate with the simplification that we no longer need to consider County Clusters and that some of the criteria are modified. The details are given in Sections 8.1 and 7.2.

8.1 Congressional: Ensemble Overview

Similarly to the distribution placed on the NC Legislative redistricting plans in Section 4.4, we consider a distribution (and hence an ensemble) satisfying the following constraints:

- The maps split no more than 14 counties.
- The maps split no county into more than two districts.
- Districts traverse counties as few times as possible.
- All districts are required to consist of one contiguous region.
- The deviation of the total population in any district is within 1% of the ideal district population. We have verified in previous work in related settings that the small changes needed to make the districting plan have perfectly balanced populations do not change the results. (See [7] and the expert report in *Common Cause v. Rucho*).
- **Compactness:** The distributions on redistricting plans are constructed so that a plan with a larger total isoperimetric ratio is less likely than those with a lower total isoperimetric ratio. The total isoperimetric ratio of a redistricting plan is simply the sum of the isoperimetric ratios over each district. The isoperimetric ratio is the reciprocal of the Polsby-Poper score; hence, smaller isoperimetric ratio corresponds to larger Polsby-Poper scores. As the General Assembly stated in its guidance that the plans should be compact according to the Polsby-Popper score [9], we tuned the distribution so that it yields plans of a similar compactness to those of the legislature. (See Figure 10.2.1 in Section 10.2.) We further limited our distribution only to include those with an Isoparametric score less than 80.

The legislature also listed the Reock score as another measure of compactness which one could consider. However, we have found Polsby-Popper/isoperimetric score to be a better measure when generating districts computationally. In our previous work, we have seen that this choice did not qualitatively change our conclusions (see [7] and the expert report in *Common Cause v. Rucho*).

8.2 Congressional Plan: Sampling Method

We have chosen the distribution from which to draw our ensemble to comply with the desired policy and legal considerations. It is well accepted that not all distributions on possible redistricting plans are equally easy to sample from.

As discussed in Section 7.1 to effectively generate a representative ensemble of maps from these distributions, we use the well-established method of parallel tempering. It allows one to effectively sample from a possibly difficult to sample distribution by connecting it to an easy to sample distribution through a sequence of intermediate “interpolating” distributions.

We connect our desired distributions, which includes a compactness score, to a measure on redistricting plans which is uniform on spanning forests which satisfy the population and county constants. Furthermore, the enacted plan can be effectively sampled using a variation on the Metropolized Multiscale Forest RECOM sampling algorithm outlined in [1, 2].

In sampling the interpolating ladder of distributions between the easier-to-sample measure and our target measure which includes a compactness score, we use parallel tempering with a classical Metropolis-Hasting sampling scheme to sample each level of the interpolating ladder of distributions. As proposals in the Metropolis-Hasting sampling scheme, we use Multiscale Forest RECOM proposals. We sample around 80,000 plans have confirmed that the distribution seems well mixed and than it has been sufficiently sampled to provide stable statistics.

8.3 Election Data Used in Analysis

The same historic elections and abbreviations were use to analyze the congressional plan and ensemble as were used for the NC legislative maps and ensemble. See Section 4.6.

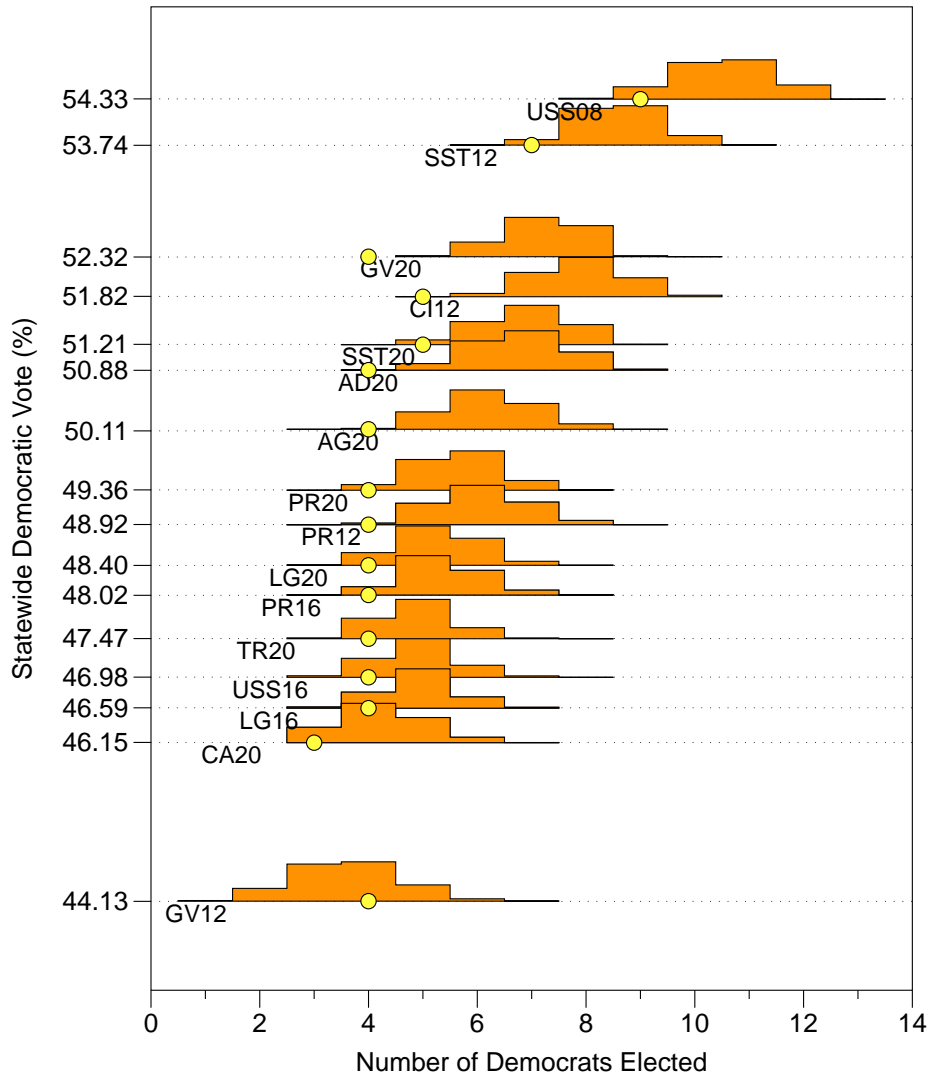


Figure 9.0.1: Each histogram represents the range and distribution of possible Democratic seats won in the ensemble of plans; the height is the relative probability of observing the result. The yellow dots represent the results from the enacted congressional plan under the various historic votes.

9 Congressional Plan: Main Analysis

Figure 9.0.1 gives the *Collected Seat Histograms* for the ensemble sampled from the distribution. This figure also shows how many Democrats the enacted congressional plan would have elected under the votes from a variety of historic elections.

Without reference to a particular ensemble, a primary message of this plot is that the enacted congressional plan is largely stuck electing 4 of 14 Democrats despite large shifts in the statewide vote fraction and across a variety of election structures. Over the statewide vote Democratic partisan vote range of 46.59% to 52.32%, the enacted map only twice changes the number of Republicans elected. The outcome of the election is largely stuck at 4 Democrats. This shows the enacted map to be highly non-responsive to the changing opinion of the electorate. Without holding the election one largely knows that the result will be 10 Republicans and 4 Democrats.

This non-responsiveness is not observed in the ensemble. The ensemble shows that a typical map drawn without political considerations gradually shift from 4-5 Democrats typically being elected at one end of this regime to 7-8 being elected at the other end. Hence, under historic elections in which Democrats win 46% to 53% of the statewide vote, a typical map would gradually shift from around 4 Democrats in the NC congressional delegation to around 8 Democrats as the electorate changed its vote. This does not happen under the enacted plan with the elections considered. Instead, as described above, the

enacted map sticks at only 4 Democrats in North Carolina’s congressional delegation under nearly all of these elections.

To better illuminate the structure responsible for making the enacted map an extreme outlier, we turn to the Rank Ordered Box plots already discussed in general in Section 3.4 and in the context of the state legislative maps in the previous sections. The plots show extreme packing of Democrats in the three most Democratic districts and depletion of Democrats from the

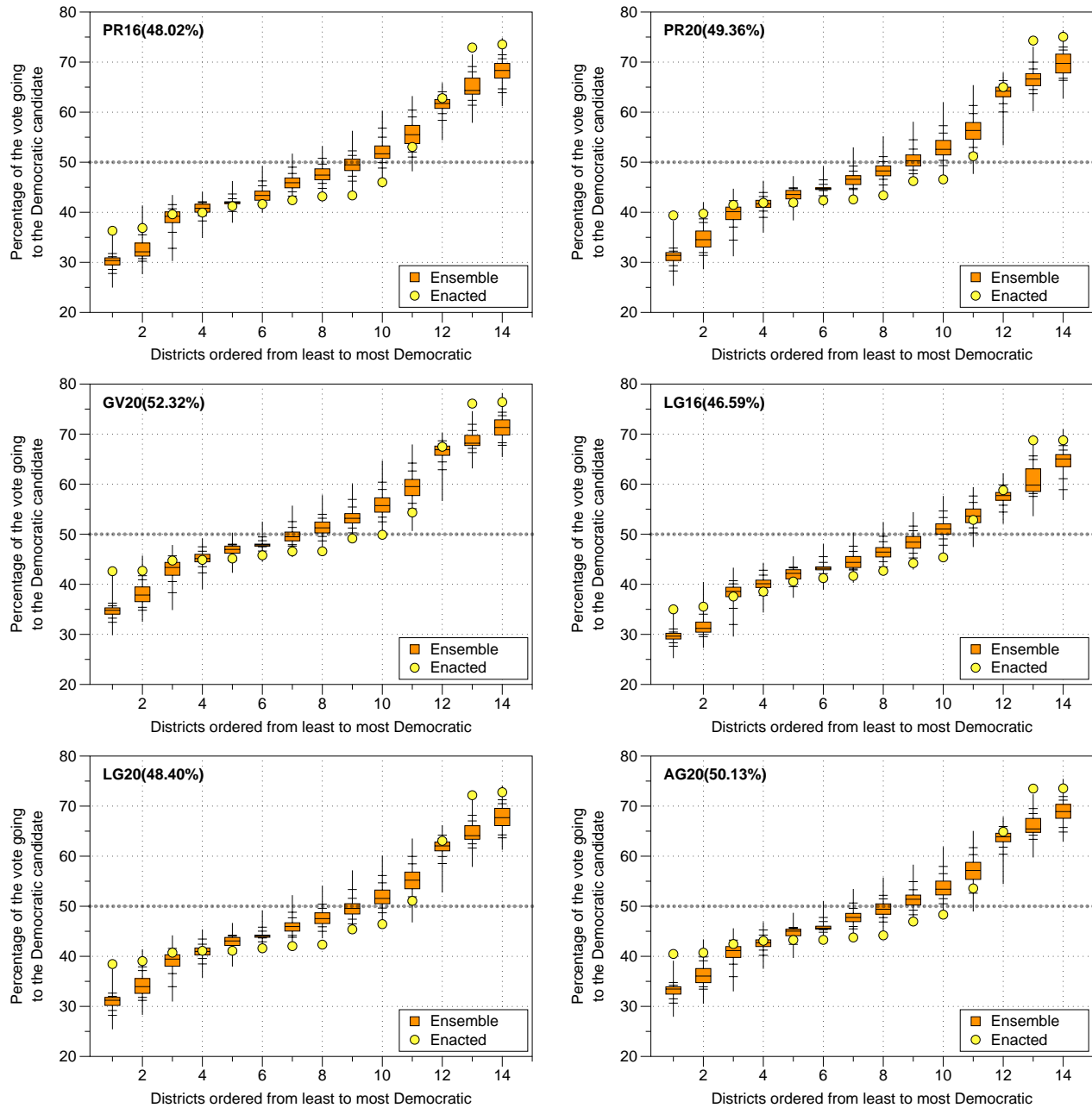


Figure 9.0.2: The Ranked Marginal Box-plots for the NC Congressional Plan. The ranked ordered marginals for the enacted map are shown in yellow. 50% of the ensemble is contained within the box. Inside the first pair of tick marks is 80% of the data and inside the second set is 95% of the points.

next 7 to 9 most Democratic districts. The effect of this cracking and packing is the non-responsiveness seen in Figure 9.0.1.

Motivated by the cracking and packing of Democrats shown in Figure 9.0.1, we ask how common is such a highly polarized districts in our non-partisan ensemble of maps. The results are summarized in Table 4. They show that the Congressional map is not only non-responsive to the changing preferences of the electorate but it is also an extreme partisan gerrymander. Maps which lock in such an extreme partisan outcome do not occur in our ensemble.

Election	Plans with the same or more Dem (1-2)	Plans with the same or more Rep (5-11)	Plans with the same or more Dem (12-14)	Total Plans
LG16	18	0	0	79997
PR16	0	0	0	79997
CA20	0	0	0	79997
TR20	0	0	0	79997
LG20	0	0	0	79997
USS20	0	0	0	79997
CL20	0	0	0	79997
PR20	0	0	0	79997
AG20	0	0	0	79997
AD20	0	0	0	79997
SST20	0	0	0	79997
GV20	0	0	0	79997
CI20	0	0	0	79997
USS16	0	0	0	79997
GV16	1	0	0	79997
AG16	15	0	0	79997

Table 4: Over the approximately 80,000 plans in our ensemble, we ask how many plans have (1) as high Democratic fraction in the two most Republican districts, (2) as small a fraction of Democrats in the 5th through 11th most Republican districts, and (3) have as high a Democratic fraction in the 12th through 14th most Republican districts. The answer is given in this table along with the total number of plans in our ensemble.

10 Congressional: Additional Details

10.1 Congressional Plan: Mathematical Description of Ensemble Distribution

In specifying our distribution, we have chosen to define explicit distributions and then use an implementation of the Metropolis-Hastings algorithm to generate the ensemble. We feel this choice promotes transparency because an explicit distribution can better be discussed and critiqued. It also allows us to more explicitly translate the policy considerations into the ensemble.

In order to formally define our distributions, the partition of the precinct adjacency graph into a spanning forest \mathcal{T} with 14 district trees $\{\mathcal{T}_1, \dots, \mathcal{T}_{14}\}$ corresponding to each district. Hence $\mathcal{T} = \{\mathcal{T}_1, \dots, \mathcal{T}_{14}\}$ completely specifies the redistricting.

If we let $A_j(\mathcal{T})$ and $B_j(\mathcal{T})$ be respectively the surface area and perimeter (or length of the boundary) of the j -district then our compactness score is

$$J_{\text{compact}}(\mathcal{T}) = \sum_{j=1}^{14} \frac{A_j(\mathcal{T})}{B_j^2(\mathcal{T})}.$$

Then the probability of drawing the spanning forest \mathcal{T} is

$$\text{Prob}(\mathcal{T}) = \begin{cases} \frac{1}{Z} e^{-w_{\text{compact}} J_{\text{compact}}(\mathcal{T})} & \text{for } \mathcal{T} \text{ which is allowable} \\ 0 & \text{for } \mathcal{T} \text{ which is not allowable} \end{cases}$$

Here Z is a number which makes the sum of $\text{Prob}(\mathcal{T})$ over all spanning forests with 14 trees equal to one.

The collection of allowable spanning forests \mathcal{T} is defined as those which produce redistricting plans which satisfy the following conditions:

1. all districts are connected
2. the populations of each district is within %1 of the ideal district population.
3. No more than 14 counties are split with no county split more once.
4. We minimize the occurrence of districts traversing county boundaries.

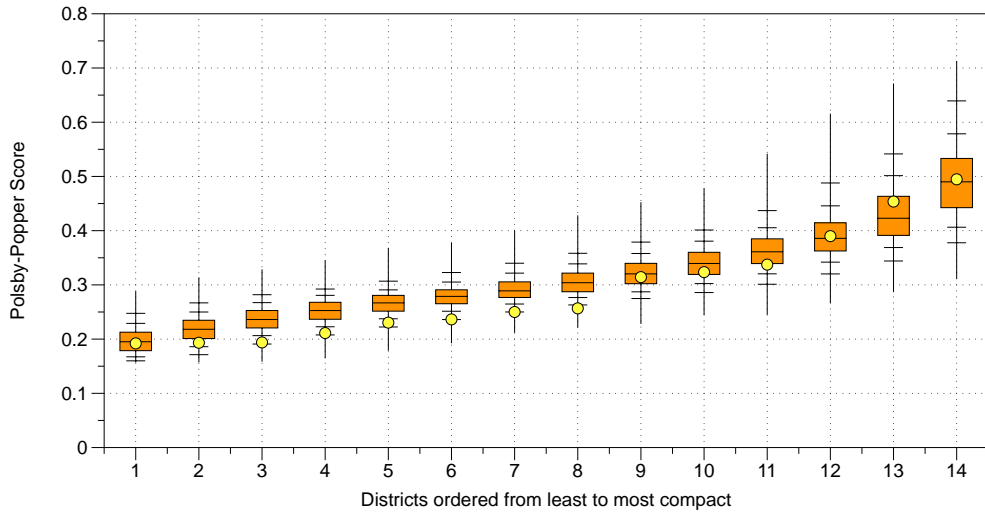


Figure 10.2.1: The yellow dots display the ordered Polsby-Popper score of the 14 districts in the enacted plan.

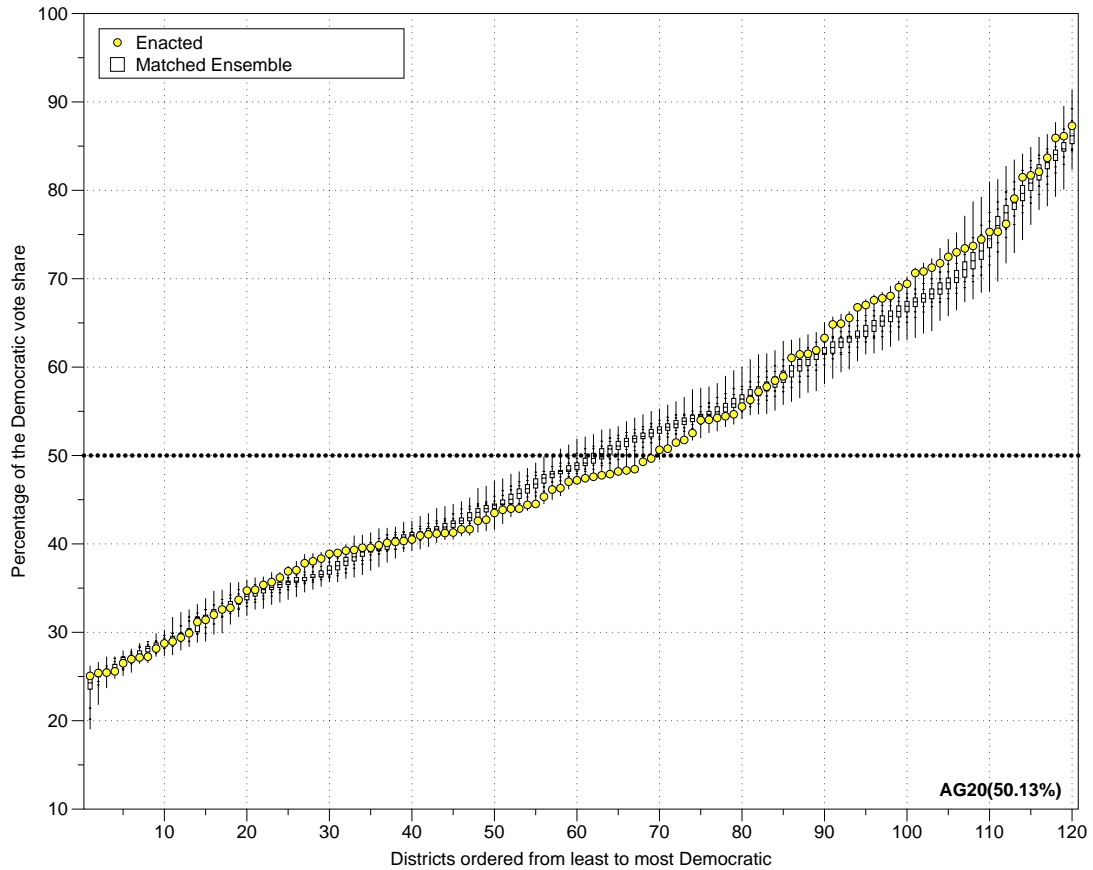
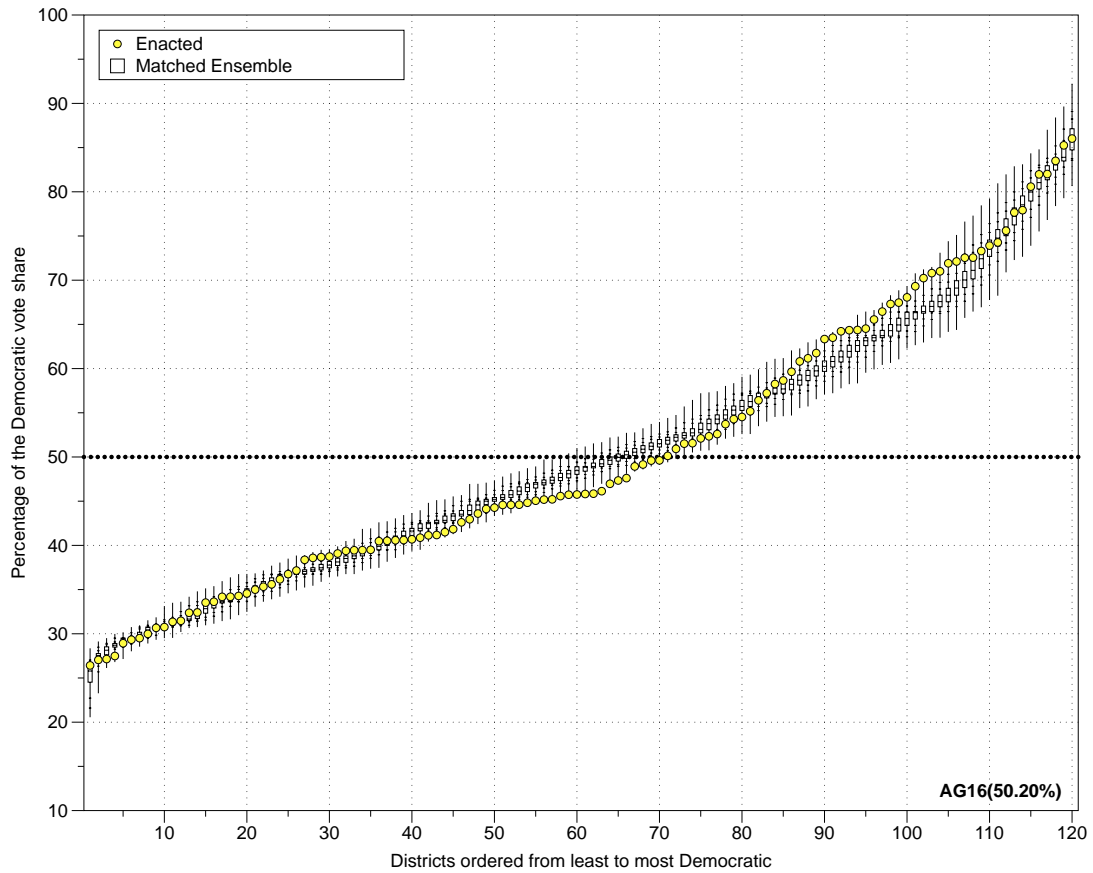
10.2 Congressional Plan: Additional Ensemble Statistics

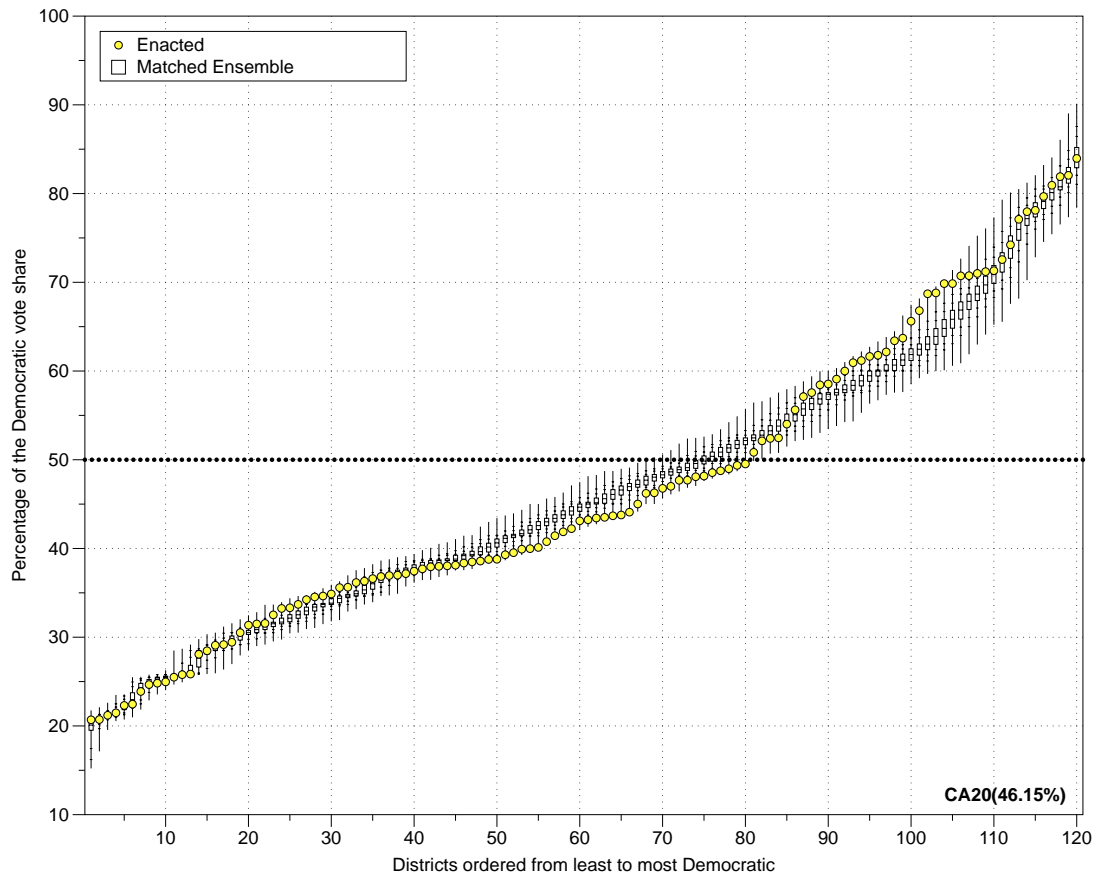
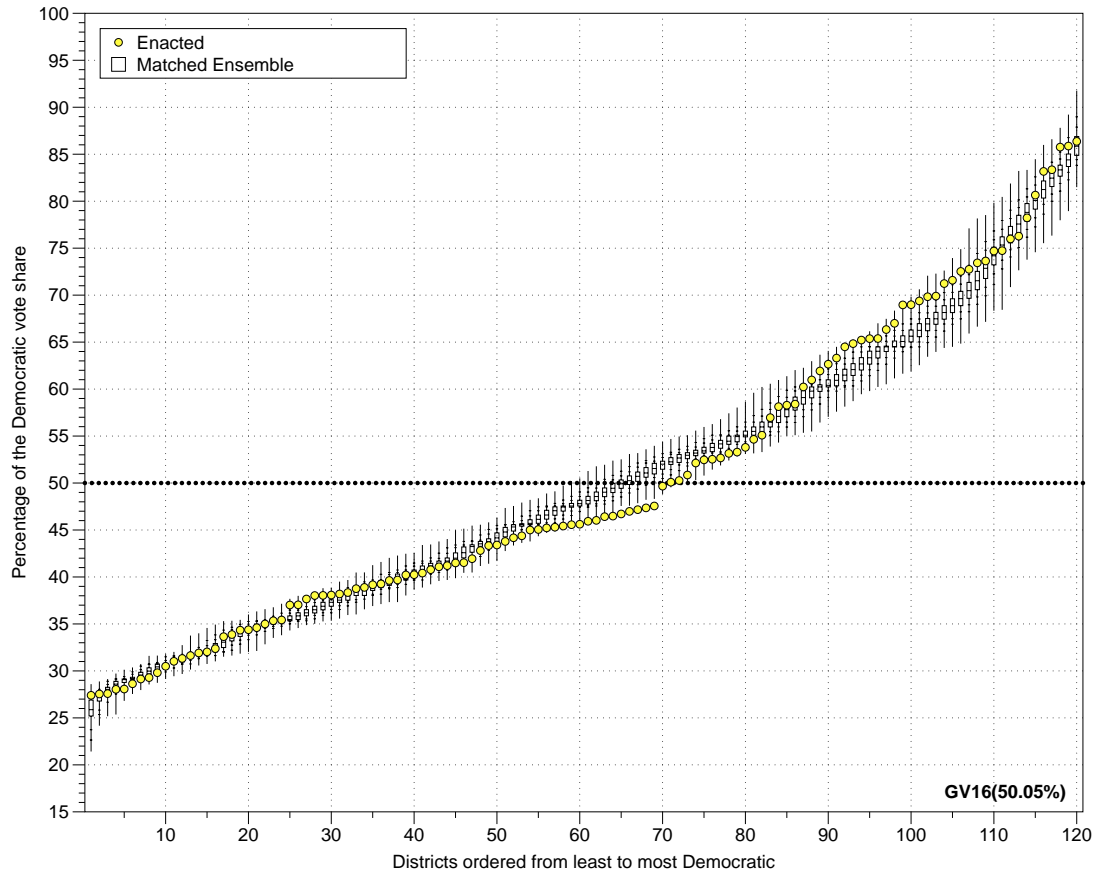
In Figure 10.2.1, we give the box-plots for the ranked ordered marginal distribution for the compactness score, namely the Polsby-Popper score (see companion methods document). We compare the ensemble of plans with the enacted plan.

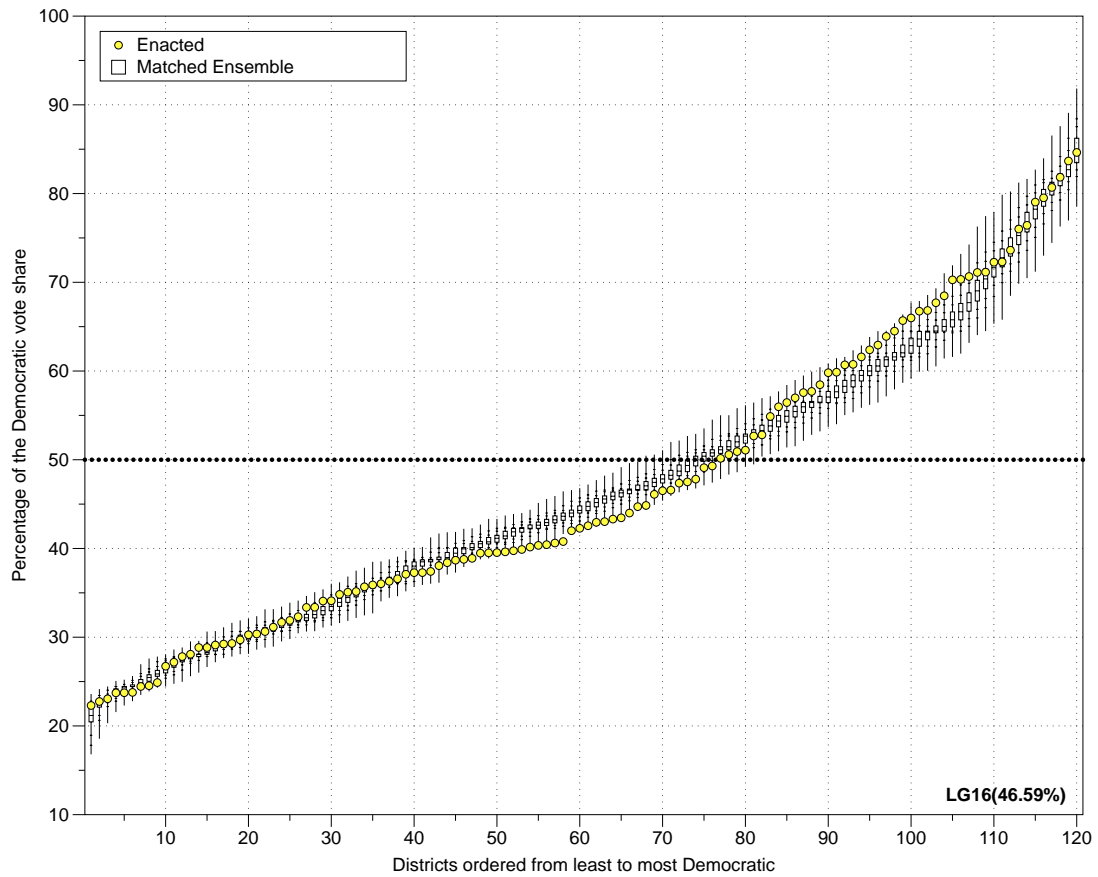
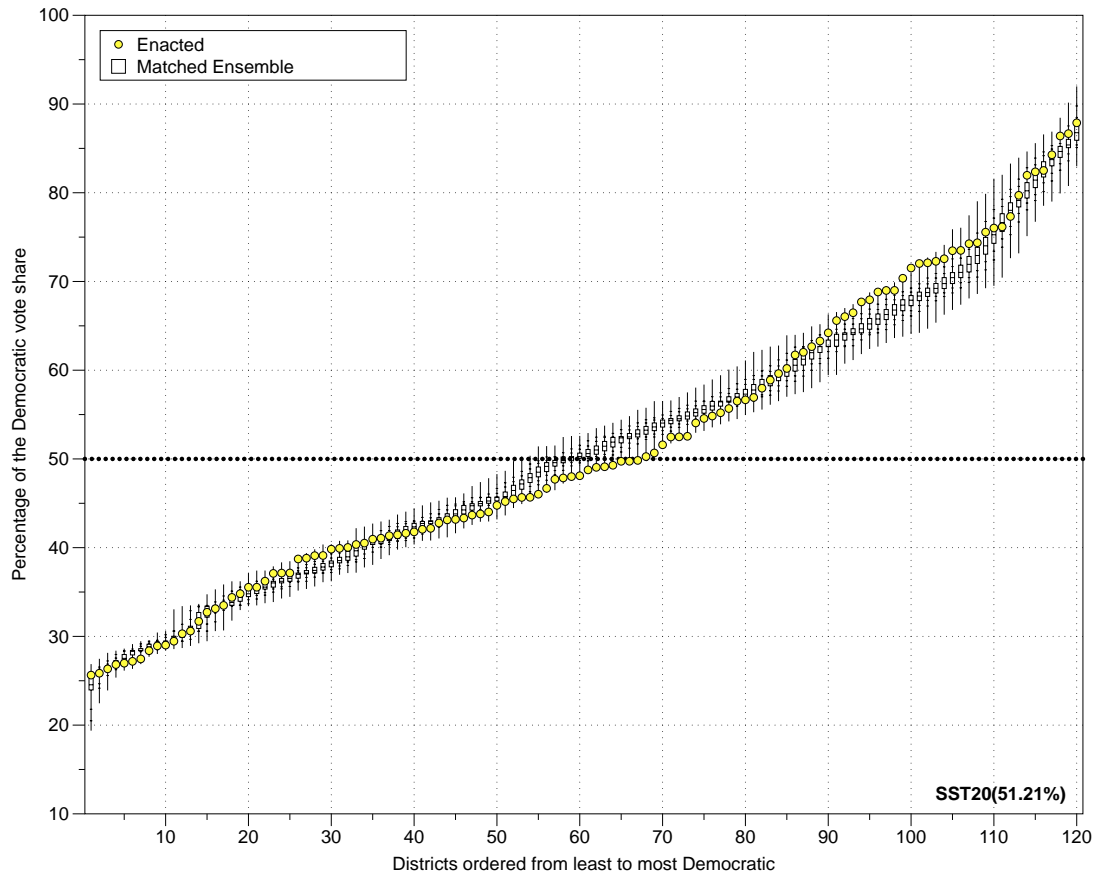
10.3 Congressional Plan: Convergence Tests

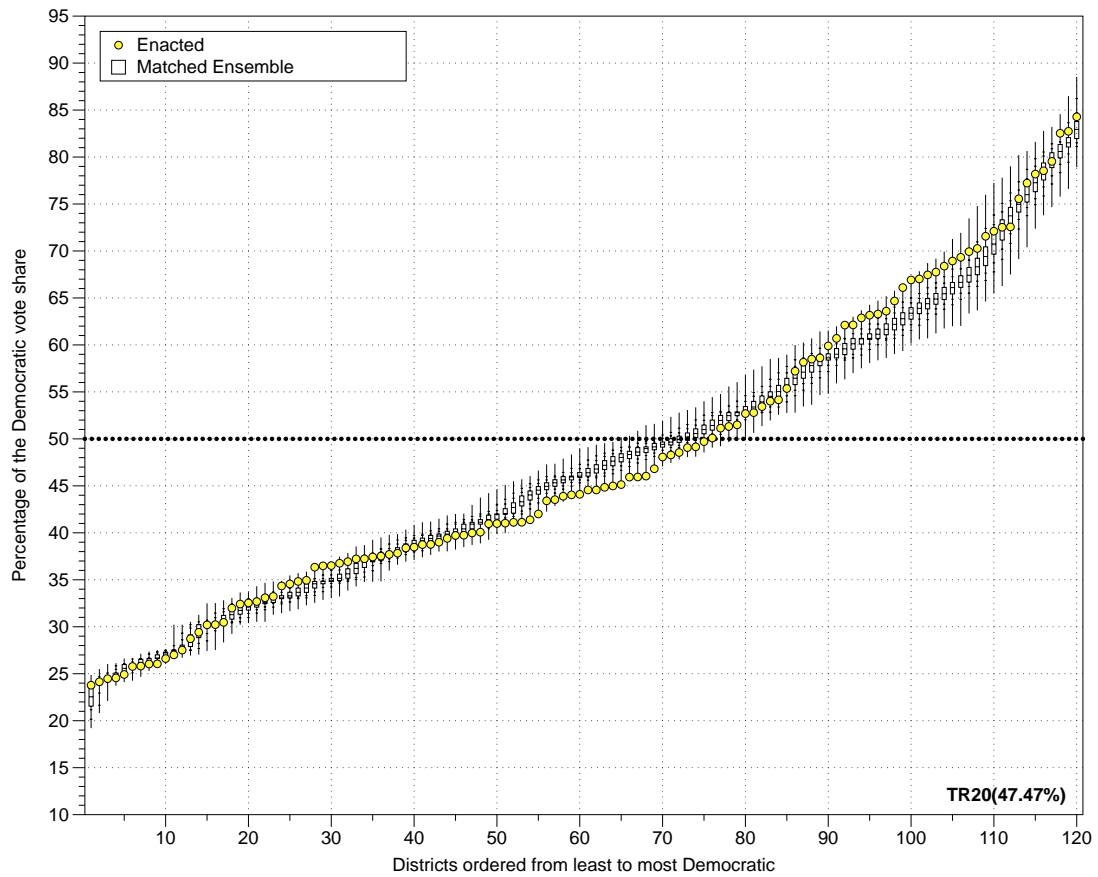
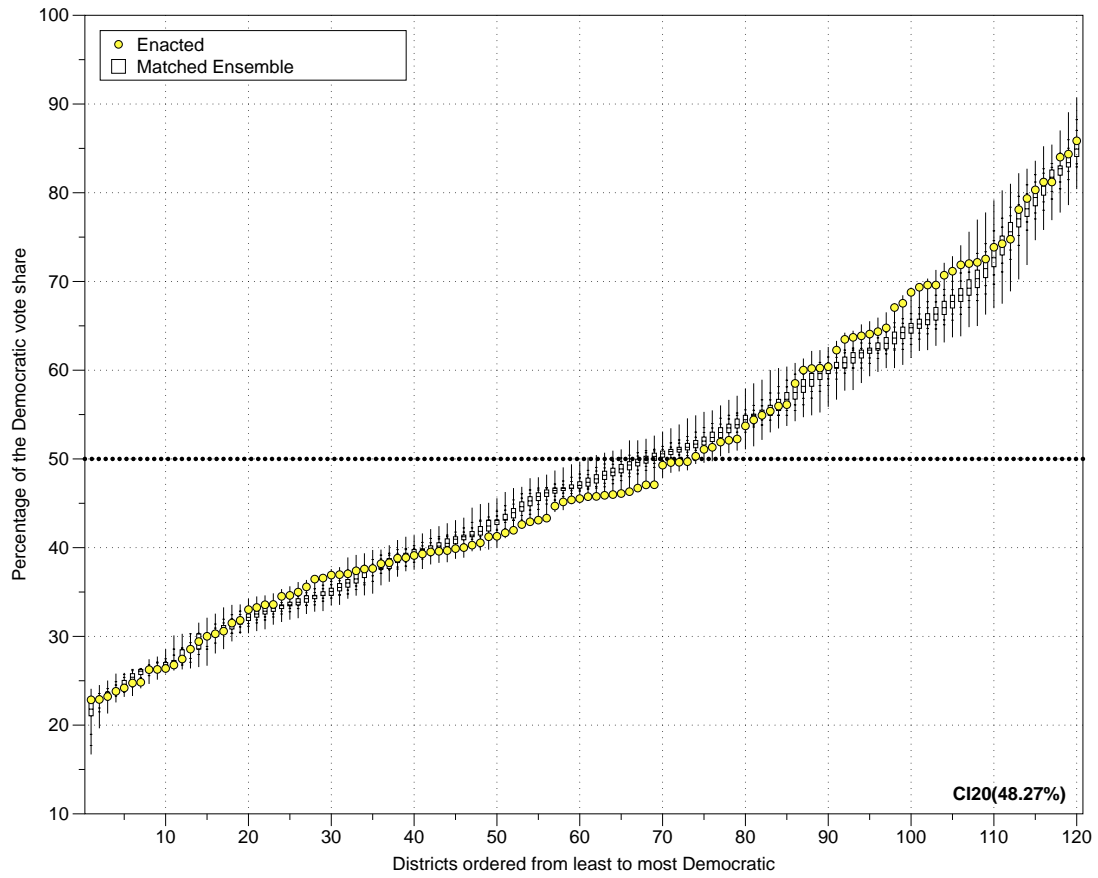
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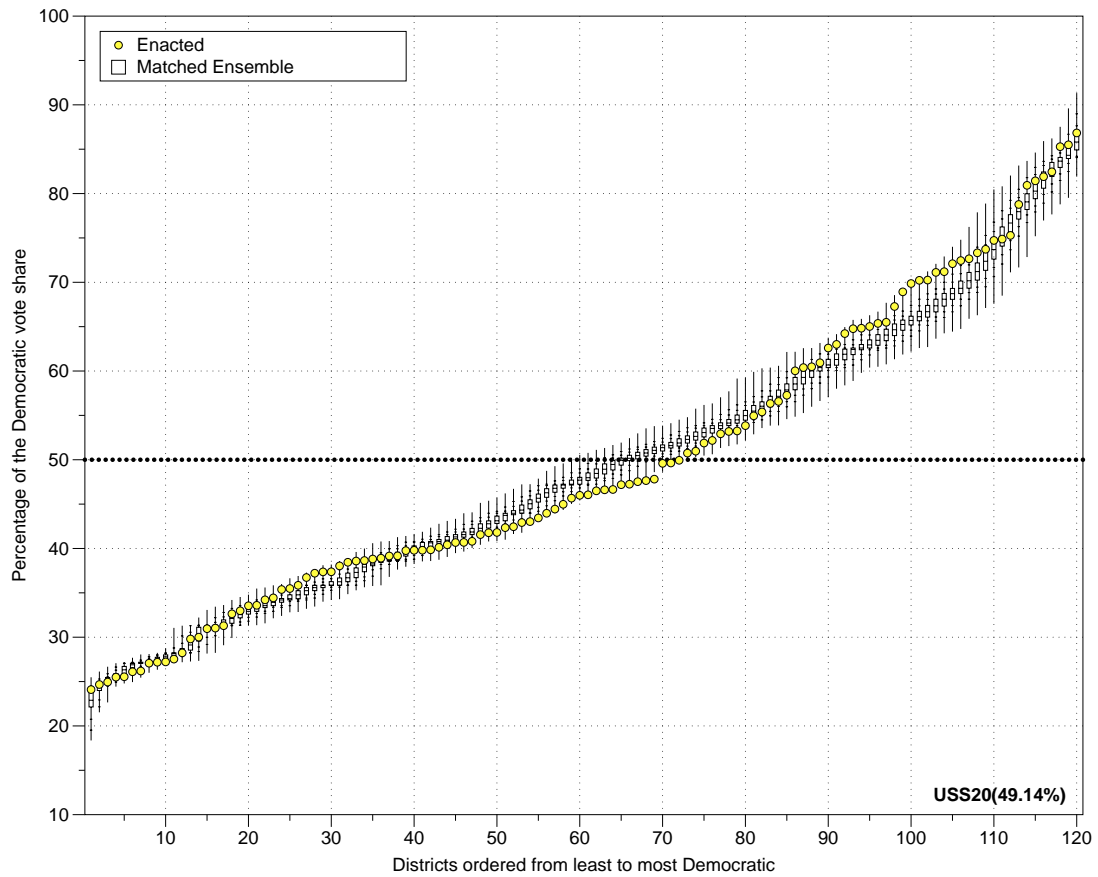
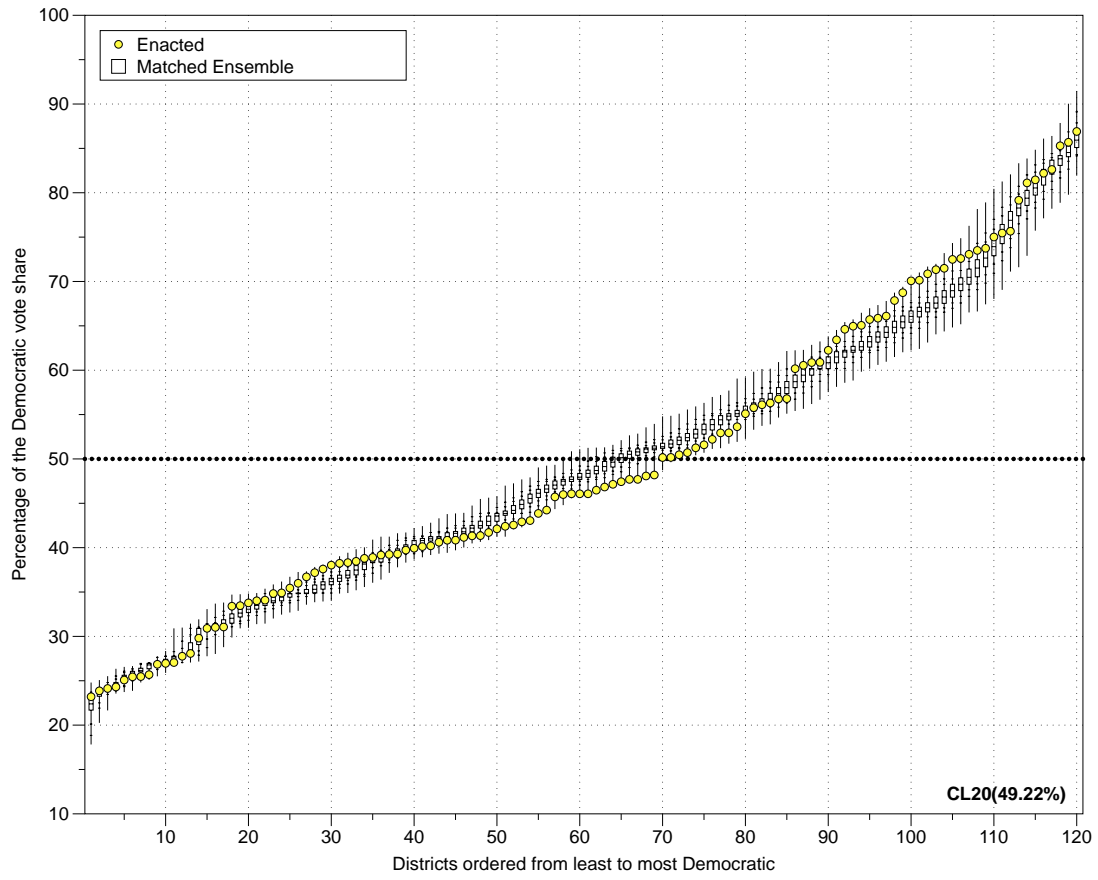
A NC House: Ranked-Ordered Marginal Boxplots

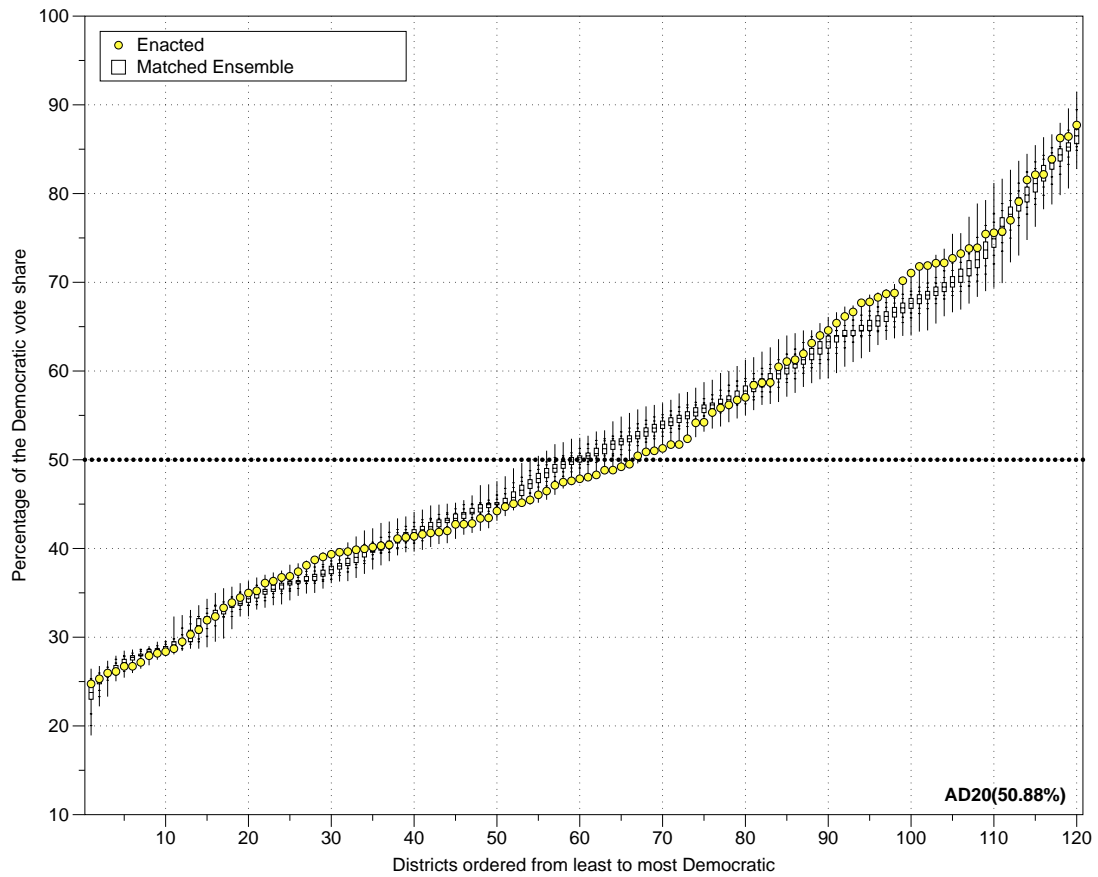
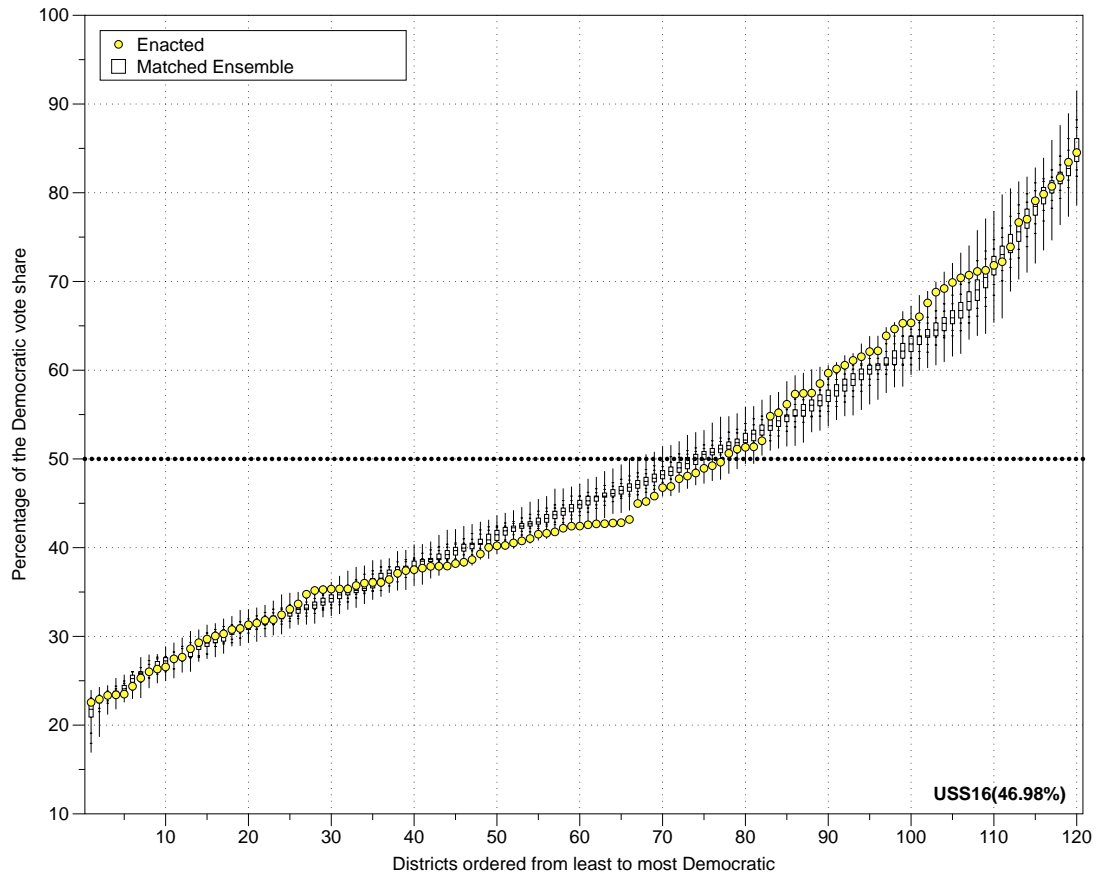


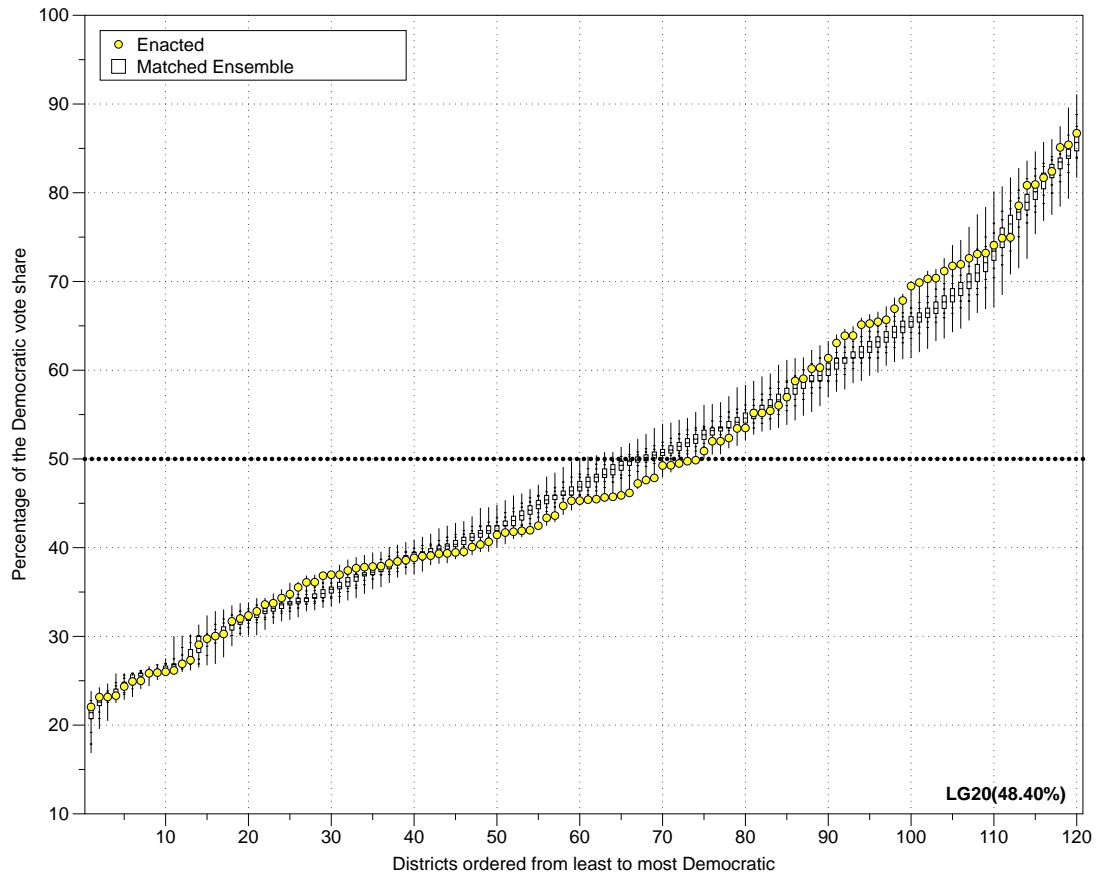




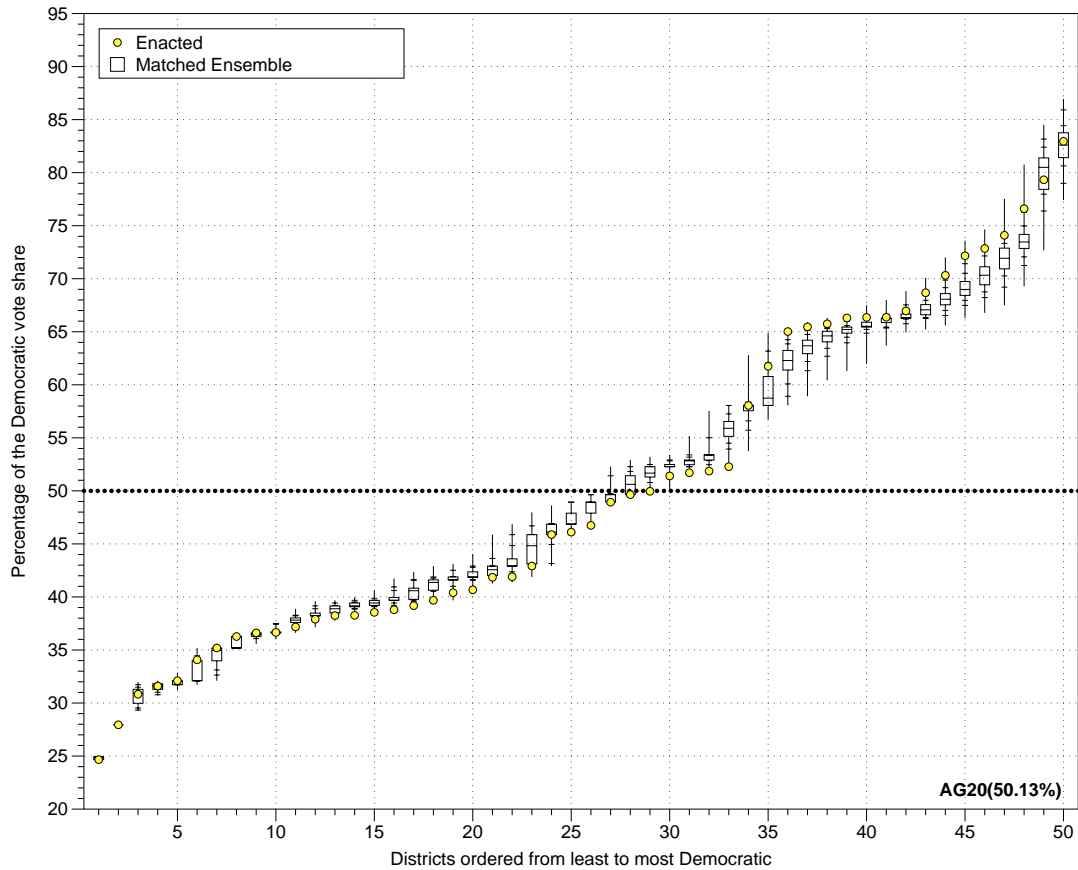
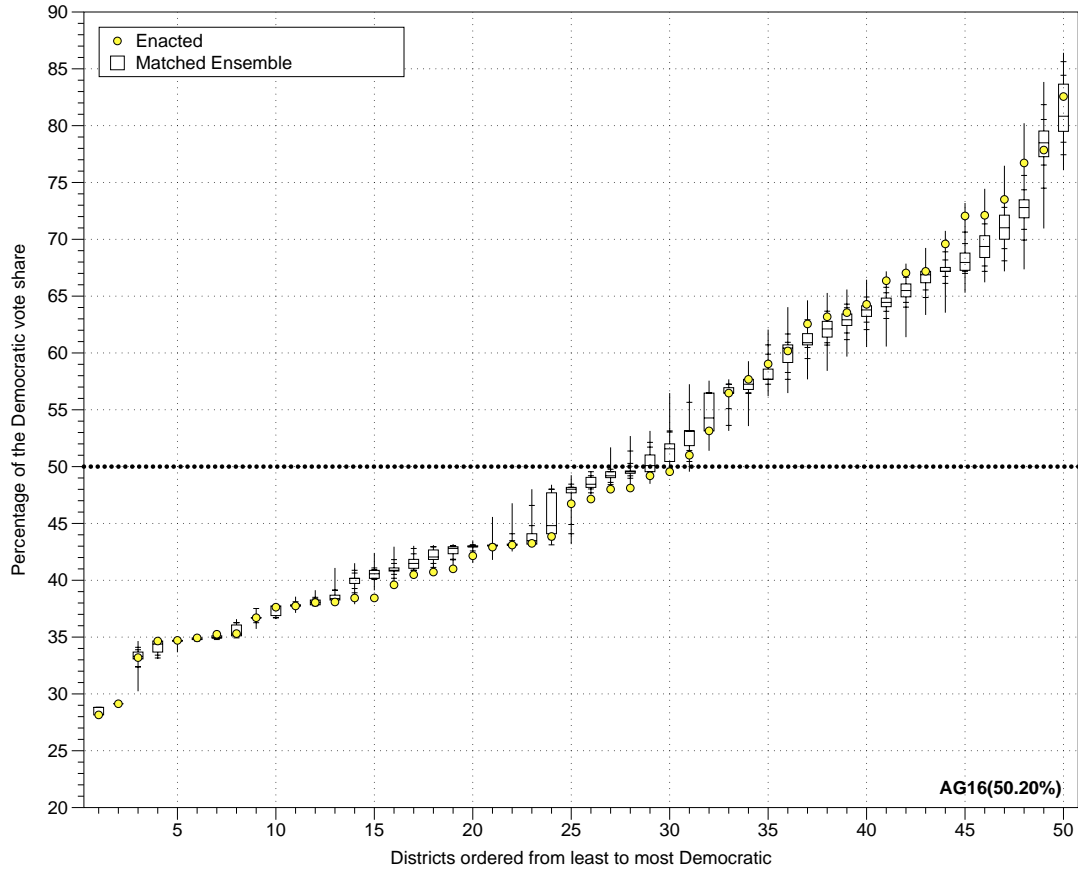


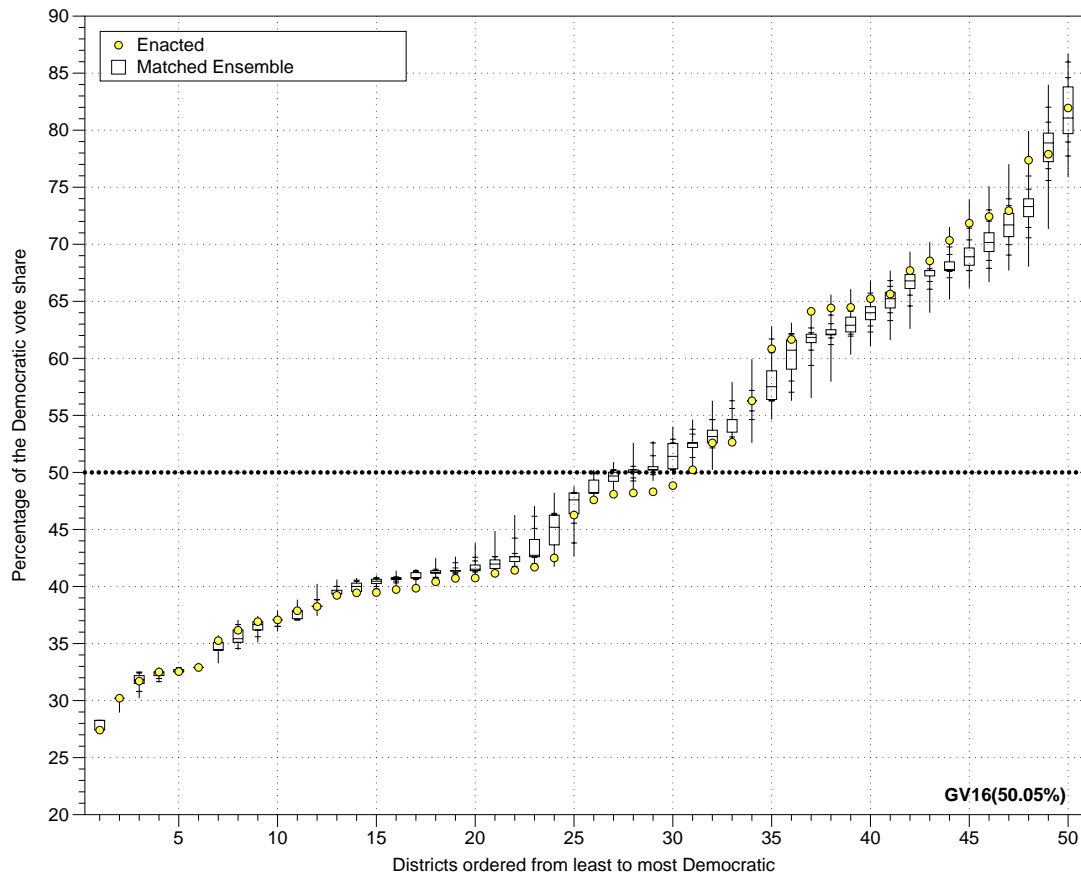
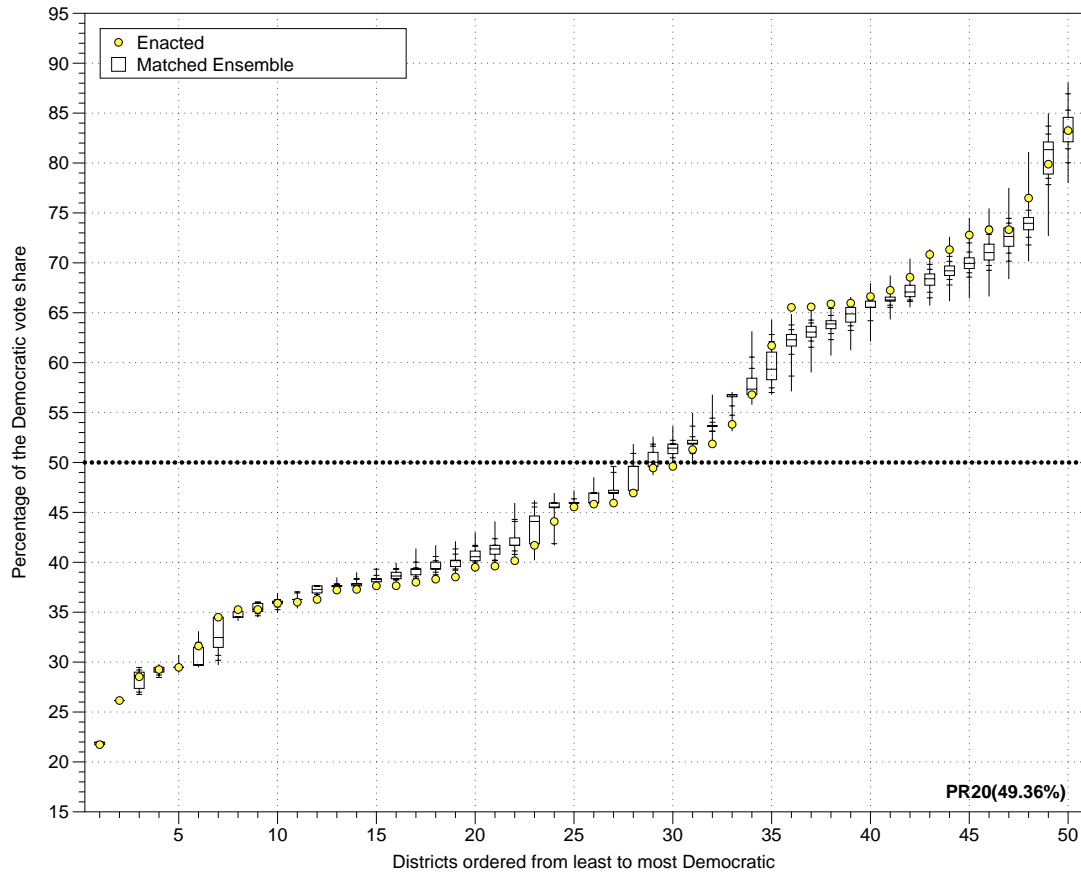


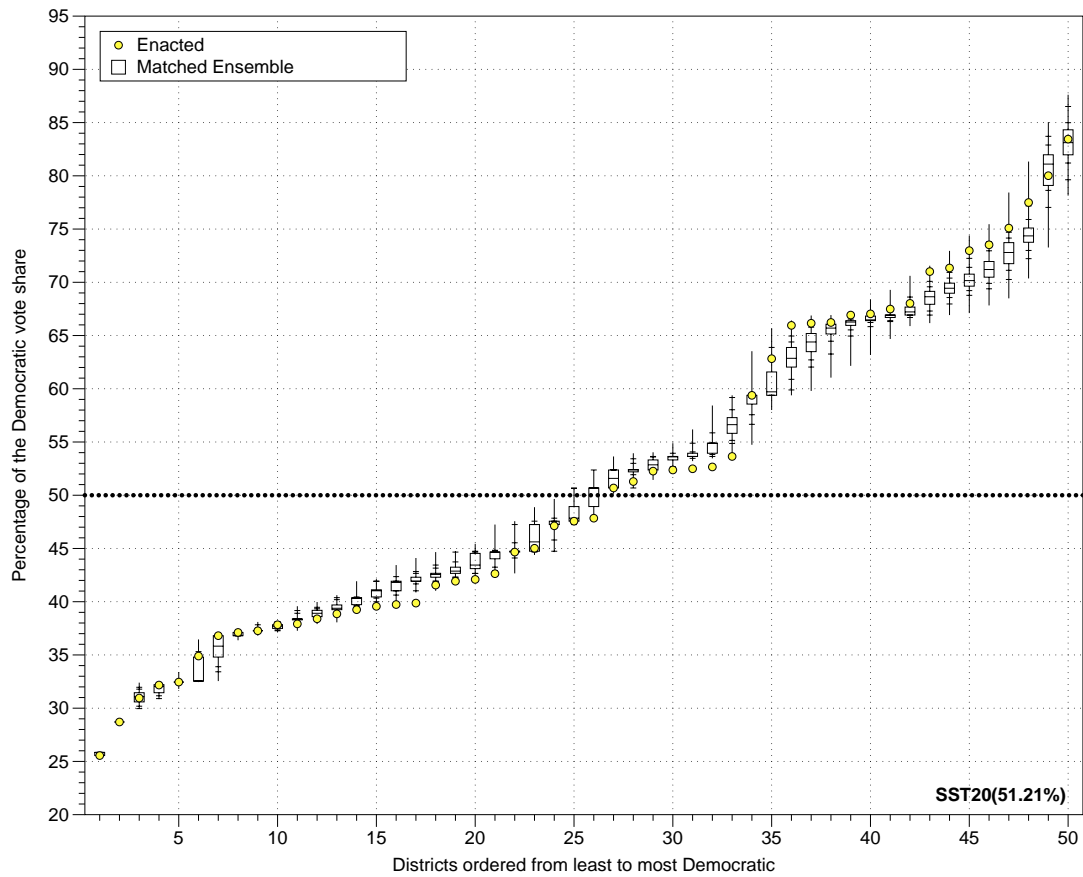
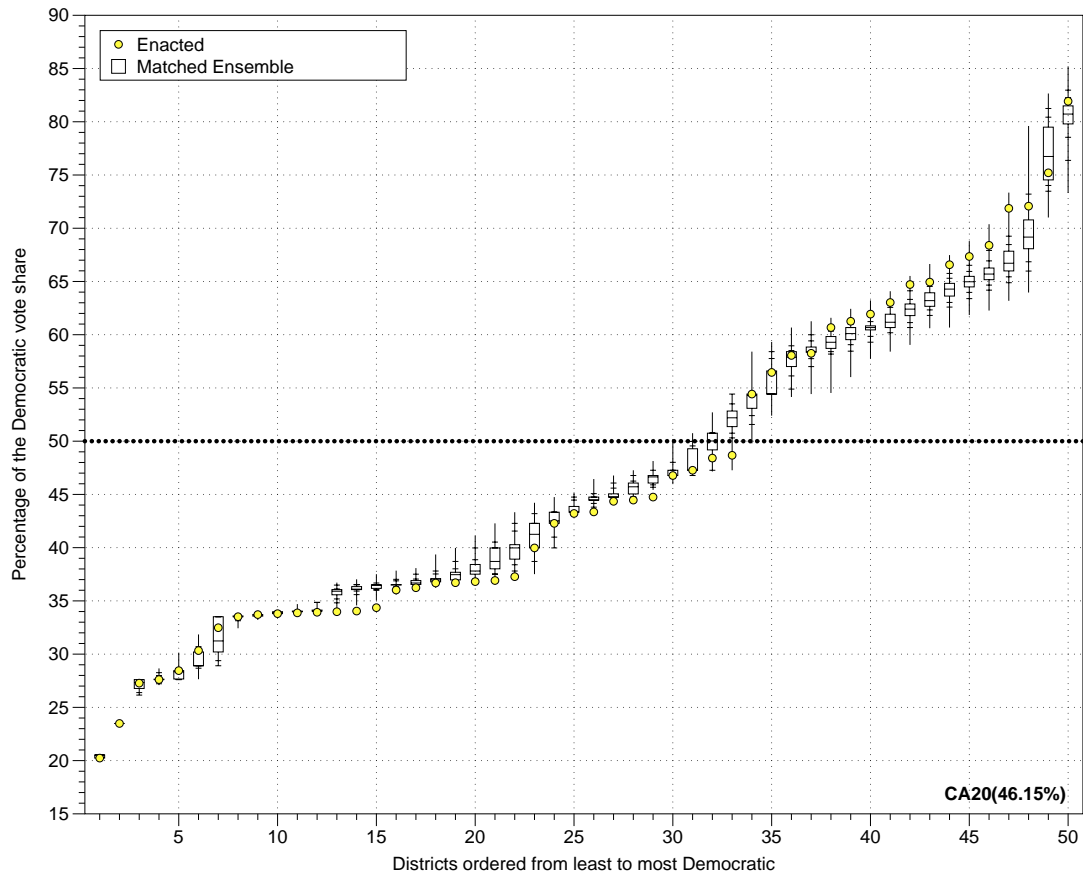


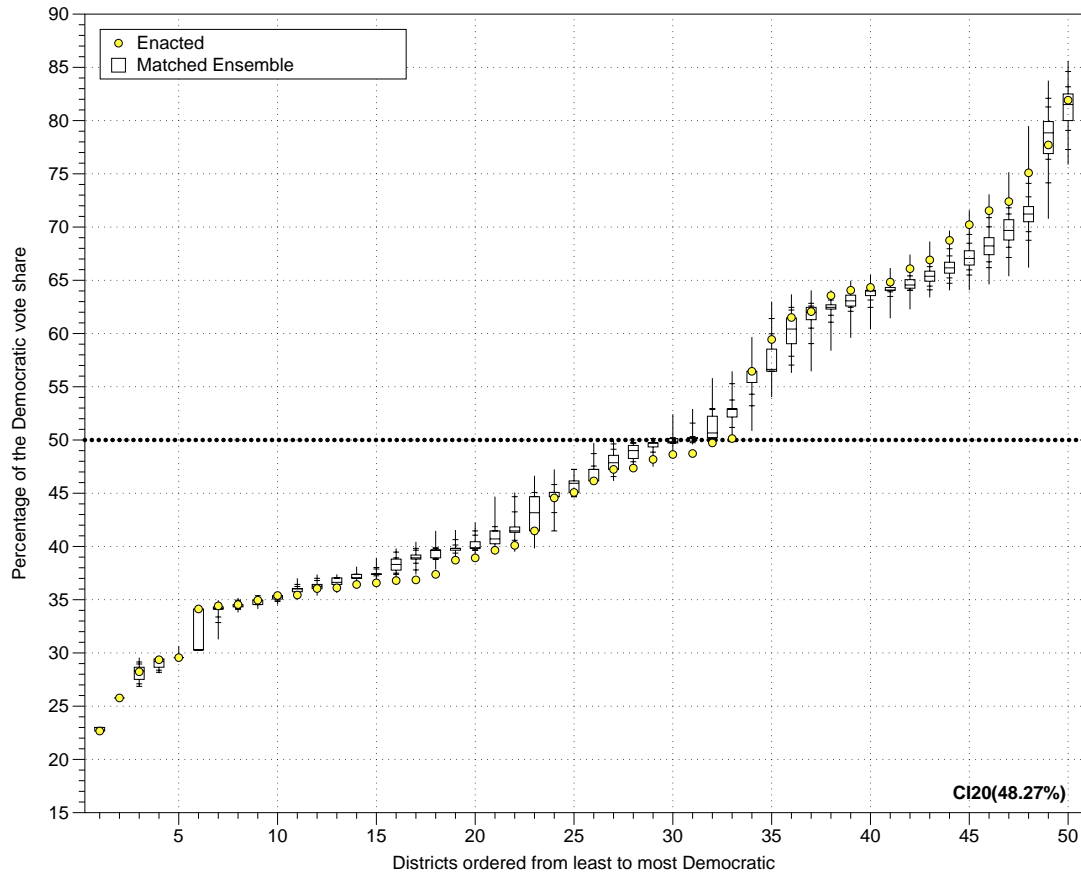
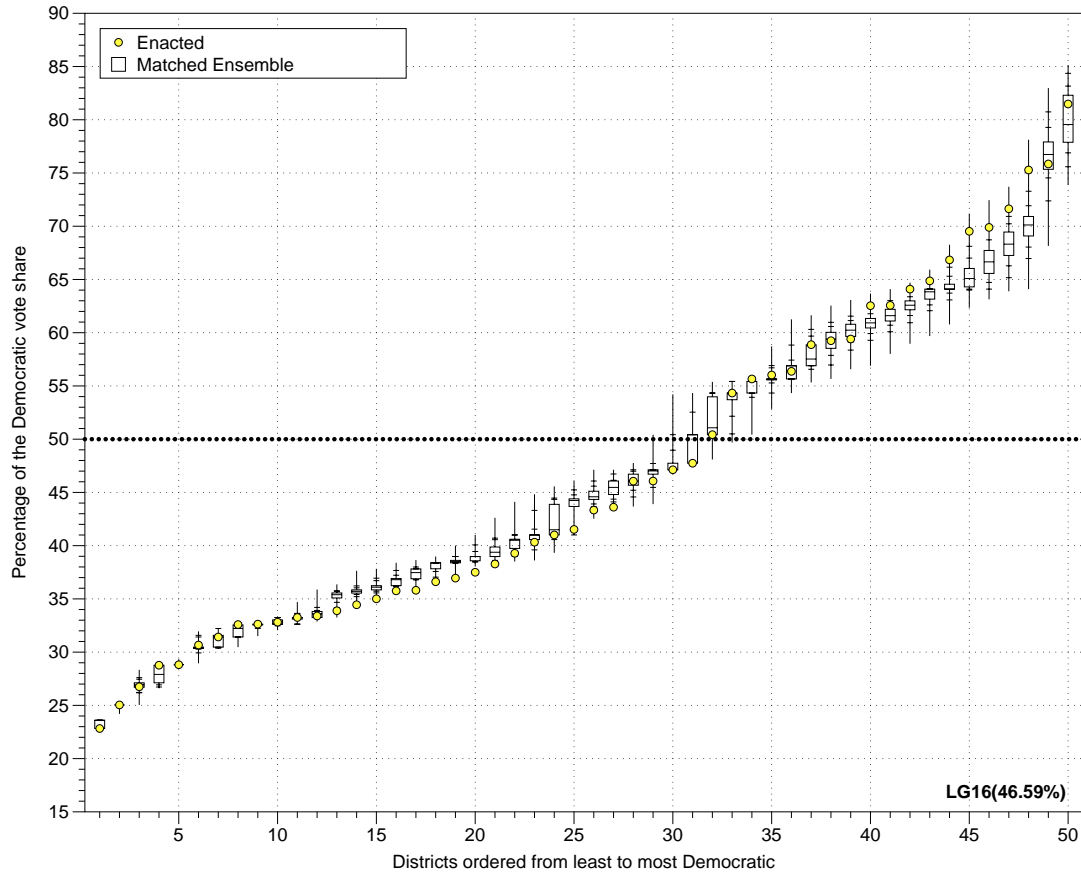


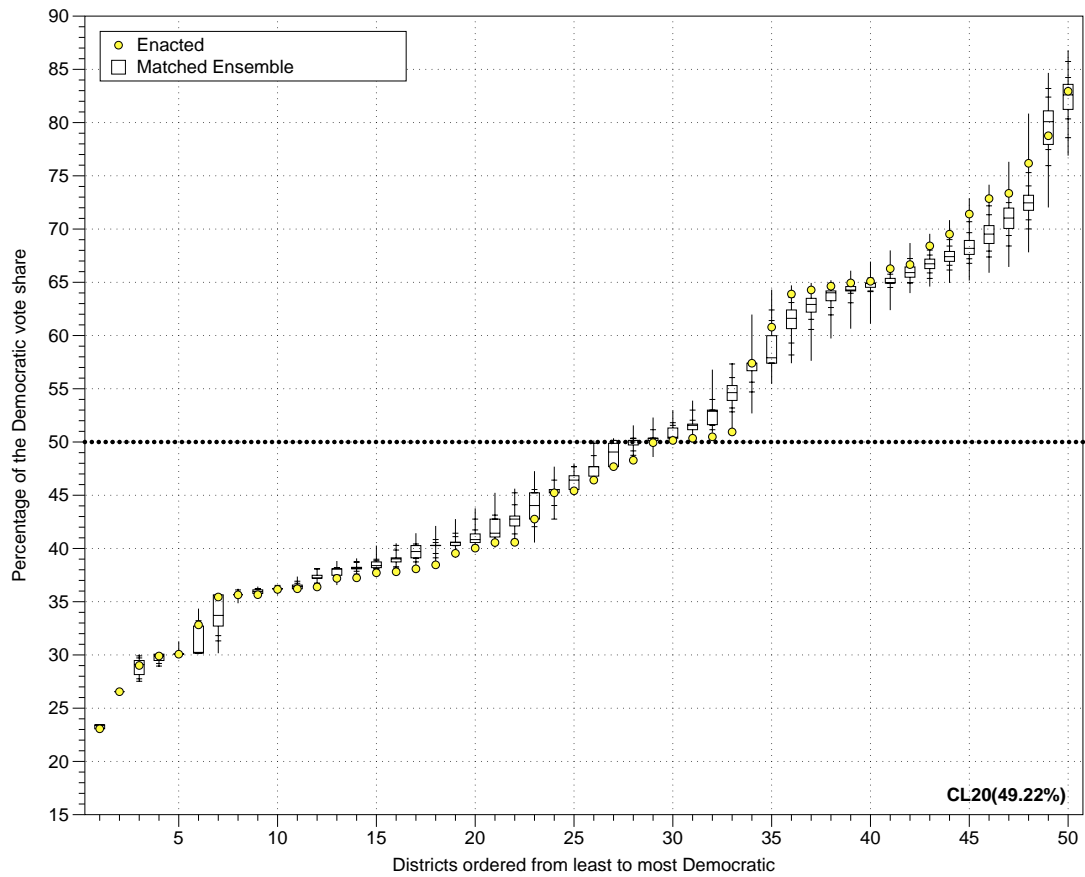
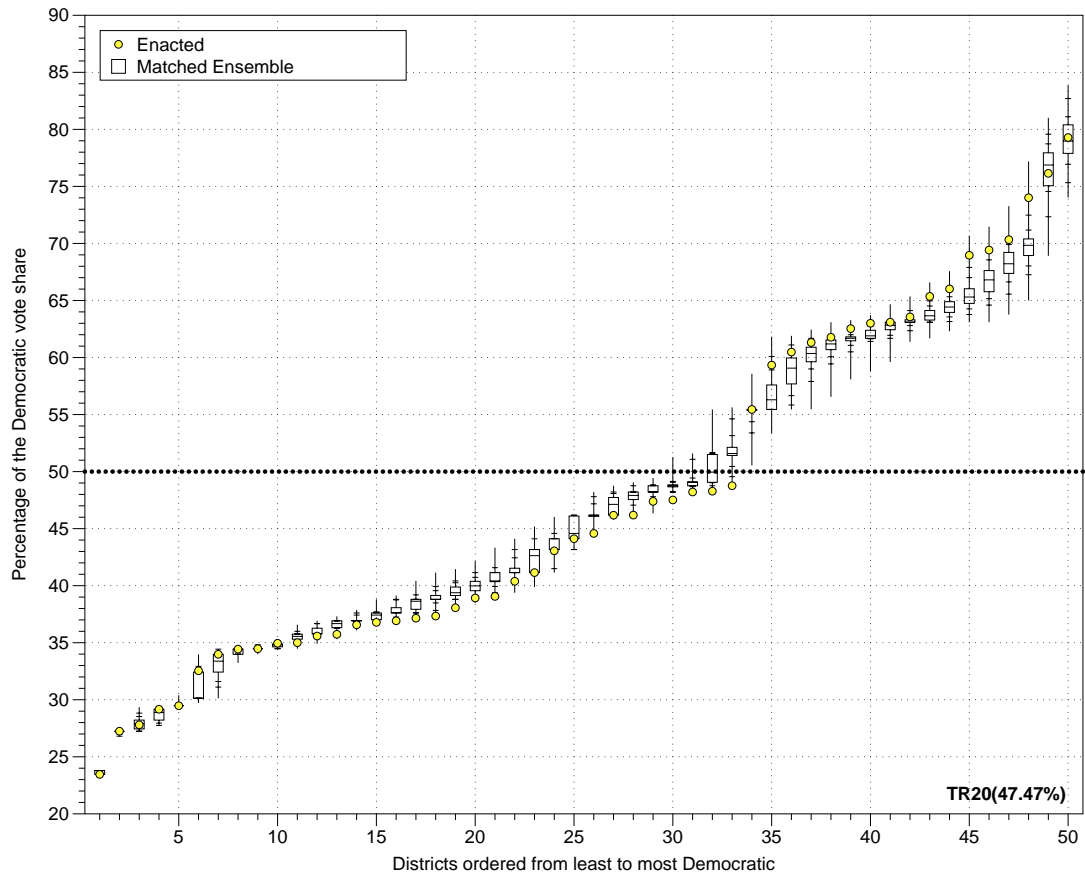
B NC Senate: Ranked-Ordered Marginal Boxplots

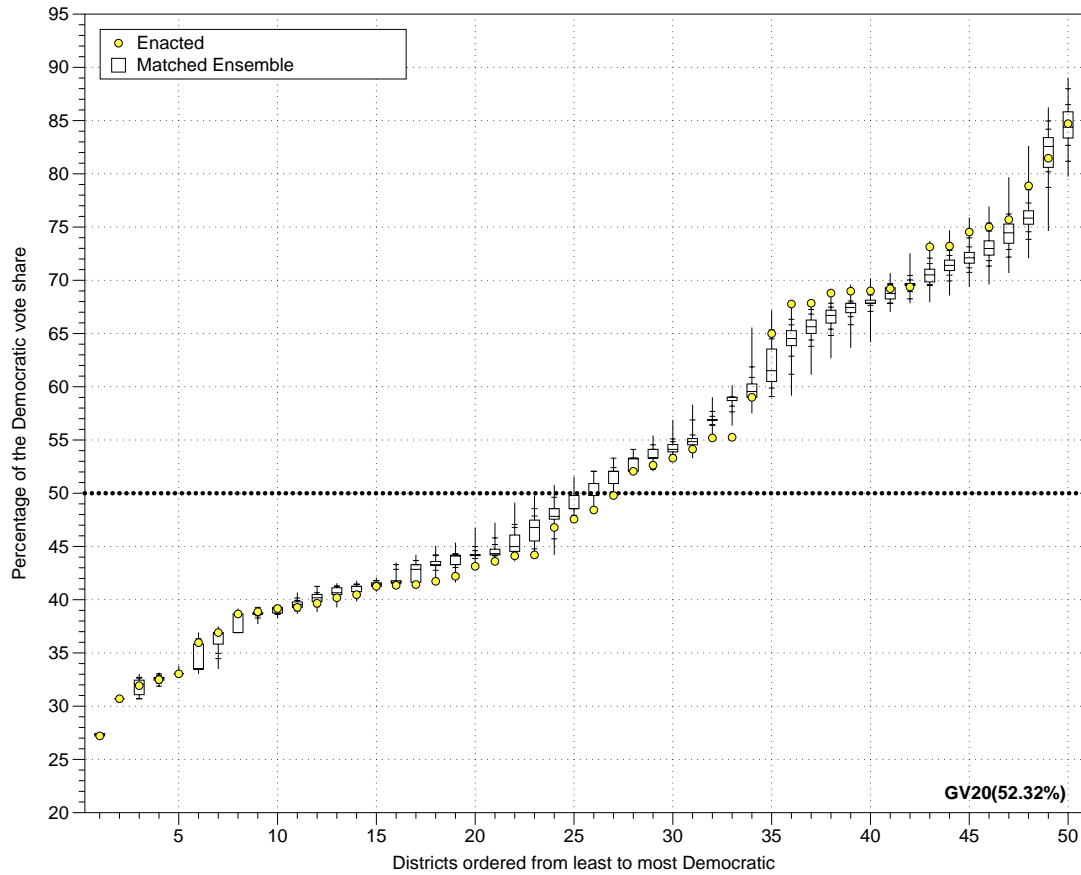
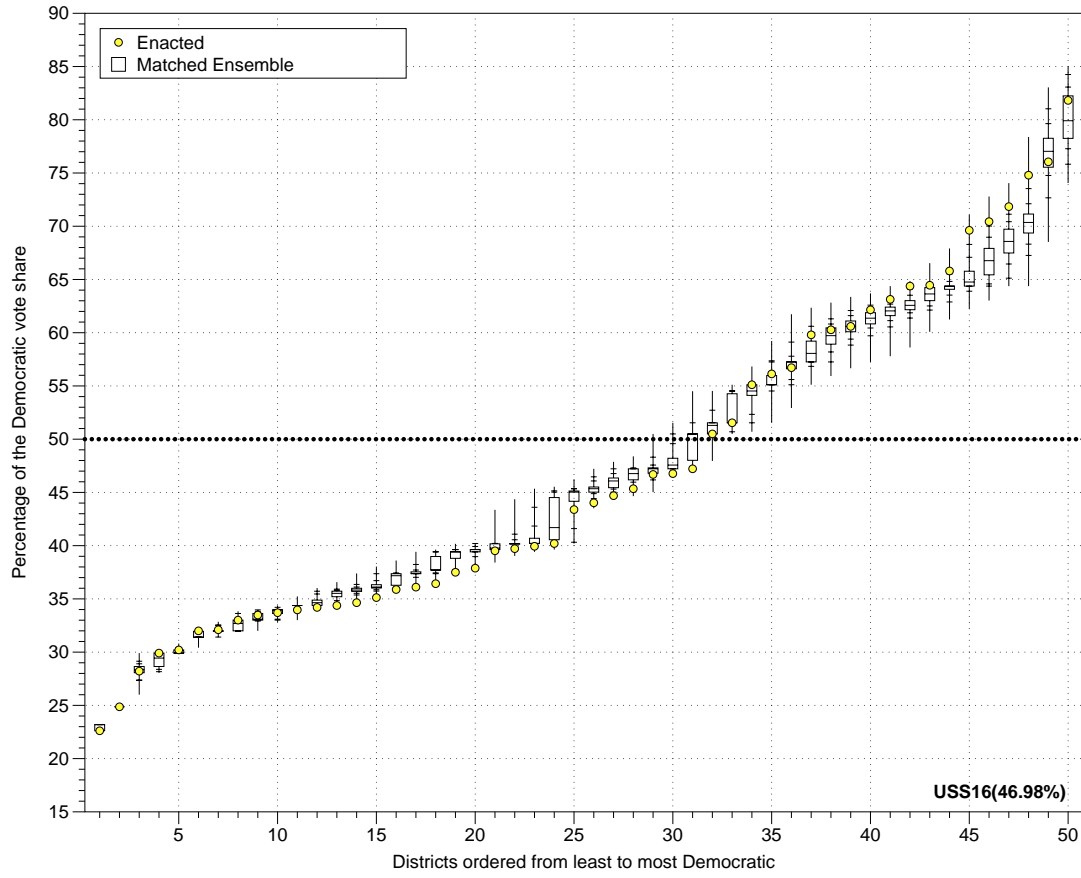


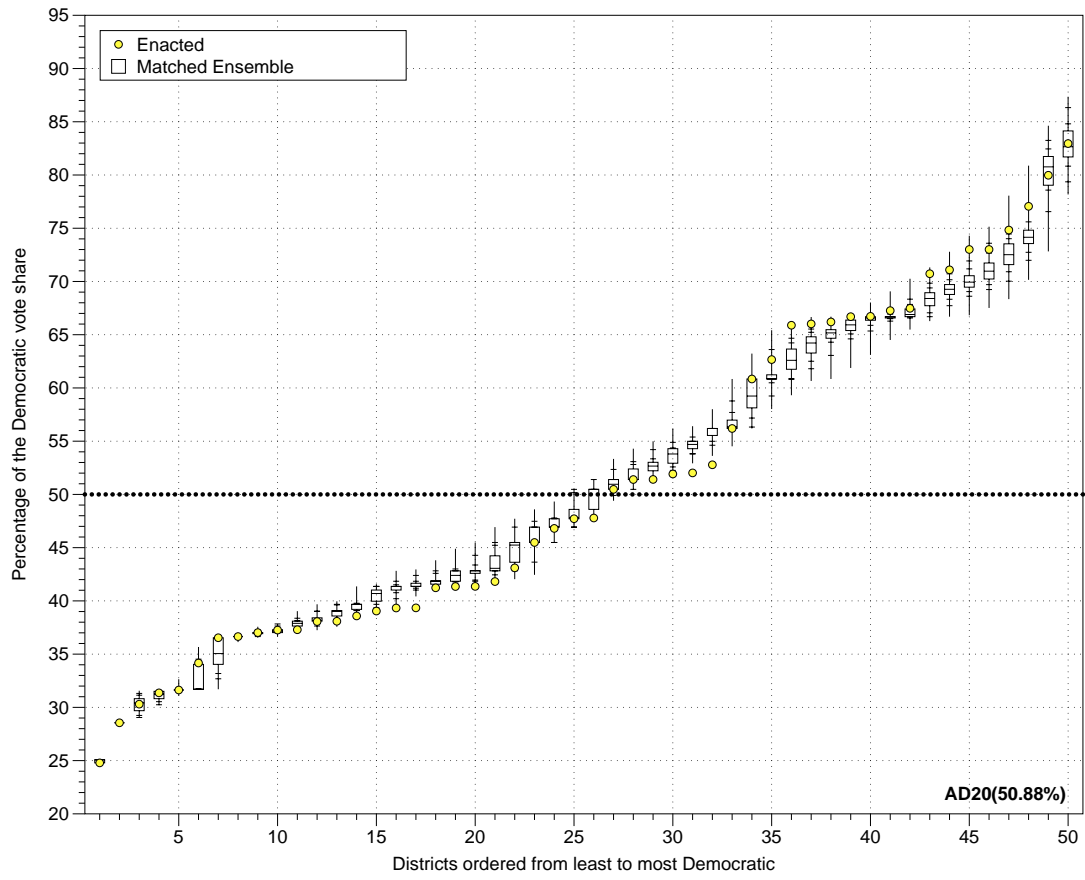












C NC House: Additional Plots

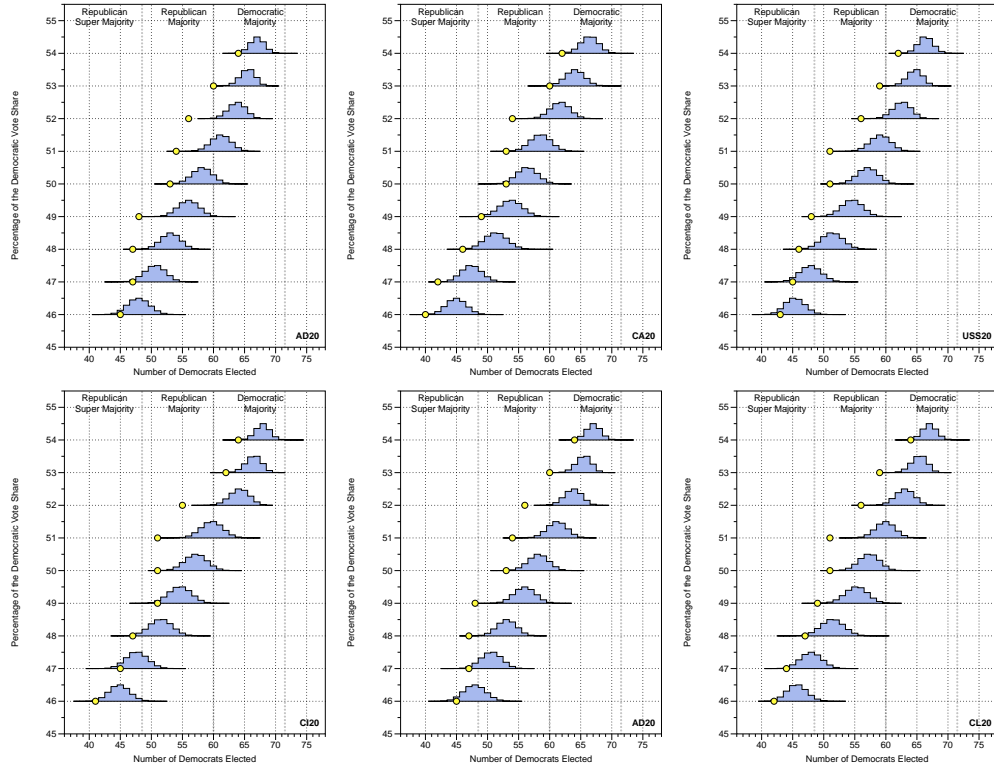


Figure C.0.1: The Collected Seat Histograms for the Primary Ensemble on the NC House built from a collection of voting data generated via uniform swing.

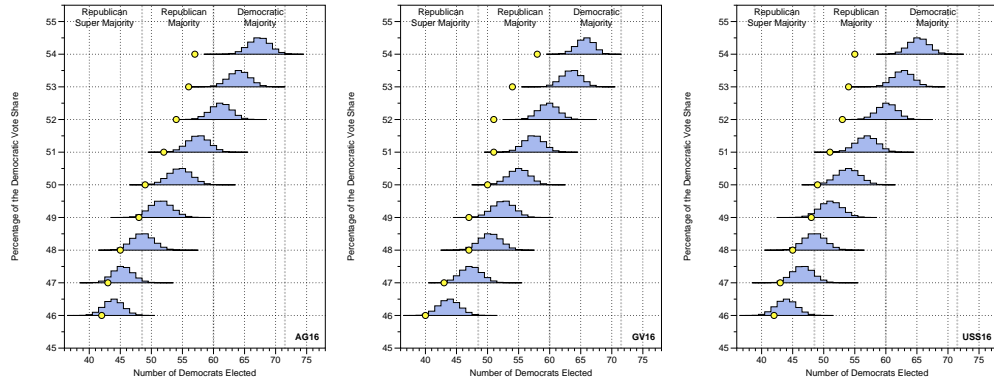


Figure C.0.2: The Collected Seat Histograms for the Primary Ensemble on the NC House built from a collection of voting data generated via uniform swing.

D NC Senate: Additional Plots

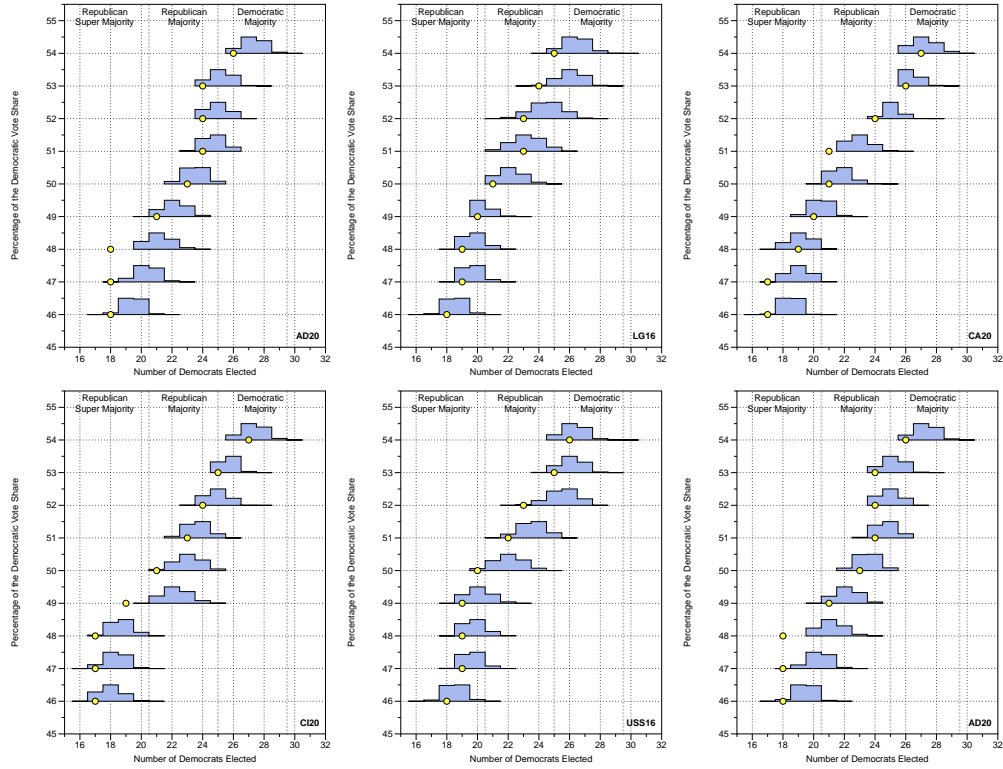


Figure D.0.1: The Collected Seat Histograms for the Primary Ensemble on the NC Senate built from a collection of voting data generated via uniform swing.

E NC Congressional: Ranked-Ordered Marginal Boxplots

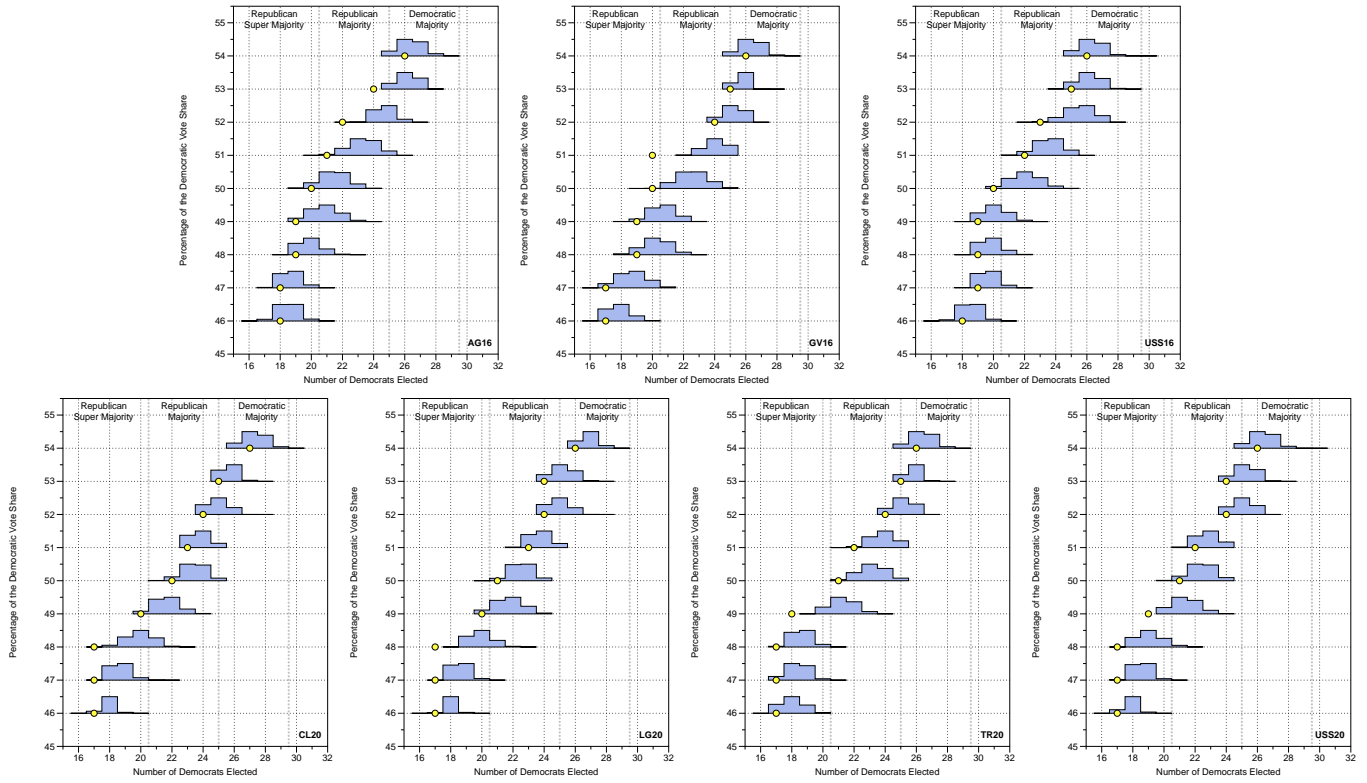


Figure D.0.2: The Collected Seat Histograms for the Primary Ensemble on the NC Senate built from a collection of voting data generated via uniform swing.

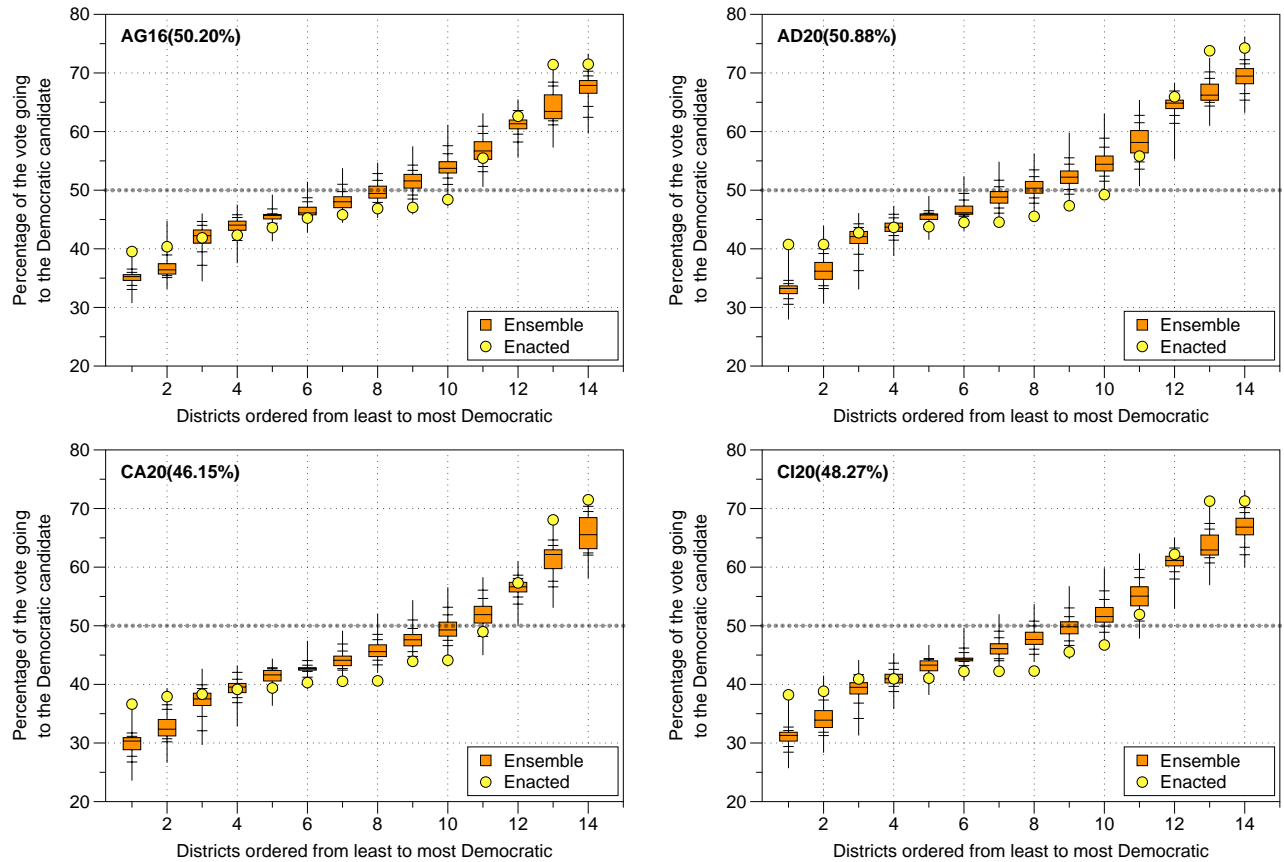


Figure E.0.1: something

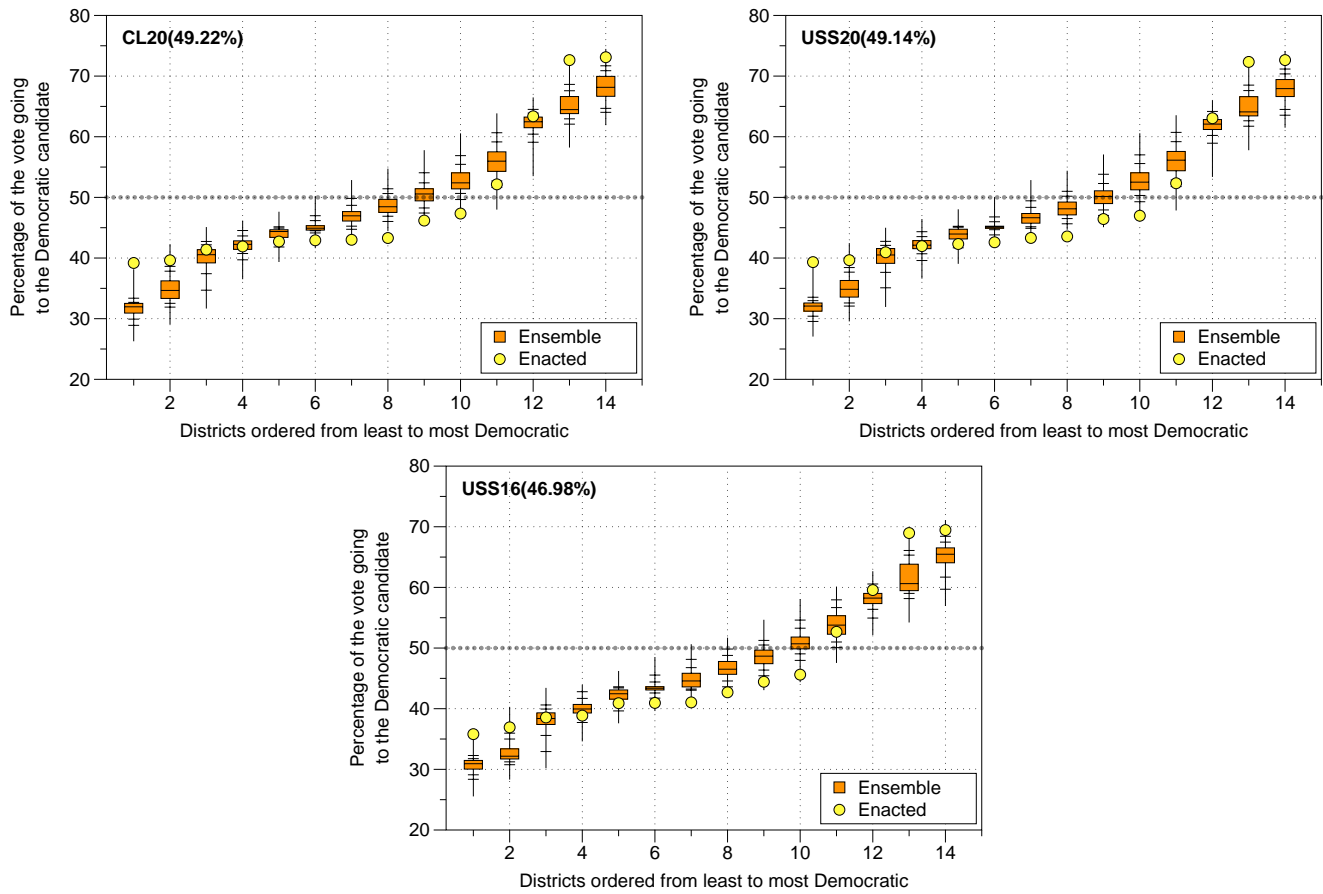


Figure E.0.2: something

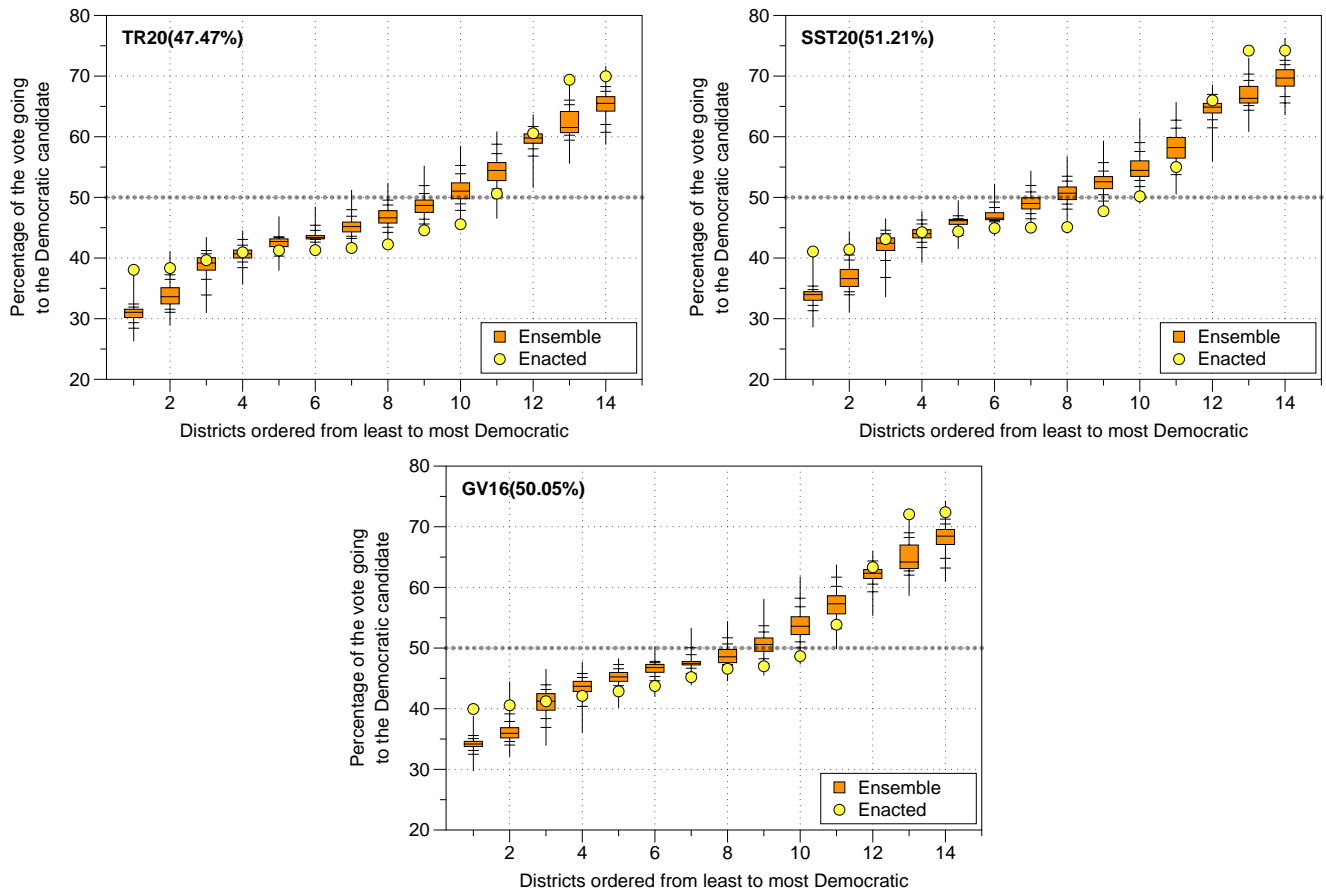


Figure E.0.3: something

Election	No. plans w/ \leq Dems (First Cluster)	% of plans w/ \leq Dems (First Cluster)	No. plans w/ \geq Dems (Second Cluster)	% of plans w/ \geq Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
LG16	13507	16.9	16380	20.5	79997	1	2
PR16	23688	29.6	25268	31.6	79997	1	2
AD20	7579	9.47	13561	17.0	79997	1	2
AG20	8831	11.0	14968	18.7	79997	1	2
CA20	7818	9.77	12779	16.0	79997	1	2
CL20	8308	10.4	14272	17.8	79997	1	2
GV20	14684	18.4	19730	24.7	79997	1	2
LG20	10040	12.6	15902	19.9	79997	1	2
PR20	15099	18.9	19674	24.6	79997	1	2
SST20	9265	11.6	15681	19.6	79997	1	2
TR20	10164	12.7	16049	20.1	79997	1	2
USS20	11197	14.0	16428	20.5	79997	1	2

Table 5: Alamance; house

Election	No. plans w/ \leq Dems (First Cluster)	% of plans w/ \leq Dems (First Cluster)	No. plans w/ \geq Dems (Second Cluster)	% of plans w/ \geq Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
LG16	384	0.48	2281	2.85	79997	2 3	4
PR16	288	0.36	4743	5.93	79997	2 3	4
AD20	72	0.09	5122	6.4	79997	2 3	4
AG20	64	0.08	5154	6.44	79997	2 3	4
CA20	48	0.06	4227	5.28	79997	2 3	4
CL20	56	0.07	4995	6.24	79997	2 3	4
GV20	200	0.25	6254	7.82	79997	2 3	4
LG20	80	0.1	5107	6.38	79997	2 3	4
PR20	128	0.16	5842	7.3	79997	2 3	4
SST20	72	0.09	5418	6.77	79997	2 3	4
TR20	80	0.1	4755	5.94	79997	2 3	4
USS20	56	0.07	4334	5.42	79997	2 3	4

Table 6: Brunswick-New Hanover; house

F Cluster-by-cluster outlier analysis

We quantify the visual trends seen in the cluster-by-cluster ordered marginal vote distributions. Similar to the analysis in Table 4, we group ranked districts and inquire how many plans in the ensemble have an average Democratic vote fraction that is more toward the extremes than the enacted plan. In general, lower numbers in the tables below signify more atypical clusters.

Election	No. plans w/ \leq Dems (First Cluster)	% of plans w/ \leq Dems (First Cluster)	No. plans w/ \geq Dems (Second Cluster)	% of plans w/ \geq Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
LG16	288	0.36	2406	3.01	79997	1	3
PR16	848	1.06	3910	4.89	79997	1	3
AD20	578	0.723	3738	4.67	79997	1	3
AG20	657	0.821	3711	4.64	79997	1	3
CA20	506	0.633	3072	3.84	79997	1	3
CL20	573	0.716	3578	4.47	79997	1	3
GV20	892	1.12	4803	6.0	79997	1	3
LG20	642	0.803	3699	4.62	79997	1	3
PR20	960	1.2	4790	5.99	79997	1	3
SST20	546	0.683	3305	4.13	79997	1	3
TR20	555	0.694	3295	4.12	79997	1	3
USS20	541	0.676	3404	4.26	79997	1	3

Table 7: Buncombe; house

Election	No. plans w/ \geq Dems (First Cluster)	% of plans w/ \geq Dems (First Cluster)	No. plans w/ \leq Dems (Second Cluster)	% of plans w/ \leq Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
LG16	12935	16.2	12183	15.2	79997	3 4	5
PR16	13057	16.3	5371	6.71	79997	3 4	5
AD20	12585	15.7	1657	2.07	79997	3 4	5
AG20	12230	15.3	2081	2.6	79997	3 4	5
CA20	12445	15.6	1573	1.97	79997	3 4	5
CL20	12411	15.5	1785	2.23	79997	3 4	5
GV20	12167	15.2	1489	1.86	79997	3 4	5
LG20	12312	15.4	1789	2.24	79997	3 4	5
PR20	12320	15.4	921	1.15	79997	3 4	5
SST20	12059	15.1	1709	2.14	79997	3 4	5
TR20	12102	15.1	1537	1.92	79997	3 4	5
USS20	11901	14.9	1669	2.09	79997	3 4	5

Table 8: Cabarrus-Davie-Rowan-Yadkin; house

Election	No. plans w/ \leq Dems (First Cluster)	% of plans w/ \leq Dems (First Cluster)	No. plans w/ \geq Dems (Second Cluster)	% of plans w/ \geq Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
LG16	3767	4.71	13593	17.0	79997	2	3 4
PR16	5414	6.77	13064	16.3	79997	2	3 4
AD20	970	1.21	11880	14.9	79997	2	3 4
AG20	899	1.12	11149	13.9	79997	2	3 4
CA20	833	1.04	11167	14.0	79997	2	3 4
CL20	341	0.426	10790	13.5	79997	2	3 4
GV20	517	0.646	11339	14.2	79997	2	3 4
LG20	346	0.433	10829	13.5	79997	2	3 4
PR20	579	0.724	11315	14.1	79997	2	3 4
SST20	1206	1.51	12333	15.4	79997	2	3 4
TR20	587	0.734	10981	13.7	79997	2	3 4
USS20	360	0.45	10674	13.3	79997	2	3 4

Table 9: Cumberland; house

Election	No. plans w/ \leq Dems (First Cluster)	% of plans w/ \leq Dems (First Cluster)	No. plans w/ \geq Dems (Second Cluster)	% of plans w/ \geq Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
LG16	46063	57.6	46238	57.8	79997	1	2
PR16	43010	53.8	43894	54.9	79997	1	2
AD20	41097	51.4	41193	51.5	79997	1	2
AG20	38601	48.3	38516	48.1	79997	1	2
CA20	39051	48.8	39158	48.9	79997	1	2
CL20	38891	48.6	39038	48.8	79997	1	2
GV20	38179	47.7	38073	47.6	79997	1	2
LG20	38313	47.9	38392	48.0	79997	1	2
PR20	38660	48.3	38492	48.1	79997	1	2
SST20	41059	51.3	40686	50.9	79997	1	2
TR20	38891	48.6	39342	49.2	79997	1	2
USS20	38430	48.0	38734	48.4	79997	1	2

Table 10: Duplin-Wayne; house

Election	No. plans w/ \leq Dems (First Cluster)	% of plans w/ \leq Dems (First Cluster)	No. plans w/ \geq Dems (Second Cluster)	% of plans w/ \geq Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
LG16	0	0.0	2768	3.46	79997	1	3 4
PR16	0	0.0	409	0.511	79997	1	3 4
AD20	0	0.0	274	0.343	79997	1	3 4
AG20	0	0.0	312	0.39	79997	1	3 4
CA20	0	0.0	929	1.16	79997	1	3 4
CL20	0	0.0	417	0.521	79997	1	3 4
GV20	0	0.0	232	0.29	79997	1	3 4
LG20	0	0.0	328	0.41	79997	1	3 4
PR20	0	0.0	96	0.12	79997	1	3 4
SST20	0	0.0	296	0.37	79997	1	3 4
TR20	0	0.0	280	0.35	79997	1	3 4
USS20	0	0.0	497	0.621	79997	1	3 4

Table 11: Durham-Person; house

Election	No. plans w/ \leq Dems (First Cluster)	% of plans w/ \leq Dems (First Cluster)	No. plans w/ \geq Dems (Second Cluster)	% of plans w/ \geq Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
LG16	1	0.00125	659	0.824	79997	1 2 3	4 5
PR16	0	0.0	543	0.679	79997	1 2 3	4 5
AD20	8	0.01	952	1.19	79997	1 2 3	4 5
AG20	11	0.0138	1025	1.28	79997	1 2 3	4 5
CA20	11	0.0138	1032	1.29	79997	1 2 3	4 5
CL20	9	0.0113	995	1.24	79997	1 2 3	4 5
GV20	8	0.01	982	1.23	79997	1 2 3	4 5
LG20	8	0.01	980	1.23	79997	1 2 3	4 5
PR20	8	0.01	893	1.12	79997	1 2 3	4 5
SST20	0	0.0	912	1.14	79997	1 2 3	4 5
TR20	9	0.0113	944	1.18	79997	1 2 3	4 5
USS20	16	0.02	1106	1.38	79997	1 2 3	4 5

Table 12: Forsyth-Stokes; house

Election	No. plans w/ \leq Dems (First Cluster)	% of plans w/ \leq Dems (First Cluster)	No. plans w/ \geq Dems (Second Cluster)	% of plans w/ \geq Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
LG16	0	0.0	0	0.0	79997	1 2	3 4 5 6
PR16	0	0.0	0	0.0	79997	1 2	3 4 5 6
AD20	0	0.0	0	0.0	79997	1 2	3 4 5 6
AG20	0	0.0	0	0.0	79997	1 2	3 4 5 6
CA20	0	0.0	0	0.0	79997	1 2	3 4 5 6
CL20	0	0.0	0	0.0	79997	1 2	3 4 5 6
GV20	0	0.0	0	0.0	79997	1 2	3 4 5 6
LG20	0	0.0	0	0.0	79997	1 2	3 4 5 6
PR20	0	0.0	0	0.0	79997	1 2	3 4 5 6
SST20	0	0.0	0	0.0	79997	1 2	3 4 5 6
TR20	0	0.0	0	0.0	79997	1 2	3 4 5 6
USS20	0	0.0	0	0.0	79997	1 2	3 4 5 6

Table 13: Guilford; house

Election	No. plans w/ \leq Dems (First Cluster)	% of plans w/ \leq Dems (First Cluster)	No. plans w/ \geq Dems (Second Cluster)	% of plans w/ \geq Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
LG16	661	0.826	2	0.0025	79997	1 2 3 4	5 6 7 8
PR16	168	0.21	6	0.0075	79997	1 2 3 4	5 6 7 8
AD20	569	0.711	32	0.04	79997	1 2 3 4	5 6 7 8
AG20	763	0.954	35	0.0438	79997	1 2 3 4	5 6 7 8
CA20	1363	1.7	84	0.105	79997	1 2 3 4	5 6 7 8
CL20	1146	1.43	72	0.09	79997	1 2 3 4	5 6 7 8
GV20	396	0.495	40	0.05	79997	1 2 3 4	5 6 7 8
LG20	700	0.875	36	0.045	79997	1 2 3 4	5 6 7 8
PR20	202	0.253	19	0.0238	79997	1 2 3 4	5 6 7 8
SST20	496	0.62	29	0.0363	79997	1 2 3 4	5 6 7 8
TR20	975	1.22	88	0.11	79997	1 2 3 4	5 6 7 8
USS20	1082	1.35	69	0.0863	79997	1 2 3 4	5 6 7 8

Table 14: Mecklenburg; house

Election	No. plans w/ \leq Dems (First Cluster)	% of plans w/ \leq Dems (First Cluster)	No. plans w/ \geq Dems (Second Cluster)	% of plans w/ \geq Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
LG16	1194	1.49	899	1.12	79997	1	2
PR16	2115	2.64	1829	2.29	79997	1	2
AD20	8230	10.3	4317	5.4	79997	1	2
AG20	4434	5.54	2326	2.91	79997	1	2
CA20	2295	2.87	1334	1.67	79997	1	2
CL20	4069	5.09	2163	2.7	79997	1	2
GV20	6311	7.89	3379	4.22	79997	1	2
LG20	4123	5.15	2222	2.78	79997	1	2
PR20	6573	8.22	3564	4.46	79997	1	2
SST20	5386	6.73	2656	3.32	79997	1	2
TR20	4243	5.3	2177	2.72	79997	1	2
USS20	3799	4.75	2074	2.59	79997	1	2

Table 15: Pitt; house

Election	No. plans w/ ≤ Dems (First Cluster)	% of plans w/ ≤ Dems (First Cluster)	No. plans w/ ≥ Dems (Second Cluster)	% of plans w/ ≥ Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
LG16	209	0.261	6107	7.63	79997	1 2	3 4 5 6 7 8 9
PR16	160	0.2	4317	5.4	79997	1 2	3 4 5 6 7 8 9
AD20	240	0.3	4968	6.21	79997	1 2	3 4 5 6 7 8 9
AG20	230	0.288	4728	5.91	79997	1 2	3 4 5 6 7 8 9
CA20	1151	1.44	15113	18.9	79997	1 2	3 4 5 6 7 8 9
CL20	337	0.421	6643	8.3	79997	1 2	3 4 5 6 7 8 9
GV20	225	0.281	3777	4.72	79997	1 2	3 4 5 6 7 8 9
LG20	298	0.373	5552	6.94	79997	1 2	3 4 5 6 7 8 9
PR20	241	0.301	4462	5.58	79997	1 2	3 4 5 6 7 8 9
SST20	291	0.364	4572	5.72	79997	1 2	3 4 5 6 7 8 9
TR20	377	0.471	7229	9.04	79997	1 2	3 4 5 6 7 8 9
USS20	354	0.443	6912	8.64	79997	1 2	3 4 5 6 7 8 9

Table 16: Wake; house

Election	No. plans w/ ≤ Dems (First Cluster)	% of plans w/ ≤ Dems (First Cluster)	No. plans w/ ≥ Dems (Second Cluster)	% of plans w/ ≥ Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
LG16	48	0.06	0	0.0	79997	1	2
PR16	48	0.06	48	0.06	79997	1	2
AD20	48	0.06	48	0.06	79997	1	2
AG20	48	0.06	48	0.06	79997	1	2
CA20	48	0.06	48	0.06	79997	1	2
CL20	48	0.06	48	0.06	79997	1	2
GV20	48	0.06	48	0.06	79997	1	2
LG20	48	0.06	48	0.06	79997	1	2
PR20	48	0.06	48	0.06	79997	1	2
SST20	48	0.06	48	0.06	79997	1	2
TR20	48	0.06	48	0.06	79997	1	2
USS20	48	0.06	48	0.06	79997	1	2

Table 17: Cumberland-Moore; senate

Election	No. plans w/ \leq Dems (First Cluster)	% of plans w/ \leq Dems (First Cluster)	No. plans w/ \geq Dems (Second Cluster)	% of plans w/ \geq Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
LG16	855	1.07	3472	4.34	79997	1	2
PR16	600	0.75	1822	2.28	79997	1	2
AD20	506	0.633	1745	2.18	79997	1	2
AG20	595	0.744	2455	3.07	79997	1	2
CA20	570	0.713	2521	3.15	79997	1	2
CL20	550	0.688	2191	2.74	79997	1	2
GV20	471	0.589	1496	1.87	79997	1	2
LG20	485	0.606	1967	2.46	79997	1	2
PR20	447	0.559	1392	1.74	79997	1	2
SST20	515	0.644	1827	2.28	79997	1	2
TR20	646	0.808	2696	3.37	79997	1	2
USS20	498	0.623	2174	2.72	79997	1	2

Table 18: Forsyth-Stokes; senate

Election	No. plans w/ \leq Dems (First Cluster)	% of plans w/ \leq Dems (First Cluster)	No. plans w/ \geq Dems (Second Cluster)	% of plans w/ \geq Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
LG16	0	0.0	6	0.015	39991	1 2	3 4 5 6
PR16	0	0.0	3	0.0075	39991	1 2	3 4 5 6
AD20	0	0.0	0	0.0	39991	1 2	3 4 5 6
AG20	0	0.0	0	0.0	39991	1 2	3 4 5 6
CA20	0	0.0	9	0.0225	39991	1 2	3 4 5 6
CL20	0	0.0	4	0.01	39991	1 2	3 4 5 6
GV20	0	0.0	0	0.0	39991	1 2	3 4 5 6
LG20	0	0.0	0	0.0	39991	1 2	3 4 5 6
PR20	0	0.0	0	0.0	39991	1 2	3 4 5 6
SST20	0	0.0	0	0.0	39991	1 2	3 4 5 6
TR20	0	0.0	5	0.0125	39991	1 2	3 4 5 6
USS20	0	0.0	4	0.01	39991	1 2	3 4 5 6

Table 19: Granville-Wake; senate

Election	No. plans w/ \leq Dems (First Cluster)	% of plans w/ \leq Dems (First Cluster)	No. plans w/ \geq Dems (Second Cluster)	% of plans w/ \geq Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
LG16	0	0.0	13	0.0163	79997	1	3
PR16	0	0.0	13	0.0163	79997	1	3
AD20	0	0.0	54	0.0675	79997	1	3
AG20	0	0.0	33	0.0413	79997	1	3
CA20	0	0.0	15	0.0188	79997	1	3
CL20	0	0.0	23	0.0288	79997	1	3
GV20	0	0.0	56	0.07	79997	1	3
LG20	0	0.0	22	0.0275	79997	1	3
PR20	0	0.0	59	0.0738	79997	1	3
SST20	0	0.0	32	0.04	79997	1	3
TR20	0	0.0	20	0.025	79997	1	3
USS20	0	0.0	23	0.0288	79997	1	3

Table 20: Guilford-Rockingham; senate

Election	No. plans w/ \leq Dems (First Cluster)	% of plans w/ \leq Dems (First Cluster)	No. plans w/ \geq Dems (Second Cluster)	% of plans w/ \geq Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
LG16	0	0.0	0	0.0	79997	1 2	3 4 5 6
PR16	0	0.0	0	0.0	79997	1 2	3 4 5 6
AD20	0	0.0	0	0.0	79997	1 2	3 4 5 6
AG20	0	0.0	0	0.0	79997	1 2	3 4 5 6
CA20	0	0.0	8	0.01	79997	1 2	3 4 5 6
CL20	0	0.0	0	0.0	79997	1 2	3 4 5 6
GV20	0	0.0	0	0.0	79997	1 2	3 4 5 6
LG20	0	0.0	0	0.0	79997	1 2	3 4 5 6
PR20	0	0.0	0	0.0	79997	1 2	3 4 5 6
SST20	0	0.0	0	0.0	79997	1 2	3 4 5 6
TR20	0	0.0	8	0.01	79997	1 2	3 4 5 6
USS20	0	0.0	0	0.0	79997	1 2	3 4 5 6

Table 21: Iredell-Mecklenburg; senate

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I declare under penalty of perjury under the laws of the state of North Carolina that the foregoing is true and correct to the best of my knowledge.

Jonathan Mattingly, 12/23/2021

Response to Expert Report by Dr. Barber on the North Carolina State Legislature Redistricting Plans

Jonathan C. Mattingly

December 28, 2021

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1 Introduction

The report by Dr. Michael Barber begins with a discussion of the political geography of the state of North Carolina. He emphasizes the heterogeneity of the state. While he points out the strengths of ensemble methods to separate the effect of natural clustering of votes and other effects due to political geography, Dr. Barber limits its use to analysis of the individual county clusters. Similarly, though he uses a collection of election data at the cluster level, he does not consider a diverse collection of election analyses both at the cluster level and when performing his statewide analysis. Rather, he restricts himself to a single summary statistic, namely, counting the number of Democratic-leaning districts at the individual cluster level based primarily on a composite election obtained through averaging several past statewide elections.

We complete the missing parts of Dr. Barber’s analysis using data directly from his report when possible. When needed, we augment this data with an ensemble of maps obtained by running Dr. Barber’s code. From this completed analysis, we see that Dr. Barber’s ensemble shows both the Enacted NC House and the Enacted NC Senate to be extreme partisan outliers with a clear and systematic tilt in favor of electing Republicans.

When we focus on the structure of the enacted maps in the county clusters under Dr. Barber’s analysis, we again see the same structures we observed using the Primary Ensembles from our initial report. These structures showed the enacted map to be an extreme outlier. Due to time constraints, we did not complete cluster level analysis on all clusters using Dr. Barber’s simulations; we have, however, performed a cluster level analysis on a diverse collection of clusters in the NC House. Our cluster level analysis considers not only seat counts, but also the margins of victory within those seats. By examining the margins, we identify extreme partisan behavior at the cluster level using the very sampling code that Dr. Barber created.

We conclude that Dr. Barber’s ensembles provide another independent verification that the enacted plans for the NC House and NC Senate are extreme gerrymanders.

2 Comment on Political Geography of State

In Section 3 of Dr. Barber’s report, he discusses the political geography of the state. He made a number of statewide evaluations of the partisan structure using a single average of 11 statewide elections from 2014-2020. As his analysis in

later sections makes clear, the political climate varies significantly from year to year and election to election. The average of these elections creates a new set of voting data, possibly quite distinct from those averaged to create it. I see no reason to elevate the behavior and properties of a map under the one particular political environment signified by this vote over other elections. It is important that the map used to translate our election votes into elected officials act in a non-biased way across a number of elections which represent different political climates seen in North Carolina, not just one.

In the rest of the report, Dr. Barber does switch to considering a number of distinct elections. However, he does not return to any aggregate statewide discussion using these individual elections and the diversity of election environments they represent. He does firmly endorse the use of a computer drawn ensemble of maps to create a base line against which the enacted map can be compared. He correctly represents that this method has the advantage of taking into account all of the political geography of the state, such as the concentrating of particular voters in some regions of the state or the preservation of counties and the like. Hence, when a map is an outlier compared to a computer drawn ensemble, these natural clustering or political geography considerations cannot be the explanation.

Dr. Barber never conducts any statewide analysis under his ensemble using different election results. However, all of the components necessary to perform such analysis are present in his report. Utilizing Dr. Barber's cluster-by-cluster ensembles, we complete the absent statewide analysis to examine the number of Democratic leaning seats under various elections. This analysis demonstrates that the enacted map *is* an extreme outlier when compared to Dr. Barber's ensemble.

3 Nonpartisan Ensemble Generated by Dr. Barber

In analyzing the North Carolina State House and Senate maps, Dr. Michael Barber generates an ensemble of non-partisan redistricting maps via the Sequential Monte Carlo (SMC) procedure in the *redist* R-package developed and maintained by a research group at Harvard University. When used to sample from a known distribution in a moderate sized problem, this method has been shown to faithfully sample the target distribution. This was validated on moderate sized examples using an enumeration algorithm developed by the same group that developed the *redist* R-package at Harvard. The method we used has similarly been validated using this and other methods. Dr. Barber used the ensemble method only at the cluster level and does not use it to perform a statewide analysis based on a statewide ensemble. Rather he just summarizes the cluster by cluster results in a few tables (Table 2 and Table 32) instead of performing any analysis which would show the cumulative effect at the statewide level. The coin flipping analogy we offer below shows why this is so inadequate. In utilizing Dr. Barber's ensemble, we demonstrate that he would have concluded the enacted map was an extreme outlier at the statewide level. This is not an endorsement of any of the particular algorithm choices he has made, but rather to demonstrate that this conclusion is available from his findings.

By taking the percentages in the cluster-by-cluster tables in Dr. Barber's report, we were able to perform the statewide analysis he neglected using his data. We were also able to perform this for the collection of different statewide elections Dr. Barber used in his analysis. This allowed us to see the behavior of the maps under different types of elections. Both of these considerations are important and we briefly discuss them individually before turning to the statewide analysis using Dr. Barber's data.

- **Importance of statewide analysis:** Dr. Barber analyzes each cluster one-by-one and concludes that the majority of them are not extreme outliers so under his election composite the map is not an outlier. However, in almost every case, he finds that the more Republican of the non-outlying options is selected. Consider the following analogy. Someone flips a coin that they claim is fair but is in fact biased to produce heads more often. They flip the coin and produce 40 heads and zero tails. On each flip, the chance of getting a head from a fair coin is 50%. Hence the outcome on each flip is not that surprising. Dr. Barber's analysis is analogous to looking at each flip alone and then claiming that the coin is fair because the outcome was a head and the chance of a fair coin producing a head was reasonable. However, taking a more global view one can easily see that the chance of getting 40 heads in a row is astronomically small. And thus, one can conclude the coin is biased. This would even be true if there were only 35 heads and 5 tails.

Analogously, each cluster taken individually might not be an extreme outlier, but it is extremely unlikely that all of these clusters would exist together in a statewide map drawn without partisan intent.

We will also see that some of the local clusters are extreme outliers in their own right using Dr. Barber's data and extending his analysis to look at the margins of victory (or the extent of the partisan lean) rather than only focusing on the number of seats won by either party (or the direction of the partisan lean). This extended analysis agrees with the finding in our initial report.

- **Often extreme behavior is apparent in only some elections:** If one wanted to rig a card game by colluding with some of the other players, the group would only need to act when none of the group was going to win. The group need only act when cards were aligned against them. Hence, the behavior of a gerrymandered map might appear typical in settings where the gerrymandering party is content with the outcome that one would typically expect without gerrymandering. Furthermore, it is possible that whatever system the card players are using is not sufficient to counteract some hands. In other words, even a card player that is cheating might not be able to win when their opponent draws a royal flush. Hence, it is not to be expected that in all cases a gerrymandered map is effective in supporting the gerrymandering party.

In particular, one can not simply declare that a map is not gerrymandered because it is fair in some fraction (even a relatively large fraction) of the election environments. If it is clearly gerrymandered in some reasonable and pertinent election environments, then the map should be seen as gerrymandered. To do otherwise would be to argue that a casino would be happy with card players who only cheated 30% of the time and in particular did not cheat when they were already winning or had an unsalvageable hand.

In addition to generating a statewide analysis using the actual data from Dr. Barber’s report, we also employ ensembles generated from the *redist* code base, set up according to Dr. Barber’s analysis scripts.¹ We then show that well-established methods of probing for gerrymandering reveal that many of the individual clusters are indeed extreme gerrymanders. In doing so, we consider the partisan seat counts of each party and also extend the analysis to consider *how* the seats are won. The latter is important as it shows the degree that a given district is politically safe as well as determines how future political swings, unseen at present, might affect political outcomes. For example, atypically polarized districts can lead to maps which do not respond to the shifts in the electorate’s preferences, and effectively lock in a particular outcome. Additionally, when a map has an extremely partisan structure, this can speak to the intent of the map makers even if the structure would be unlikely to affect some collection of elections such as wave elections in favor of the gerrymandering party.

¹Dr. Barber did include a R Data file which might have included the maps he generated in his run. However, since our version of R was slightly different than his, it would not load. Hence we were forced to re-run his code.

4 Statewide Analysis of Dr. Barber’s Ensemble of NC House Plans

Within each cluster, Dr. Barber presents the fraction of plans in his ensembles that would lead to a certain number of Democratic districts under each set of historic and averaged vote counts. These tables can be used to construct the probability of drawing a non-partisan plan at the statewide level that would yield a certain number of Democratic leaning districts under various elections.

Beginning with his averaged statewide vote counts, we construct the statewide probabilities of electing various numbers of representatives and present them in Figure 1 in terms of the number of Democrats elected. Only 0.177% of all of the plans in Dr. Barber’s ensemble elect the same or more Republicans than the enacted plan.

Note that our count of Democrats elected includes the Democrats elected in single-district clusters, which are omitted from Dr. Barber’s Table 2. So our Figure 1 reports that the enacted plan elects 49 Democrats under Dr. Barber’s composite of elections, which is the four Democrats elected in single-district clusters that Dr. Barber reports in his Table 1 plus the 45 Democrats elected in multi-district clusters that Dr. Barber reports in his Table 2.

We repeat the above analysis with the 2016 and 2020 election data used by Dr. Barber. The only supplemental data we introduce is the number of single district Democratic clusters in each election which we have taken from our previous analysis. We summarize the 10 elections in Figure 2 and Table 1.

As in our previous analysis, we find that the outlier status of the ensemble has a significant impact on the amount of power the Republicans can amass in the House. For example, under the votes of the 2020 Lt. Governor race, 2016 Presidential race, and 2020 US Senate race, the ensemble breaks a Republican supermajority in 99.3937%, 98.976, and 99.992% of the plans in Dr. Barber’s ensemble, respectively. However, the enacted plan would elect a Republican supermajority under each of these votes. Similarly, under the 2020 Governor race, the Republican majority would have been broken in 96.42% of the plans in Dr Barber’s ensemble, yet they would have maintained the majority using the enacted map under these votes.

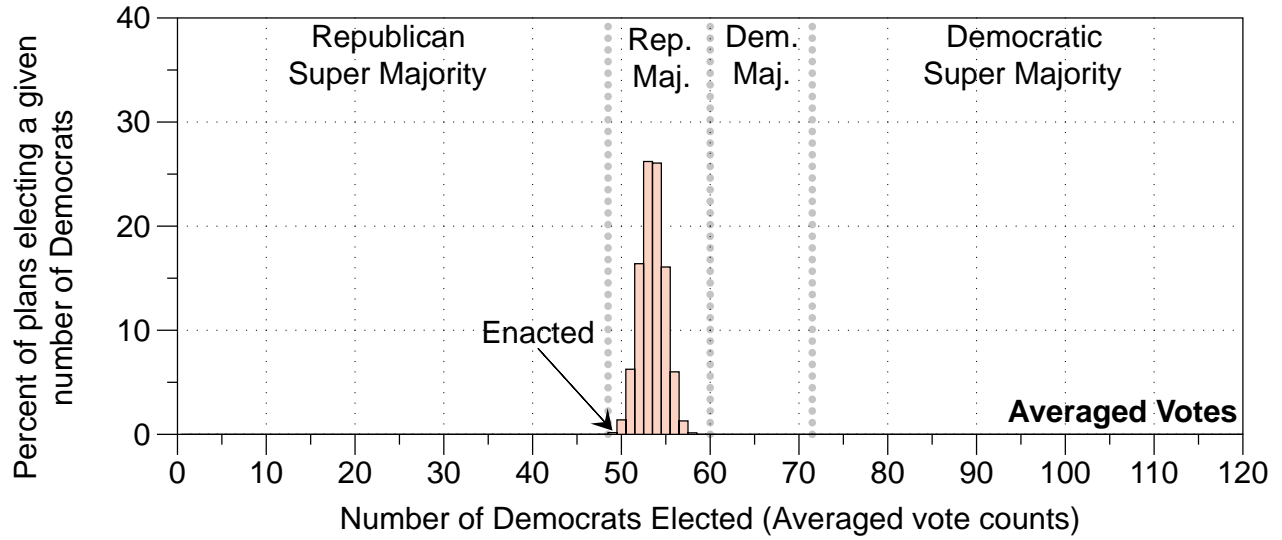


Figure 1: We compare Dr. Barber’s statewide ensemble with the enacted plan under the Averaged election results used in his report. We find that only 0.177% of all of the plans in his ensemble would elect the same or more Republicans.

Election	Statewide Dem. Vote	% of Dr. Barber’s Plans electing the same or more Republicans than the enacted plan
Barber’s Average Vote	-	0.177%
2020 Governor	52.32%	0.204%
2016 Attorney General	50.20%	1.34%
2020 Attorney General	50.13%	0.00684%
2016 Governor	50.047%	0.215%
2020 President	49.36%	0.000146%
2020 Senate	49.14%	0.00804%
2020 Lt. Governor	48.40%	0.000377%
2016 President	48.024%	1.02%
2016 Senate	46.98%	0.223%
2016 Lt. Governor	46.59%	0.518%

Table 1: When considered at the statewide level, the ensembles produced by Dr. Barber are all extreme outliers. The chance that a plan drawn from the ensemble would elect the same or more Republicans as the enacted plan is, at most, 1.34%; in all but three of the elections it is less than 0.25%. We have ordered the elections with the election with the largest Democratic statewide vote fraction at the top and the election with largest Republican statewide vote fraction at the bottom. It is worth noting that many of the most extreme outliers happen for those between 50% and 48%. Looking at Figure 2, we see that this is the range where the Republicans would typically lose the super majority according to Dr. Barber’s analysis. Though “Barber’s Average Vote” which he used as a partisan index might or might not represent an actual plausible voting pattern, we have included it for comparison.

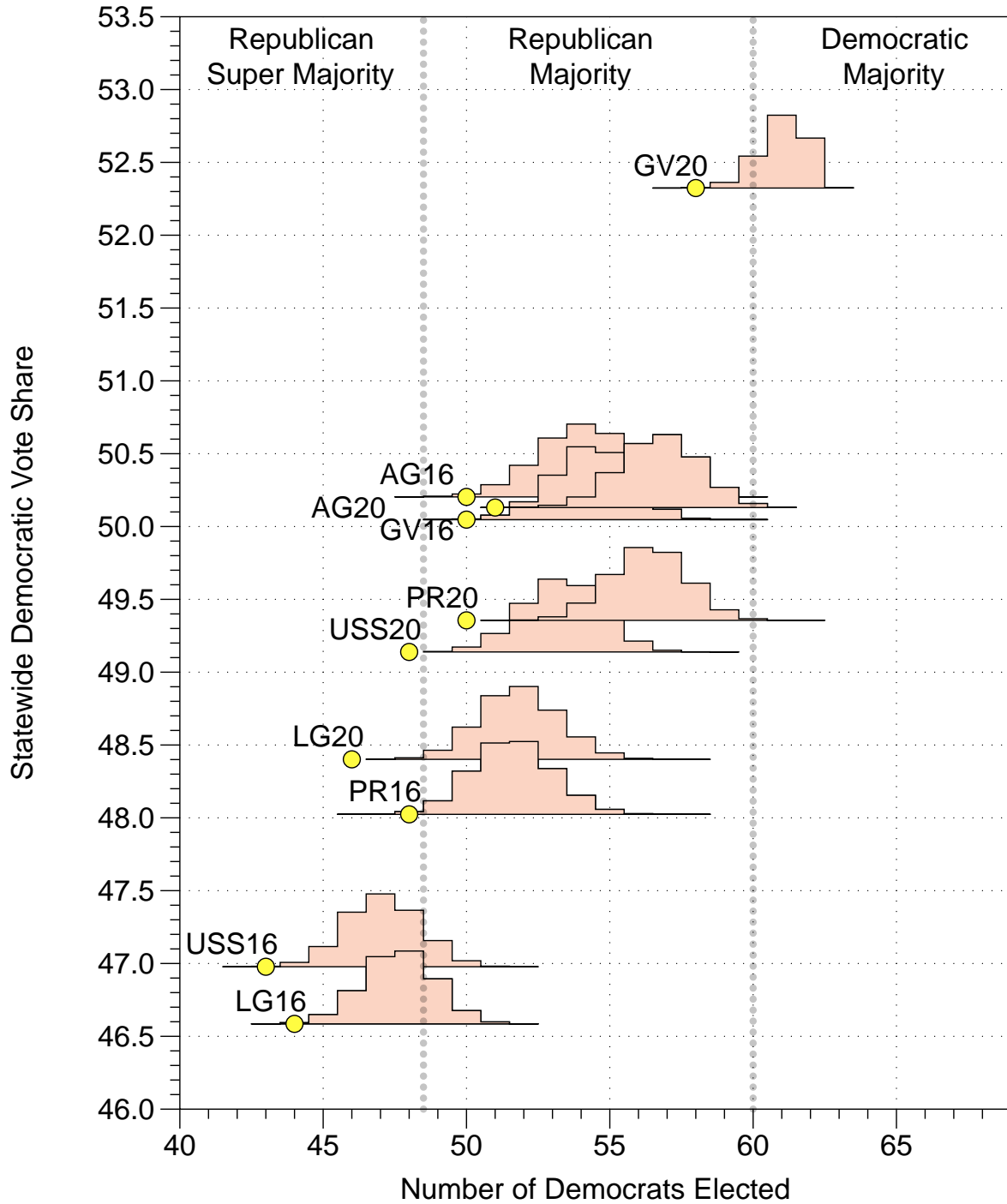


Figure 2: We compare Dr. Barber’s statewide ensemble with the enacted plan under the ten 2016 and 2020 elections used in his report. Yellow dots show the result of the enacted plan. The enacted plan is an extreme outlier when considering the same data under a statewide lens. We summarize the numerical extent of the outliers in Table 1. The elections are abbreviated with the last two digits signifying the year, and the first letters representing Lt. Governor (LG), Governor (GV), President (PR), and US Senate (USS).

5 Statewide Analysis of Dr. Barber’s Ensemble of NC Senate Plans

Repeating the above analysis for Dr. Barber’s ensemble of Senate plans, we begin with the averaged statewide vote counts. We construct the statewide probabilities of electing various numbers of Senators and present them in Figure 3. Once again, our count of Democrats elected includes the Democrats elected in single-district Senate clusters, which are omitted from Dr. Barber’s Table 32. So our Figure 3 reports that the enacted plan elects 20 Democrats under Dr. Barber’s composite of elections, which is the four Democrats elected in single-district clusters that Dr. Barber reports in his Table 31 plus the 16 Democrats elected in multi-district clusters that Dr. Barber reports in his Table 32. Only 0.00385% of all of the plans in Dr. Barber’s ensemble elect the same or more Republicans. Furthermore, this is the percentage of plans that lead to a Republican supermajority under these votes (which the enacted plan would produce as well). In other words, while the enacted plan always produces a Republican supermajority under Dr. Barber’s analysis, only .00385% of the non-partisan plans that Dr. Barber simulates would produce a Republican supermajority.

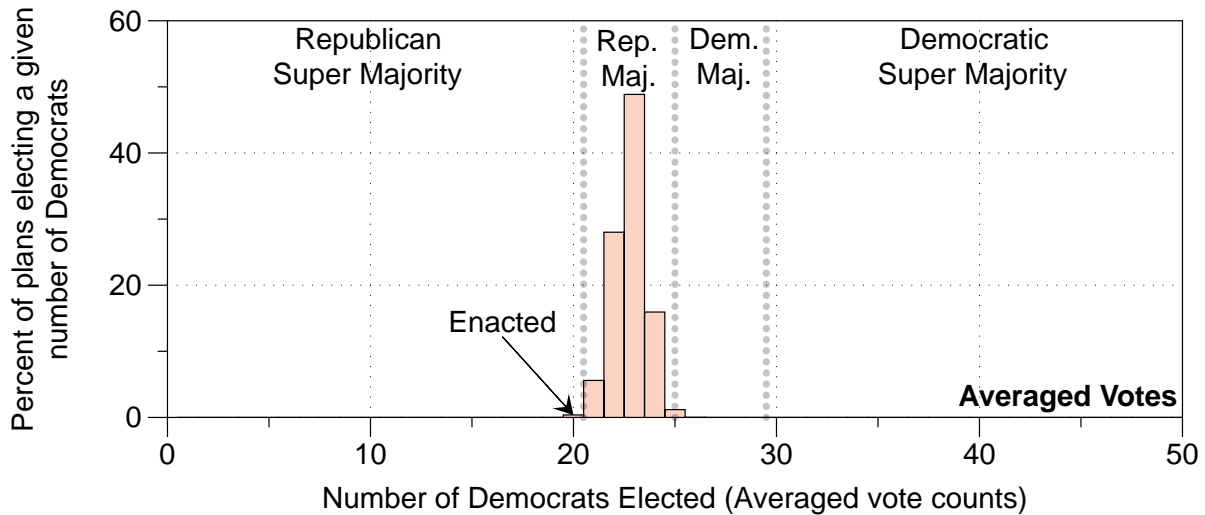


Figure 3: We compare Dr. Barber’s statewide ensemble with the enacted plan under the Averaged election results used in his report. We find that only 0.00385% of all of the plans in his ensemble would elect the same or more Republicans than the enacted plan.

We repeat the above analysis with the 2016 and 2020 election data used by Dr. Barber. The only supplemental data we introduce is the number of single district Democratic clusters in each election which we have taken from our previous analysis. We summarize the 10 elections in Figure 4 and Table 2.

Again, we find that the outlier status of the ensemble has a significant impact on the amount of power the Republicans can amass in the Senate. Under the votes of the 2016 Governor race and 2016 Attorney General races, the Republicans lose their supermajority in 99.9544% and 98.9501% of the plans in Dr. Barber’s ensemble, respectively. However, the enacted plan would elect a Republican supermajority under each of these voting patterns.

Election	Statewide Dem. Vote	% of Dr. Barber's Plans electing the same or more Republicans than the en- acted plan
Averaged	-	0.00385%
2020 Governor	52.32%	1.92%
2016 Attorney General	50.20%	1.05%
2016 Governor	50.047%	0.047%
2020 Attorney General	50.13%	3.74%
2020 President	49.36%	9.92%
2020 Senate	49.14%	5.76%
2020 Lt. Governor	48.40%	0.250%
2016 President	48.024%	0.16%
2016 Senate	46.98%	1.22%
2016 Lt. Governor	46.59%	10.9%

Table 2: When considered at the statewide level, many of the ensembles produced by Dr. Barber are extreme outliers. In six of the ten elections, there is less than a 2% chance that a plan drawn from the ensemble would elect the same or more Republicans as the enacted plan; in three of the ten elections, there is less than a 0.251% chance that a plan drawn from the ensemble would elect the same or more Republicans than the enacted plan. As we have remarked in both our original report and in the analysis below, this *does not* mean that the enacted plan is not an extreme partisan gerrymander under the other four elections; it only indicates that the plan is not as extreme of an outlier in these elections under the particular lens of seat counts.

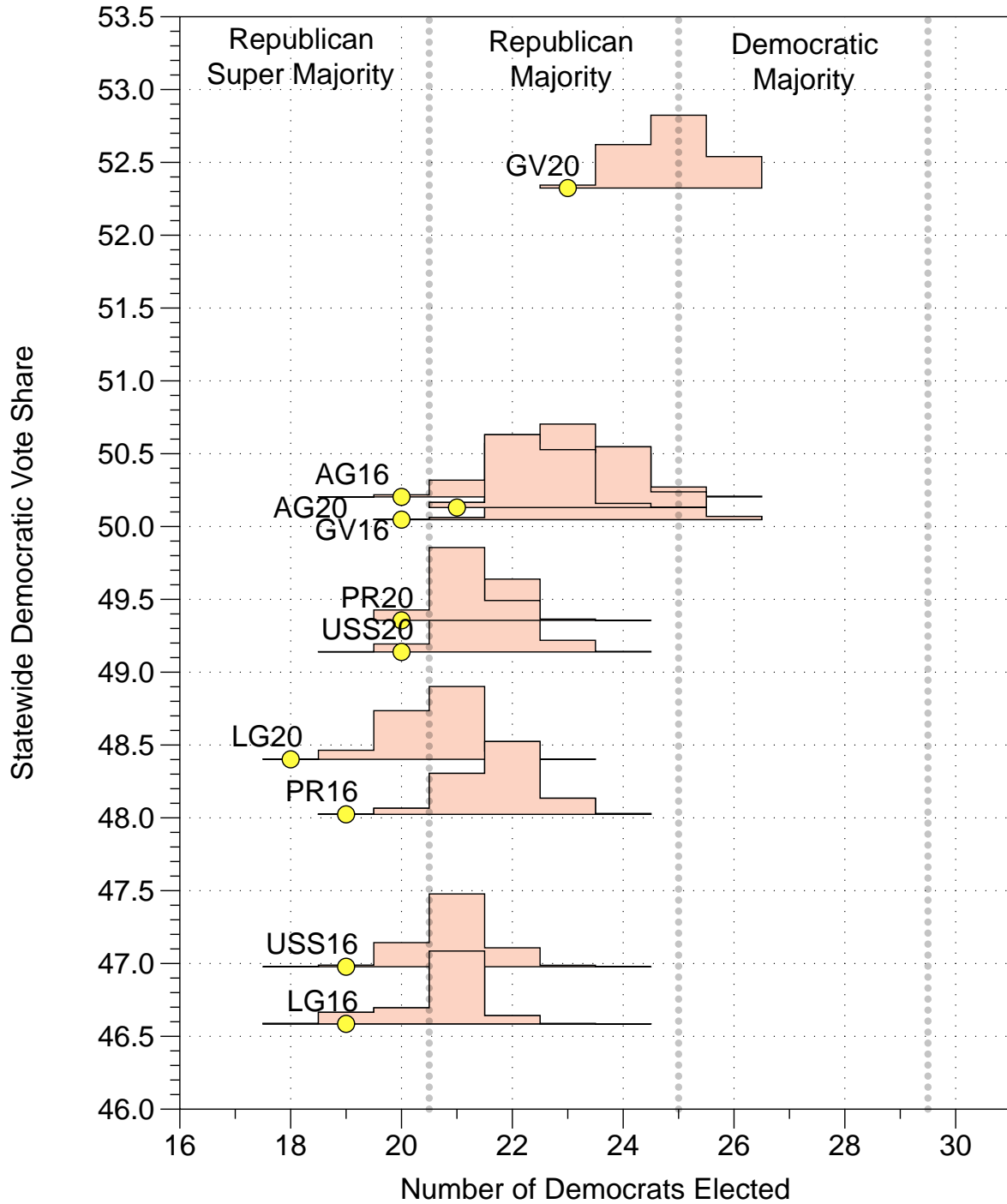


Figure 4: We compare Dr. Barber’s statewide ensemble with the enacted plan under the ten 2016 and 2020 elections used in his report. Yellow dots show the result of the enacted plan. The enacted plan is an extreme outlier when considering the same data under a statewide lens. We summarize the numerical extent of the outliers in Table 1. The elections are abbreviated with the last two digits signifying the year, and the first letters representing Lt. Governor (LG), Governor (GV), President (PR), and US Senate (USS).

6 Cluster by Cluster Analysis

We now turn to examining certain clusters presented in Dr. Barber’s work. We do not exhaustively examine all of the clusters. Rather, we select certain clusters to demonstrate how the lens that Dr. Barber chooses to use (namely only looking at the number of Democratic districts) yields an incomplete picture of the partisan make up of the districts even with respect to the individual districts.

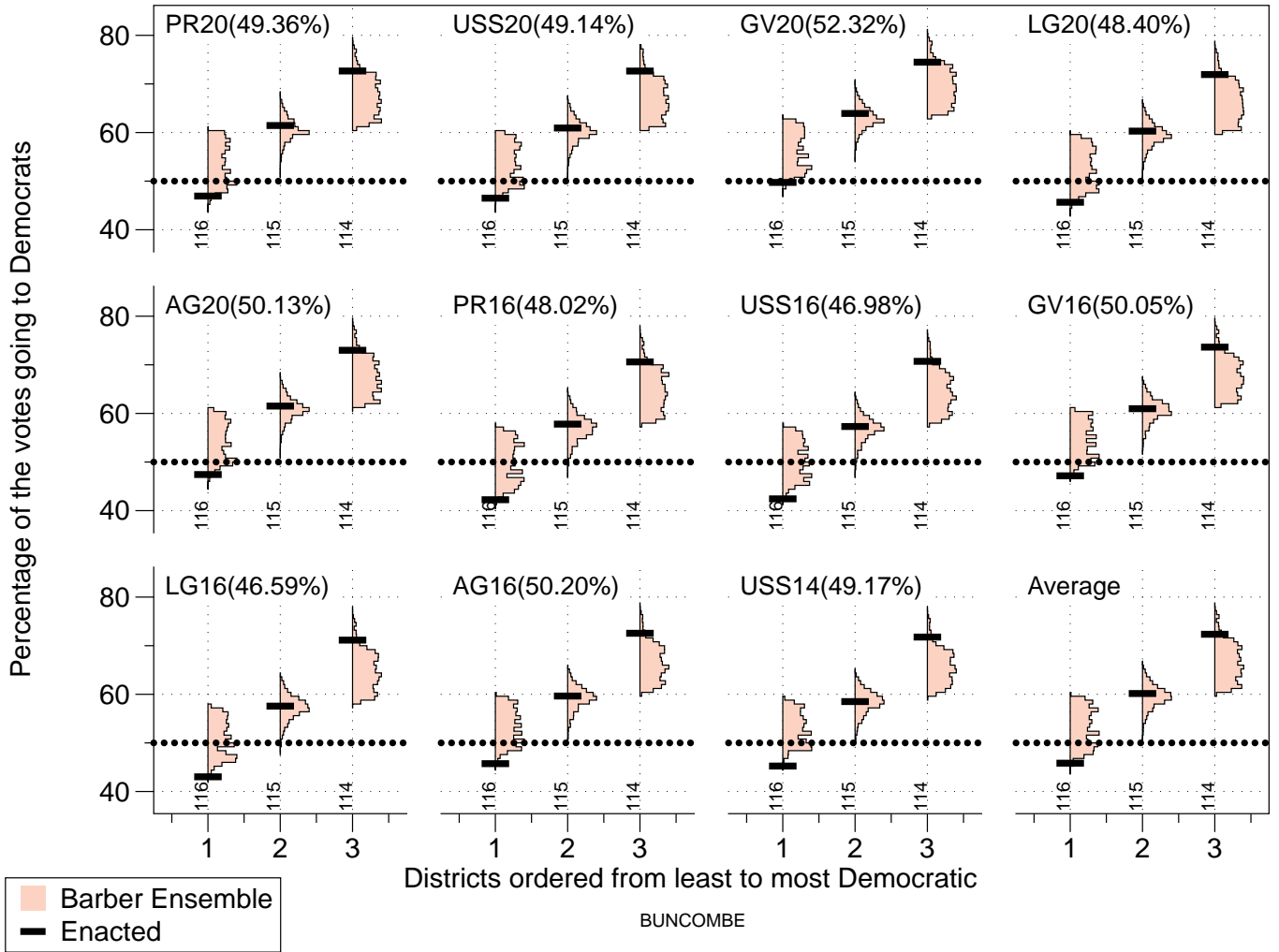
For a more complete picture, one would need to look at the actual partisan make-up of each district within a cluster. In fact, Dr. Barber reported on these values for the enacted plan, but did not compare these values to those found in his ensemble. One way of comparing these numbers is to examine the rank ordered marginal distributions of the vote fraction in each district. To do this, we order the districts from least to most Democratic (what Dr. Barber calls the Partisan Lean of Districts), and then look at the distribution of the most Republican, second most Republican, etc..., all the way until we reach the most Democratic district.

This type of analysis reveals not only how many Democratic leaning districts are within Dr. Barber’s ensemble, but also *how much* they lean Democratic (or Republican). As we have demonstrated in our report, this is also relevant at a statewide level.

Note that all of our previous statewide analysis of seat counts simply relied on the numbers presented in Dr. Barber’s report, i.e., the exact same ensemble that he relies on. The analysis below uses an ensemble of plans derived from running Dr. Barber’s code (we were unable to extract his ensembles he used from the data he provided).² However, re-running his same code with his exact same input parameters should produce a comparable ensemble to the one he generated from the report, assuming that his code performs in the way he represents.

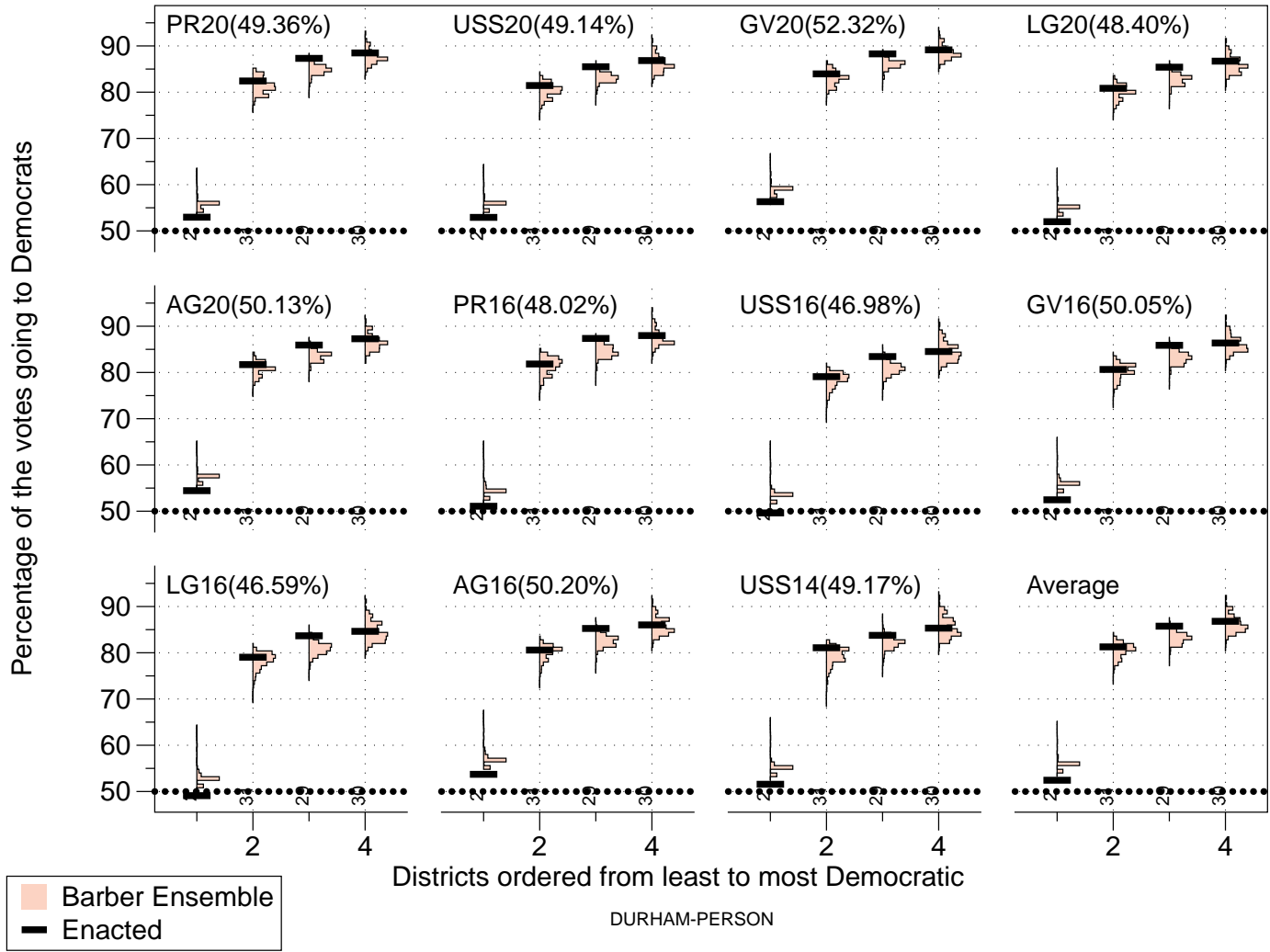
The main conclusion is that when comparing the cluster-by-cluster results from Dr. Barber’s ensemble to those in our report, we find the qualitative structure to be the same. We again conclude that the enacted map is an extreme outlier when using Dr. Barber’s ensemble with this additional analysis. We include a number of county clusters from the NC House. We make a number of comments in the caption of each figure. We refer the reader to our initial report to the court for a description of these Ranked-Ordered-Marginal-Histograms.

²We obtained the ensemble data from runs of Dr. Barber’s code from Wes Pegden (CMU) who ran the code on his R installation as we did not have a computing environment able to run the code conveniently during the window when the rebuttal reports were due.



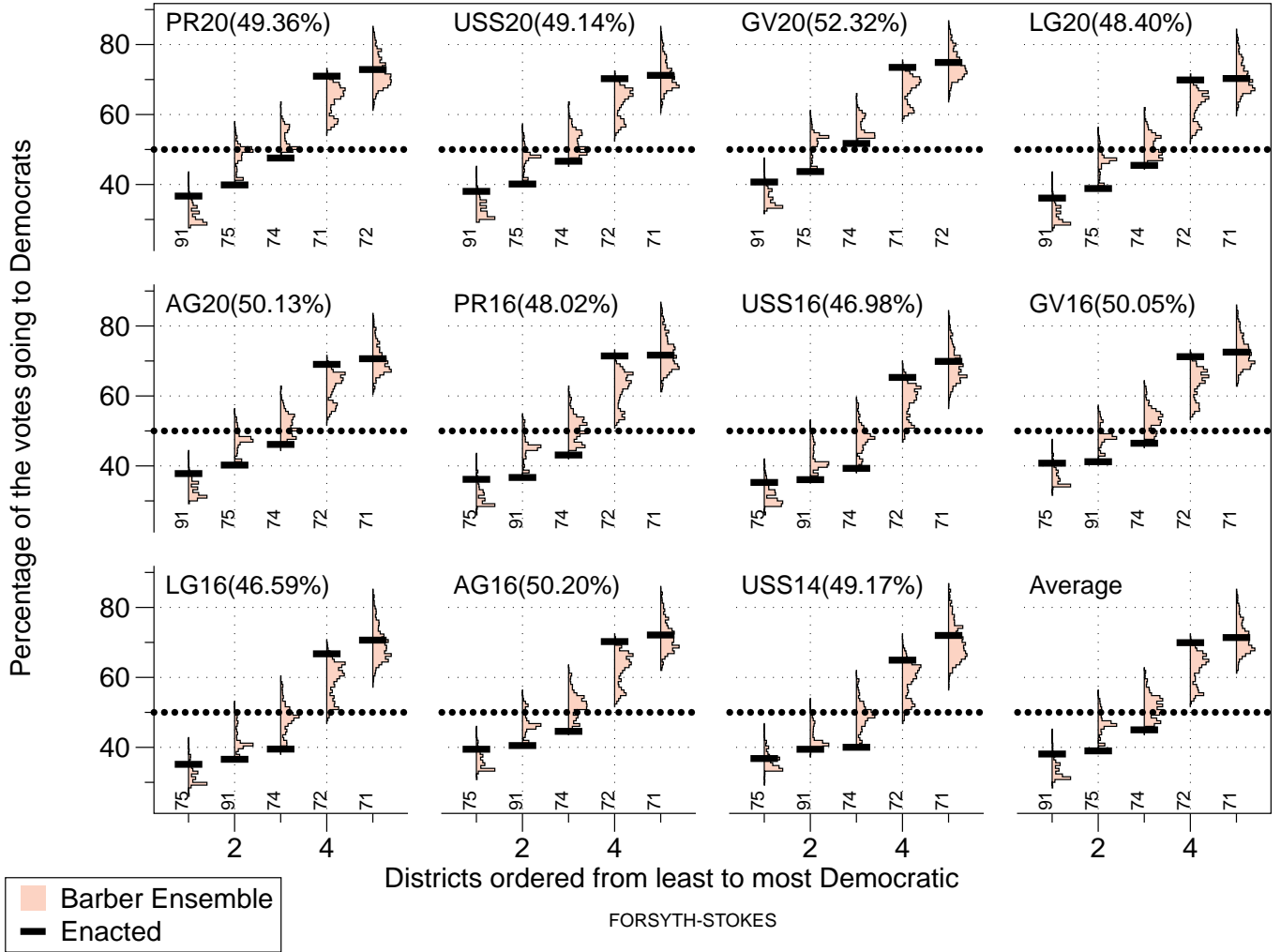
Election	No. plans w/ \leq Dems (First Cluster)	% of plans w/ \leq Dems (First Cluster)	No. plans w/ \geq Dems (Second Cluster)	% of plans w/ \geq Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
Average	107	0.277	2409	6.23	38664	1	3
PR20	756	1.96	3095	8.0	38664	1	3
USS20	409	1.06	2529	6.54	38664	1	3
GV20	662	1.71	3200	8.28	38664	1	3
LG20	424	1.1	2624	6.79	38664	1	3
AG20	534	1.38	2655	6.87	38664	1	3
PR16	321	0.83	2701	6.99	38664	1	3
USS16	17	0.044	2062	5.33	38664	1	3
GV16	18	0.0466	2067	5.35	38664	1	3
LG16	18	0.0466	1998	5.17	38664	1	3
AG16	17	0.044	1992	5.15	38664	1	3
USS14	3	0.00776	1807	4.67	38664	1	3

Figure 5: In Buncombe County, the Enacted maps is an extreme outlier under Dr. Barber’s ensemble. We see the same structure as we saw when compared with the probability ensemble our initial report. The most Republican district in the enacted plan has exceptionally few Democrats while the most Democratic district has exceptionally many Democrats. The result is that the Democrats never win three seats in the enacted plan under any of the elections considered, including Dr. Barber’s composite “Averaged Election”, even though they would typically do so under a number of elections under Dr. Barber’s ensemble.



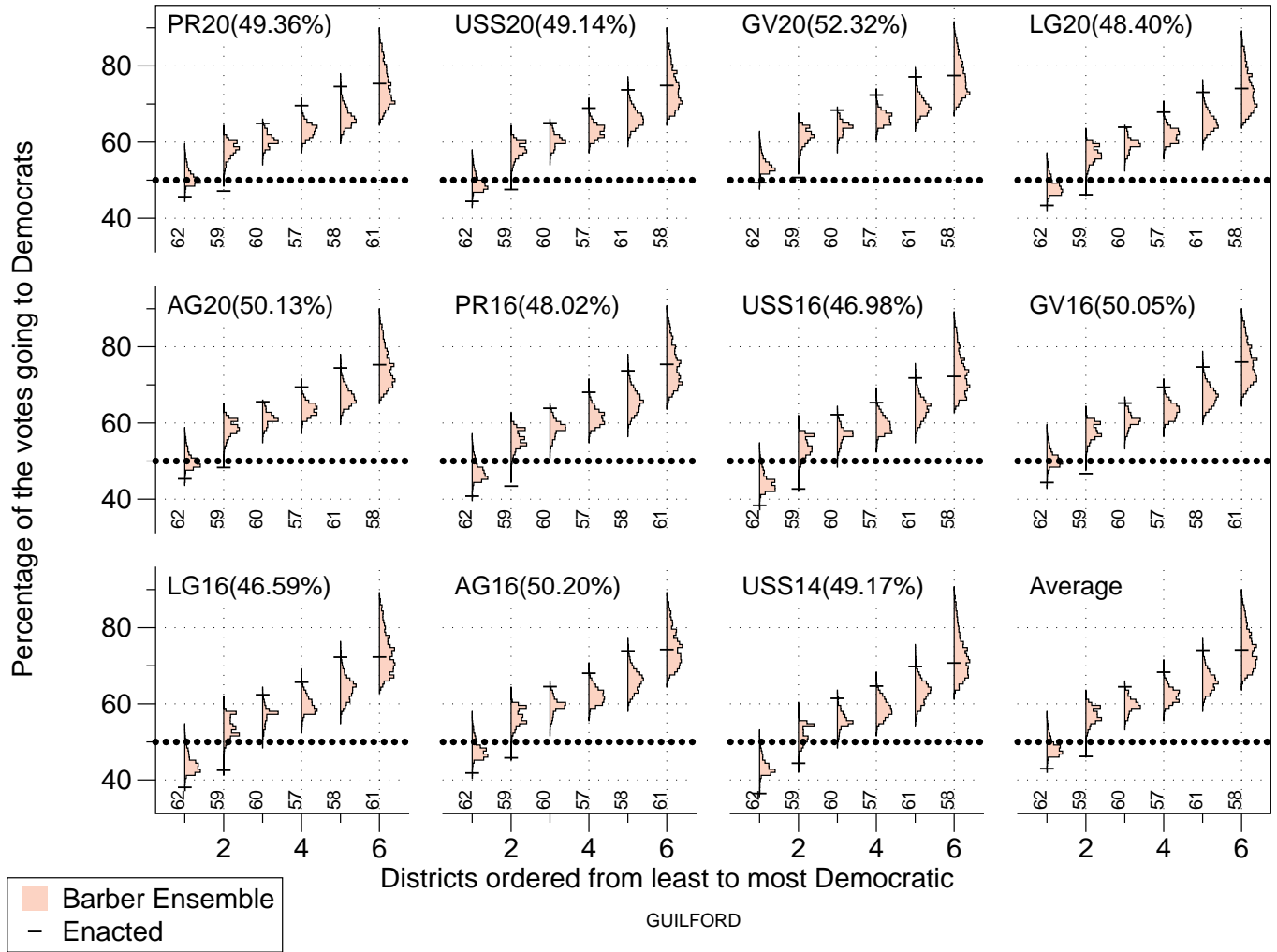
Election	No. plans w/ \leq Dems (First Cluster)	% of plans w/ \leq Dems (First Cluster)	No. plans w/ \geq Dems (Second Cluster)	% of plans w/ \geq Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
Average	0	0.0	1396	3.69	37800	1	3 4
PR20	0	0.0	790	2.09	37800	1	3 4
USS20	0	0.0	1326	3.51	37800	1	3 4
GV20	0	0.0	1123	2.97	37800	1	3 4
LG20	0	0.0	1199	3.17	37800	1	3 4
AG20	0	0.0	1205	3.19	37800	1	3 4
PR16	0	0.0	1184	3.13	37800	1	3 4
USS16	0	0.0	2932	7.76	37800	1	3 4
GV16	0	0.0	1382	3.66	37800	1	3 4
LG16	0	0.0	2675	7.08	37800	1	3 4
AG16	0	0.0	1931	5.11	37800	1	3 4
USS14	0	0.0	10357	27.4	37800	1	3 4

Figure 6: In the Durham-Person cluster, we see the same outlier structure in the enacted map when compared to Dr. Barber’s ensemble as when compared to the primary ensemble in our original report. We see that the most Republican district has been depleted of Democrats. This makes the district much more competitive than it typically would be under a non-partisan redistricting plan.



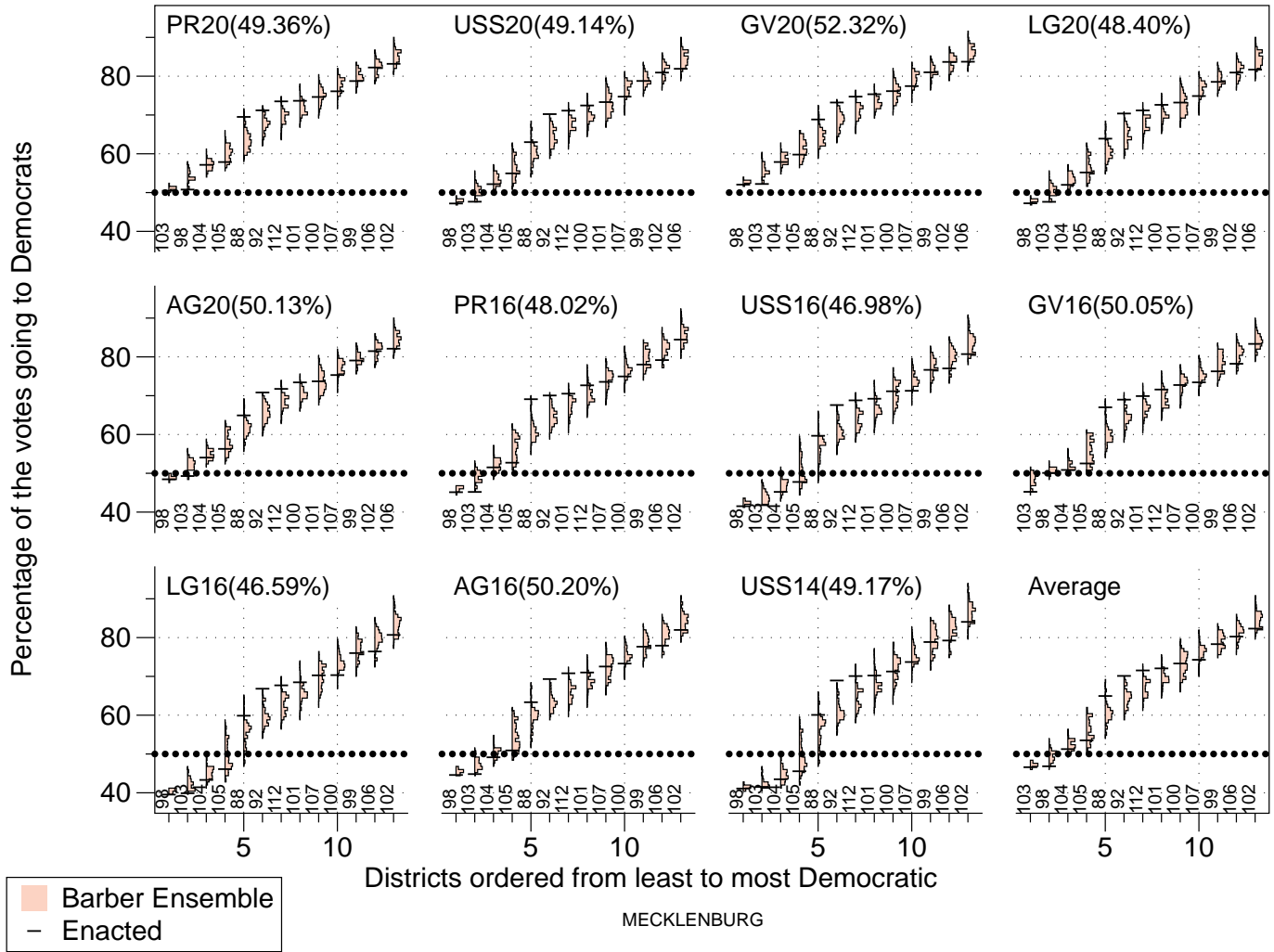
Election	No. plans w/ ≤ Dems (First Cluster)	% of plans w/ ≤ Dems (First Cluster)	No. plans w/ ≥ Dems (Second Cluster)	% of plans w/ ≥ Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
Average	17	0.456	317	8.51	3726	1 2 3	4 5
PR20	4	0.107	349	9.37	3726	1 2 3	4 5
USS20	60	1.61	429	11.5	3726	1 2 3	4 5
GV20	2	0.0537	357	9.58	3726	1 2 3	4 5
LG20	21	0.564	376	10.1	3726	1 2 3	4 5
AG20	47	1.26	395	10.6	3726	1 2 3	4 5
PR16	7	0.188	284	7.62	3726	1 2 3	4 5
USS16	44	1.18	280	7.51	3726	1 2 3	4 5
GV16	11	0.295	292	7.84	3726	1 2 3	4 5
LG16	30	0.805	269	7.22	3726	1 2 3	4 5
AG16	25	0.671	263	7.06	3726	1 2 3	4 5
USS14	13	0.349	351	9.42	3726	1 2 3	4 5

Figure 7: In the Forsyth-Stokes cluster, We again see the same structure in Dr. Barber’s ensemble as in the primary ensemble from our initial report. We see abnormally few Democrats in the second and third most Republican districts while we see abnormally many Democrats in the most Republican district and in the two most Democratic districts. The effect is to regularly flip the 3rd most Republican district to the republicans under the enacted map even under elections where many to almost all of the plans in Dr. Barber’s ensemble would have awarded the seat to the Democrats.



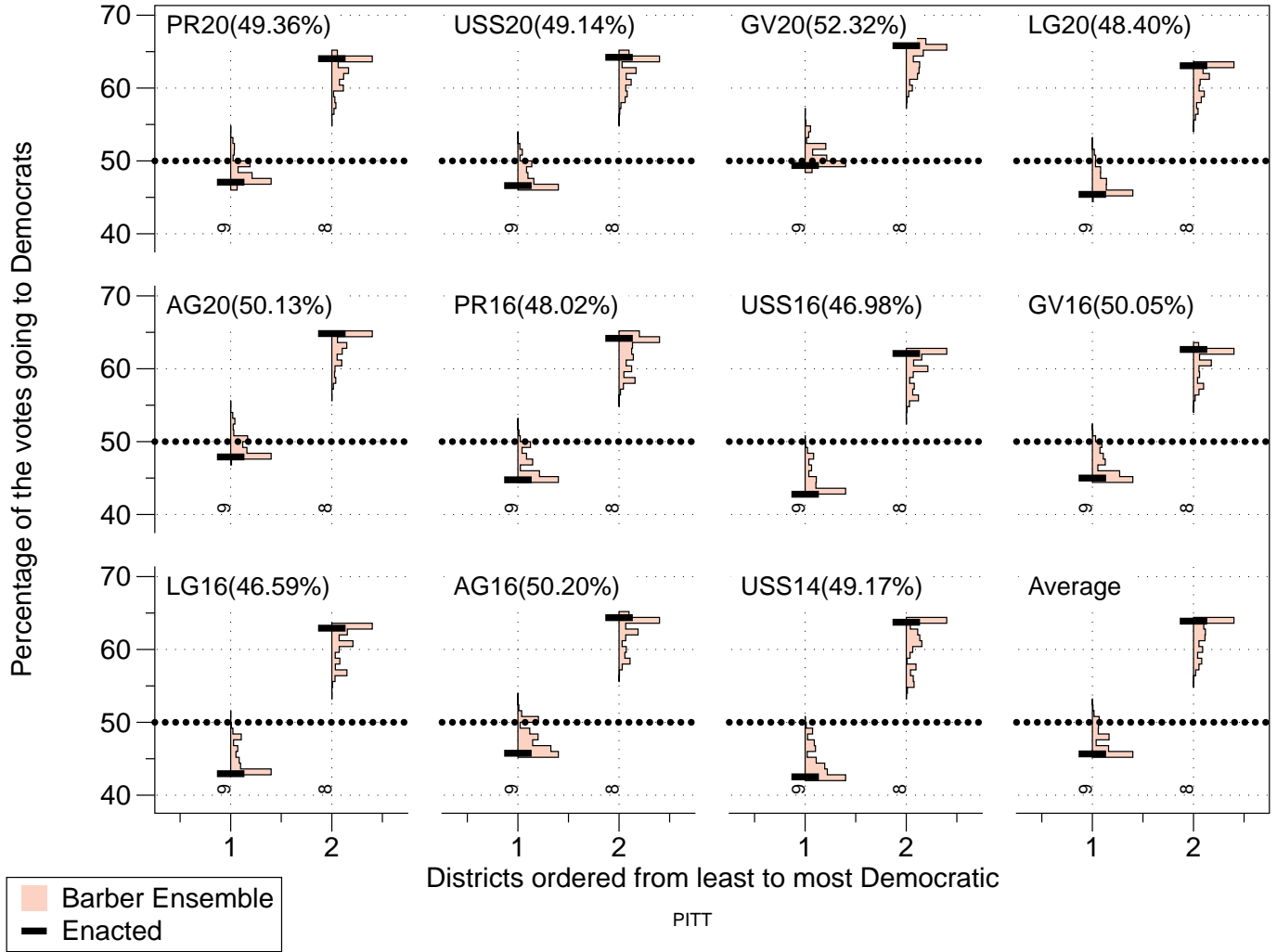
Election	No. plans w/ ≤ Dems (First Cluster)	% of plans w/ ≤ Dems (First Cluster)	No. plans w/ ≥ Dems (Second Cluster)	% of plans w/ ≥ Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
Average	0	0.0	0	0.0	15489	1 2	3 4 5 6
PR20	0	0.0	0	0.0	15489	1 2	3 4 5 6
USS20	0	0.0	0	0.0	15489	1 2	3 4 5 6
GV20	0	0.0	0	0.0	15489	1 2	3 4 5 6
LG20	0	0.0	0	0.0	15489	1 2	3 4 5 6
AG20	0	0.0	0	0.0	15489	1 2	3 4 5 6
PR16	0	0.0	0	0.0	15489	1 2	3 4 5 6
USS16	0	0.0	0	0.0	15489	1 2	3 4 5 6
GV16	0	0.0	0	0.0	15489	1 2	3 4 5 6
LG16	0	0.0	0	0.0	15489	1 2	3 4 5 6
AG16	0	0.0	0	0.0	15489	1 2	3 4 5 6
USS14	0	0.0	0	0.0	15489	1 2	3 4 5 6

Figure 8: Dr. Barber did identify Guilford county as a Republican Gerrymander in the enacted map. The structure which produces this result is clear when compared with this plot of Dr. Barber’s ensemble. We see that the two most Republican districts have abnormally few Democrats and the next three Republican districts have abnormally many Democrats. The effect is that the second most Republican seat reliably goes to the Republican party even though in some elections almost all of the maps in Dr. Barber’s ensemble would award the seat to the Democrats. This was the same structure seen in the plots of our primary ensemble from our initial report.



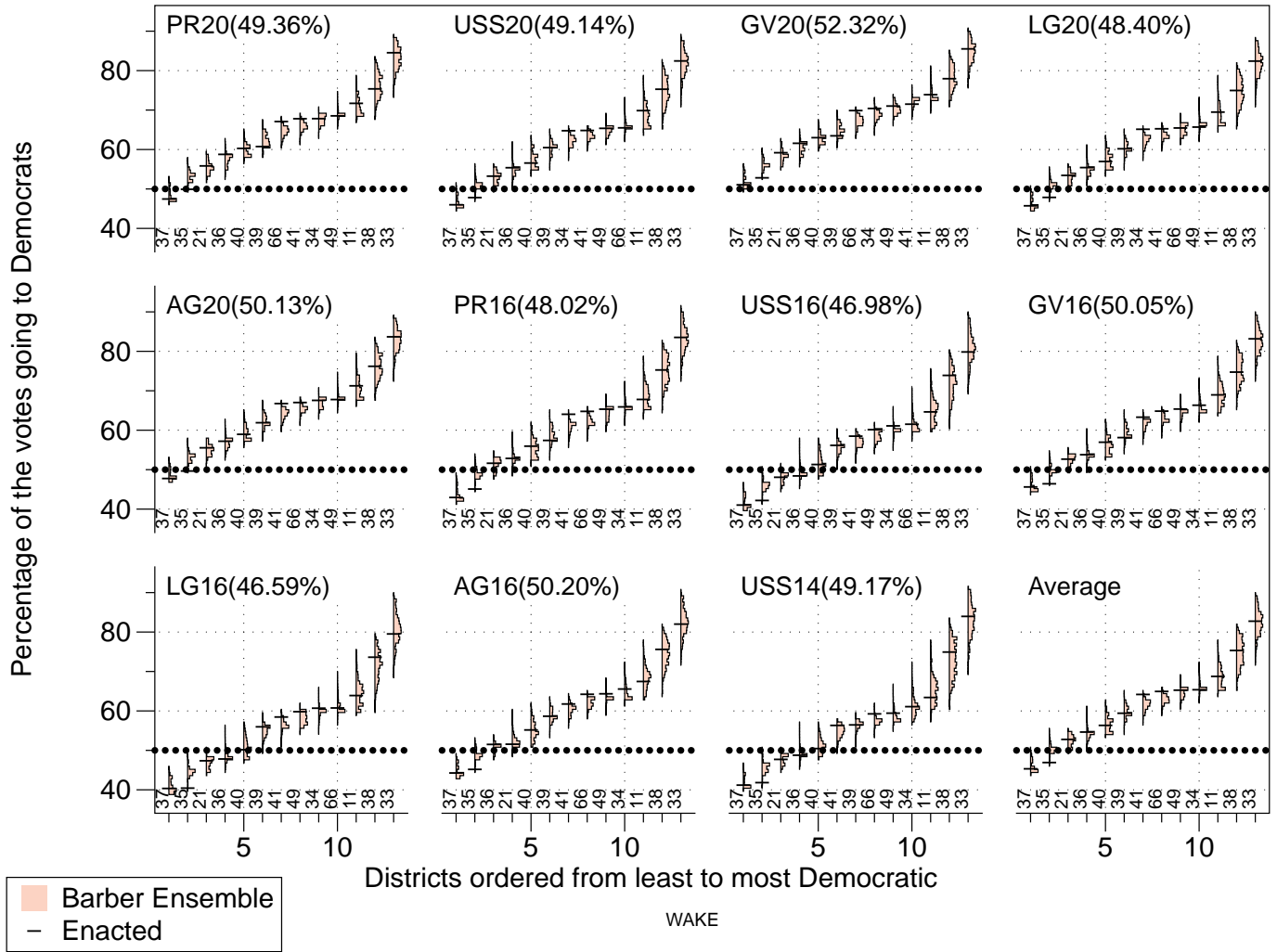
Election	No. plans w/ ≤ Dems (First Cluster)	% of plans w/ ≤ Dems (First Cluster)	No. plans w/ ≥ Dems (Second Cluster)	% of plans w/ ≥ Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
Average	139	4.4	14	0.443	3161	1 2 3 4	5 6 7 8
PR20	105	3.32	18	0.569	3161	1 2 3 4	5 6 7 8
USS20	145	4.59	29	0.917	3161	1 2 3 4	5 6 7 8
GV20	114	3.61	17	0.538	3161	1 2 3 4	5 6 7 8
LG20	117	3.7	17	0.538	3161	1 2 3 4	5 6 7 8
AG20	119	3.76	17	0.538	3161	1 2 3 4	5 6 7 8
PR16	23	0.728	18	0.569	3161	1 2 3 4	5 6 7 8
USS16	74	2.34	15	0.475	3161	1 2 3 4	5 6 7 8
GV16	56	1.77	23	0.728	3161	1 2 3 4	5 6 7 8
LG16	68	2.15	18	0.569	3161	1 2 3 4	5 6 7 8
AG16	52	1.65	15	0.475	3161	1 2 3 4	5 6 7 8
USS14	153	4.84	16	0.506	3161	1 2 3 4	5 6 7 8

Figure 9: In Mecklenburg county, we again have that the four most Republican districts have abnormally few Democrats in them while the next four most Republican districts have abnormally many Democrats. This is the same structure as we saw under our primary ensemble in our initial report. The effect is that in a number of elections the Republican party wins one to two more seats than the typical plan from Dr. Barber’s ensemble would award.



Election	No. plans w/ ≤ Dems (First Cluster)	% of plans w/ ≤ Dems (First Cluster)	No. plans w/ ≥ Dems (Second Cluster)	% of plans w/ ≥ Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
Average	314	6.05	1929	37.2	5189	1	2
PR20	1539	29.7	1974	38.0	5189	1	2
USS20	1525	29.4	1929	37.2	5189	1	2
GV20	1556	30.0	1974	38.0	5189	1	2
LG20	1537	29.6	1974	38.0	5189	1	2
AG20	1537	29.6	1974	38.0	5189	1	2
PR16	483	9.31	1929	37.2	5189	1	2
USS16	0	0.0	1660	32.0	5189	1	2
GV16	483	9.31	1929	37.2	5189	1	2
LG16	0	0.0	1660	32.0	5189	1	2
AG16	169	3.26	1660	32.0	5189	1	2
USS14	0	0.0	1660	32.0	5189	1	2

Figure 10: In Pitt county we see that same structure we found in our Primary ensemble repeated in Dr. Barber’s ensemble. In particular, we see the districts pulled to the extremes of what is seen in Dr. Barber’s ensemble. The depletion of Democrats from the more Republican district protects it from electing a Democrat in the enacted plan even though it would elect a Democrat in many of the plans in Dr. Barber’s ensemble in a few of the elections we considered.



Election	No. plans w/ ≤ Dems (First Cluster)	% of plans w/ ≤ Dems (First Cluster)	No. plans w/ ≥ Dems (Second Cluster)	% of plans w/ ≥ Dems (Second Cluster)	Total Plans	First Cluster	Second Cluster
Average	159	1.11	2649	18.5	14305	1 2	3 4 5 6 7 8
PR20	140	0.979	1872	13.1	14305	1 2	3 4 5 6 7 8
USS20	209	1.46	2961	20.7	14305	1 2	3 4 5 6 7 8
GV20	145	1.01	1772	12.4	14305	1 2	3 4 5 6 7 8
LG20	159	1.11	2240	15.7	14305	1 2	3 4 5 6 7 8
AG20	165	1.15	2260	15.8	14305	1 2	3 4 5 6 7 8
PR16	137	0.958	2264	15.8	14305	1 2	3 4 5 6 7 8
USS16	196	1.37	3774	26.4	14305	1 2	3 4 5 6 7 8
GV16	220	1.54	3504	24.5	14305	1 2	3 4 5 6 7 8
LG16	196	1.37	2707	18.9	14305	1 2	3 4 5 6 7 8
AG16	205	1.43	3076	21.5	14305	1 2	3 4 5 6 7 8
USS14	287	2.01	3632	25.4	14305	1 2	3 4 5 6 7 8

Figure 11: In Wake county, we see that the number of Democrats in the first two districts is exceptionally low. Looking across the different Ranked Ordered Marginal Histograms, we see that this increases the electoral environments (as captured in different elections) in which the Republican party wins one of these two districts. In particular, Dr. Barber’s ensemble would lead to the Democrats typically winning one of these two districts in cases where the enacted plan does not.

7 Comments on Sampling Methods

We now give some additional details to clarify some of the terms we used and the procedures we followed in sampling of the legislative maps in our original report in light of the discussion in Dr. Barber’s report.

We recall that in the Legislative case we used parallel tempering to interpolate between a base measure equal to the uniform measure on spanning forests given the county and population constraints and a measure centered on the districts with a compactness similar to the enacted plan. The Primary ensemble for the legislative ensemble reported in the report was the latter of these two ensembles. The first of these ensembles would be the target distribution of the SMC algorithms from the *rdist* package when it is properly configured with resampling included. We took 4 million steps (proposals the Metropolis-Hastings algorithm) at the spanning tree level and 2 million steps on the other levels. We output maps every 25 steps for a total of 160,000 maps in the 4 million step case and 80,000 map in the 2 million step cases. We interpolated between the different ensembles using between 60 and 100 parallel tempering levels. We proposed switching between the parallel tempering levels every 100 steps. In some cases, we ran a number of clusters together in one sampling run and sometimes we ran them separately or in smaller subgroups in a single run. Generally we ran the larger, more compacted clusters such as Wake or Mecklenburg, in this way.³ As described in the original report, *independent sample reservoirs* were used to split the 60 to 100 levels into computationally feasible chunks. This also improved the mixing and decorrelation properties of our algorithm. The congressional ensemble was drawn from a measure with a compactness weight against the same tree measure that the resampled *rdist* algorithm would sample. We used 12 parallel tempering levels to move between the distribution without a compactness measure and the final target distribution with the sampling weight. The number of steps was as specified above. The weights and other parameters used in the different run are specified in the header files of the datasets.

³For one run in the Senate, we only ran Granville-Wake for 1 million steps as we had strong evidence that this was sufficient for the parameter values being considered.

I declare under penalty of perjury under the laws of the state of North Carolina that the foregoing is true and correct to the best of my knowledge.

Jonathan Mattingly, 12/28/2021

STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
21 CVS 015426, 21 CVS 500085

NORTH CAROLINA LEAGUE OF
CONSERVATION VOTERS, INC.;
HENRY M. MICHAUX, JR., et al.,

Plaintiffs,

REBECCA HARPER, et al.,

Plaintiffs,

v.

REPRESENTATIVE DESTIN HALL, in
his official capacity as Chair of the House
Standing Committee on Redistricting, et al.,

Defendants.

**NCLCV PLAINTIFFS’
OPPOSITION TO LEGISLATIVE
DEFENDANTS’ MOTION TO
STRIKE PORTIONS OF DR. MOON
DUCHIN’S REBUTTAL REPORT**

The Legislative Defendants’ motion to strike portions of Dr. Duchin’s expert rebuttal report should be denied. Dr. Duchin’s December 28, 2021 report for the NCLCV Plaintiffs appropriately responded to and rebutted the December 23, 2021 expert report of Dr. Michael Barber. Indeed, the portions of Dr. Duchin’s rebuttal report that the Legislative Defendants seek to strike all involve Dr. Barber’s own methodology and source code. In his expert report, Dr. Barber purported to offer a redistricting algorithm that “generates a representative sample of districts” and “establish[es] a comparative set of plans” against which to measure the NCLCV demonstrative maps and the Enacted Plans. Barber Rpt. at 5. But Dr. Barber applied his redistricting algorithm to compare only two of the three sets of maps at issue in the case—the state House and Senate maps. Dr. Duchin simply applied Dr. Barber’s own source code and methodology to the congressional maps also. The Legislative Defendants’ claim that it is “sandbagging” or an unfair “surprise” to rebut an expert’s opinion by testing his own algorithm must be rejected. It cannot

possibly be a surprise to anyone involved in this litigation that the various approaches used by the experts in this case would be tested against all of the maps at issue.

The challenged portions of Dr. Duchin’s rebuttal report were a direct response to Dr. Barber’s report. Although Dr. Barber did not analyze the NCLCV congressional demonstrative plan, he did broadly claim that there was a “high degree of agreement between the Enacted and [NCLCV] maps” and therefore the Enacted Maps were not extreme partisan gerrymanders. Barber Rpt. at 9. Dr. Duchin’s rebuttal analysis shows that there is *not* a high degree of agreement between the NCLCV demonstrative maps and the Enacted Maps and that Dr. Barber’s own methodology demonstrates that the Enacted Maps are extreme partisan gerrymanders. In conducting his analysis, Dr. Barber cherry-picked the Senate and House plans while conspicuously omitting the congressional plans for comparison. Dr. Duchin’s report pointing out this selective omission and further showing how the analysis would change if it were included is classic rebuttal testimony, calling into question the credibility and reliability of Dr. Barber’s methodology, analysis, and conclusions.

BACKGROUND

On December 23, 2021, the Legislative Defendants submitted a report from Dr. Michael Barber that purported to “analyze North Carolina’s recently enacted redistricting plans for the General Assembly (the ‘Enacted Plans’) and the plans submitted by [the NCLCV Plaintiffs] in the context of the partisan gerrymandering claims brought against the Legislative Defendants.” Barber Rpt. at 5. Dr. Barber used a new statistical sampling method called “Sequential Monte Carlo” to generate large collections of districting plans, called “ensembles,” for purposes of comparison between the Enacted Plans and the NCLCV demonstrative maps. However, while the NCLCV Plaintiffs submitted three demonstrative plans—one for congress, one for the State Senate, and

one for the State House—Dr. Barber conspicuously omitted one of those three plans from his ensemble analysis. Thus, Dr. Barber’s report analyzed only the NCLCV Plaintiffs’ State Senate and State House plans using his ensemble analysis, while failing to apply his same methodology to the NCLCV Plaintiffs’ congressional plan.

On December 28, 2021, the NCLCV Plaintiffs submitted a rebuttal report from Dr. Moon Duchin. Dr. Moon Duchin took Dr. Barber’s source code and applied his same Sequential Monte Carlo methodology to create ensembles to compare the congressional, as well as the State Senate and State House plans. Duchin Rebuttal Rpt. at 3. Overall, Dr. Duchin concluded that “[b]y Dr. Barber’s own constructs, all three levels of districting show that the enacted plans are partisan outliers and the NCLCV alternative plans are not.” *Id.* at 7 (emphasis omitted). Dr. Duchin explained that her congressional ensemble (like her State Senate and State House ensembles) was “created with Dr. Barber’s code, following his specifications.” *Id.* As Dr. Duchin further explained, she “was able to run Dr. Barber’s code to create an ensemble of alternative Congressional plans with exactly the algorithm and with similar specification to those [Dr. Barber] used for his legislative demonstrations.” *Id.* at 6.

ARGUMENT

A classic purpose of expert rebuttal is to call into question the credibility of the opposing expert and the reliability of the opposing expert’s methodology, particularly when that methodology has been only selectively applied. Here, Dr. Barber selectively applied his methodology to just two of the three plans submitted by the NCLCV Plaintiffs, yet conspicuously left one of the three NCLCV Plaintiffs’ plans out of his analysis. Dr. Duchin suspected that the Legislative Defendants or Dr. Barber may have omitted the application of his analysis to the

congressional plans because the result would not be favorable to their arguments.¹ Dr. Duchin investigated this hypothesis and was proven correct. Dr. Duchin therefore showed in her rebuttal report that if Dr. Barber had applied his methodology and analysis to compare the NCLCV and Enacted congressional plans, he would have had no choice but to conclude that the Enacted Congressional Plan is a partisan outlier while the NCLCV congressional demonstrative map is not. As Dr. Duchin explained in her deposition, she found Dr. Barber’s failure to analyze the NCLCV Plaintiffs’ congressional plan to be a “conspicuous omission and so undertook to fill in the gap.” Duchin Dep. at 139:1-2 (Dec. 30, 2021).

Courts regularly find that where an expert selectively cherry picks when and how to apply his analysis, that expert’s methodology is suspect. “Result-driven analysis, or cherry-picking, undermines principles of the scientific method and is a quintessential example of applying methodologies (valid or otherwise) in an unreliable fashion.” *In re Lipitor (Atorvastatin Calcium) Mktg., Sales Practices & Prod. Liab. Litig. (No II) MDL 2502*, 892 F.3d 624, 634 (4th Cir. 2018) (citation omitted). Indeed, “courts have consistently excluded expert testimony that ‘cherry-picks’ relevant data,” *EEOC v. Freeman*, 778 F.3d 463, 469 (4th Cir. 2015) (collecting cases), because such an approach “does not reflect scientific knowledge, is not derived by the scientific method, and is not ‘good science.’” *In re Bextra & Celebrex Mktg. Sales Practices & Prods. Liab. Litig.*, 524 F.Supp.2d 1166, 1176 (N.D. Cal. 2007). A selective expert report like Dr. Barber’s “do[es] not ‘help the trier of fact to understand the evidence or to determine a fact in issue.’” *Bricklayers*

¹ This is not to say that Dr. Barber’s analysis of the state legislative districts is more favorable than the congressional map. As Dr. Duchin explained, “[b]y Dr. Barber’s own constructs, all three levels of districting show that the enacted plans are partisan outliers and the NCLCV alternative plans are not.” Duchin Rebuttal Rpt. at 7.

& Trowel Trades Int'l Pension Fund v. Credit Suisse Sec. (USA) LLC, 752 F.3d 82, 92 (1st Cir. 2014) (quoting Fed. R. Evid. 702(a)).

Although the NCLCV Plaintiffs are not seeking to exclude the report and testimony of Dr. Barber based on his selectively applying his methodology to only two of the three NCLCV demonstrative maps, the NCLCV Plaintiffs are certainly entitled, through the rebuttal report of Dr. Duchin, to question why Dr. Barber left the congressional plan out of his analysis and to show how his methodological conclusions are undermined when congressional plan comparisons are included in the analysis. And Dr. Duchin was entitled to use the new code and methodology provided by Dr. Barber for the first time on December 23, 2021, in order to do so. “[R]ebuttal reports ‘may cite new evidence and data so long as the new evidence and data is offered to directly contradict or rebut the opposing party’s expert.’” *Withrow v. Spears*, 967 F. Supp. 2d 982, 1002 (D. Del. 2013) (quoting *Glass Dimensions, Inc. ex rel. Glass Dimensions, Inc. Profit Sharing Plan & Trust v. State St. Bank & Trust Co.*, 290 F.R.D. 11, 16 (D. Mass. 2013)); *see also, e.g., Boles v. United States*, No. 1:13CV489, 2015 U.S. Dist. LEXIS 42332, at *5 (M.D.N.C. Apr. 1, 2015) (stating that the proper scope of rebuttal expert testimony is attacking the adversary expert’s theories).

The Legislative Defendants do not cite a single instance where a North Carolina state court struck portions of an expert report. In the only case they do cite, a Business Court decision, the Court *denied* the motion to strike. *See Insight Health Corp. v. Marquis Diagnostic Imaging of N. Carolina, LLC*, No. 14 CVS 1783, 2017 WL 806432, at *17 (N.C. Super. Feb. 24, 2017). As the court in that case explained, the proposed rebuttal testimony was appropriate because the opposing expert was “not relying on a methodology of his own, but rather using his expertise to criticize [the opposing expert’s] methodology.” *Id.* That is exactly what Dr. Duchin did here. Dr.

Duchin’s application of Dr. Barber’s methodology to the congressional maps builds upon her application of his methodology to the State Senate and State House maps and further illustrates the degree to which his methodological errors both affect his outcomes and undermine his overall conclusion that the demonstrative maps were outliers.

The other cases that the Legislative Defendants cite are similarly inapposite, involving situations where the “rebuttal” expert was not timely disclosed or introduced an entirely new analysis or method. *See, e.g., Boles v. United States*, No. 1:13CV489, 2015 U.S. Dist. LEXIS 42332, at *5 (M.D.N.C. Apr. 1, 2015) (striking “rebuttal” reports because they did not “rebut, contradict, or respond to the specific opinions or conclusions of Defendant’s experts’ reports” and were not devoted to “attacking the theories offered by [opposing] experts”); *Bentley v. Highlands Hospital Corp.*, 2016 WL 5867496 at *1 (E.D. Ky. Oct. 6, 2016) (rebuttal report did not even mention opposing expert’s report); *Vu v. McNeil-PPC, Inc.*, 2010 WL 2179882, at *1 (C.D. Cal. May 7, 2010) (rebuttal report introduced entirely new theory of the case). None involved—as here—a rebuttal expert who used the opposing expert’s methodology simply to show that the methodology was being applied erroneously.

Finally, the Legislative Defendants’ complaints that Dr. Duchin’s analysis is untimely and would prejudice them are perplexing. Of course, Dr. Duchin could not possibly have run Dr. Barber’s code nor applied his methodology *until she actually received his report*, which was not until December 23, 2021. Dr. Duchin then took Dr. Barber’s exact methodology and underlying code to create ensembles for the congressional, Senate, and House plans for her December 28, 2021, rebuttal report. Obviously, Dr. Duchin could not have included this analysis in her opening report because she did not yet have Dr. Barber’s code or methodology. “Permissible rebuttal evidence” always “includes evidence unavailable earlier through no fault of the plaintiff.” *Allen v.*

Prince George's Cnty., Md., 737 F.2d 1299, 1305 (4th Cir. 1984) (internal citations omitted); *see also Lail ex rel. Lail v. Bowman Gray Sch. of Med.*, 196 N.C. App. 355, 369, 675 S.E.2d 370, 378–79 (2009) (“Where one party introduces evidence as to a particular fact or transaction, the other party is entitled to introduce evidence in explanation or rebuttal thereof....” (quoting *State v. Albert*, 303 N.C. 173, 177, 277 S.E.2d 439, 441 (1981))).

In any event, even if the Court agrees that analyzing Dr. Barber’s methodology for the congressional plans was not a proper topic for Dr. Duchin’s rebuttal report, striking the portions of Dr. Duchin’s rebuttal report is not a necessary or appropriate sanction. The Legislative Defendants argue that they have no remedy, and there is no way to test Dr. Duchin’s rebuttal report through the adversarial process because “attorney arguments about how Dr. Duchin may have twisted Dr. Barber’s methodology are insufficient.” But Legislative Defendants need not rely on “attorney arguments”—they can cross-examine Dr. Duchin at trial about her rebuttal report (and, indeed, have already deposed her about it). Moreover, to the extent that Dr. Barber believes that Dr. Duchin misapplied his algorithm, the Legislative Defendants are free to ask him about in their direct examination. Dr. Barber has now had Dr. Duchin’s report since December 28, 2021 (longer than Dr. Duchin had Dr. Barber’s report before having to respond to it). If there are errors in her analysis—and it is telling that the Legislative Defendants make no claim that there are—the Court is sure to hear of them during the trial.

CONCLUSION

For the foregoing reasons, the Court should deny the Legislative Defendants’ motion to strike portions of Dr. Moon Duchin’s rebuttal report.

Dated: January 4, 2022

Respectfully submitted,

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This 4th day of January, 2022.

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/s/ Stephen Feldman

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STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
FILE NO. 21 CVS 015426

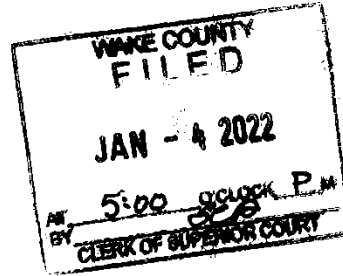
NORTH CAROLINA LEAGUE, OF
CONSERVATION VOTERS, INC., *et al.*,
Plaintiffs

and

COMMON CAUSE,
Plaintiff-Intervenor,

v.

REPRESENTATIVE DESTIN HALL, in
his official capacity as Chair of the House
Standing Committee on Redistricting, *et*
al.,
Defendants.



STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
FILE NO. 21 CVS 500085

REBECCA HARPER, *et al.*,
Plaintiffs

v.

REPRESENTATIVE DESTIN HALL, in
his official capacity as Chair of the House
Standing Committee on Redistricting, *et*
al.,
Defendants.

**ORDER ON HARPER PLAINTIFFS' AND PLAINTIFF COMMON CAUSE'S JOINT
MOTION FOR DISCOVERY SANCTIONS**

THIS MATTER came before the undersigned three-judge panel upon Harper
Plaintiffs' and Plaintiff Common Cause's Motion for Discovery Sanctions submitted to the

Court¹ on December 31, 2021, pursuant to Rules 26 and 37 of the North Carolina Rules of Civil Procedure.

Procedural and Factual Background

In this litigation, Plaintiffs seek a declaration that the North Carolina Congressional, North Carolina Senate, and North Carolina House of Representatives districts established by an act of the General Assembly in 2021, N.C. Sess. Laws 2021-174 (Senate Bill 750), 2021-173 (Senate Bill 739), and 2021-175 (House Bill 976) (collectively the “Enacted Plans”), violate the rights of Plaintiffs under the North Carolina Constitution. Plaintiffs seek to enjoin the future use of the 2021 congressional and state legislative districts.

On December 13, 2021, after receiving an order from the Supreme Court of North Carolina directing this Court to resolve all Plaintiffs’ claims on the merits by January 11, 2022, this Court entered a Case Scheduling Order giving the parties until December 31, 2021, to complete discovery in advance of trial, which is set to commence on January 3, 2022.

On December 20, 2021, this Court entered an order clarifying that NCLCV Plaintiffs would be required to identify any and all persons who took part in drawing or participated in the computerized production of NCLCV Plaintiffs’ Optimized Maps, that NCLCV Plaintiffs were to produce to Legislative Defendants the method and means by which the Optimized Maps were formulated and produced, including, but not limited to all source code, source data, input parameters, and all outputted data associated with the Optimized Maps, and that NCLCV Plaintiffs were to identify any and all persons who took part in drawing or participated in the computerized production of the Optimized Maps. On December 21, 2021, Harper Plaintiffs requested this same information from Legislative Defendants through interrogatories and requests for production of documents issued, respectively, pursuant to

¹ The Hon. A. Graham Shirley has accepted Plaintiffs Motion for filing on the 31st day of December, 2021, pursuant to Rule 5(e) of the North Carolina Rules of Civil Procedure.

Rules 33 and 34 of the North Carolina Rules of Civil Procedure. Harper Plaintiffs specifically requested this information and documentation as it pertains to the Enacted Plans, including the identification of all persons who took part in the drawing of the Enacted Plans in any way as well as all documents or data relied upon by those involved in the map drawing process.

On December 24, 2021, this Court entered a Protective Order acknowledging assertions of legislative privilege by four of the named Legislative Defendants—President *Pro Tempore* Philip E. Berger, Senator Warren Daniel, Senator Paul Newton, and Speaker Timothy K. Moore—and ordering that those four legislators not be called to testify at depositions noticed by Harper Plaintiffs. In that same Order, this Court noted that nothing in the Order should be construed as a limitation on the ability of Representative Hall or Senator Hise to waive their personal legislative privilege and testify at deposition or at trial. Representative Hall's deposition occurred on December 27, 2021, and Senator Hise's deposition occurred on December 28, 2021.

On December 27, 2021, Harper Plaintiffs filed their First Motion to Compel, and on that same date the Court entered an Order granting the Motion to Compel, ordering Legislative Defendants to respond to Harper Plaintiffs' second set of interrogatories and first set of requests for production by 9:00 AM EST on December 28, 2021.

On December 28, 2021, Harper Plaintiffs filed their second Motion to Compel, contending that, in light of testimony given by Representative Hall, Legislative Defendants' responses served in response to this Court's December 27, 2021, Order, were facially deficient and were impeding access to key information that goes "to the heart of the dispute in this redistricting litigation." On December 29, 2021, this Court entered an Order granting the second Motion to Compel, ordering Legislative Defendants to fully respond to the discovery requests and identify any materials that were lost or destroyed with specificity by 9 AM EST on December 30, 2021.

On December 31, 2021, Harper Plaintiffs’ and Plaintiff Common Cause filed the present Joint Motion, contending that Legislative Defendants’ December 30 responses again failed to fully respond to their discovery requests, simply producing documents already in the public record and refusing to provide any specific information about lost or destroyed materials. They have asked this Court to make an adverse inference that the evidence would show that Legislative Defendants considered partisan and racial data in drawing the Enacted Plans and to enter an order prohibiting Legislative Defendants from presenting any evidence that they did not consider this data.

Legislative Defendants informed the Court of their position on the Motion through a written response submitted to the Court on December 31, 2021. This Court rendered its ruling upon the Joint Motion in open court at the start of trial of these consolidated cases on January 3, 2022, and the Court’s reasoning is more fully set forth below.

Joint Motion for Sanctions


After considering the Motion and the responses to that motion, as well as the matters contained therein, the Court, in its discretion, rules upon the Joint Motion as follows:

This Court is not persuaded that Legislative Defendants’ actions failed to comply with this Court’s December 29, 2021, Order on the Motion to Compel in the short time allotted. While Mr. Reel was a legislative employee at the time the House Plans were drawn, he is not at this time a legislative employee subject to the demands or requests of a legislator employer (*i.e.*, Representative Hall) any different than any other non-legislative witness. Furthermore, although Harper Plaintiffs and Plaintiff Common Cause contend that Legislative Defendants should have asked additional questions of Mr. Reel, these Plaintiffs also had the opportunity to seek this same information from Mr. Reel by way of subpoena for his testimony, a subpoena *duces tecum*, or both.

Moreover, the record before the Court at this time does not demonstrate that Legislative Defendants' actions definitively amount to spoliation necessitating an adverse inference. While this Court will not order an adverse inference, Plaintiffs remain able to ask the Court to make any reasonable inference from the evidence presented.

WHEREFORE, the Court, for the reasons stated herein and in the exercise of its discretion, hereby **ORDERS** that Harper Plaintiffs' and Plaintiff Common Cause's Joint Motion for Discovery Sanctions is **DENIED**.

SO ORDERED, this the 4 day of January, 2022.



A. Graham Shirley, Superior Court Judge

/s/ Nathaniel J. Poovey

Nathaniel J. Poovey, Superior Court Judge

/s/ Dawn M. Layton

Dawn M. Layton, Superior Court Judge

CERTIFICATE OF SERVICE

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Service is made upon local counsel for all attorneys who have been granted pro hac vice admission, with the same effect as if personally made on a foreign attorney within this state.

This the 5th day of January, 2022.

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STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
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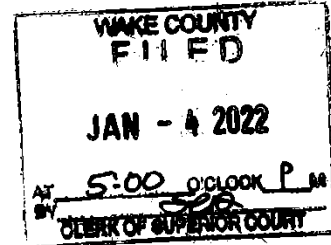
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al.,
Defendants.



STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
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FILE NO. 21 CVS 500085

REBECCA HARPER, *et al.*,
Plaintiffs

v.

REPRESENTATIVE DESTIN HALL, in
his official capacity as Chair of the House
Standing Committee on Redistricting, *et*
al.,
Defendants.

**ORDER ON PLAINTIFF COMMON CAUSE'S AND HARPER PLAINTIFFS' JOINT
MOTION TO STRIKE SEAN P. TRENDLE AFFIDAVIT**

THIS MATTER came before the undersigned three-judge panel upon Plaintiff
Common Cause's and Harper Plaintiffs' Joint Motion to Strike filed on December 29, 2021,
pursuant to Rules 26(b)(4)(f) and 37 of the North Carolina Rules of Civil Procedure and
Rules 702, 703, and 705 of the North Carolina Rules of Evidence.

Procedural and Factual Background

In this litigation, Plaintiffs seek a declaration that the North Carolina Congressional, North Carolina Senate, and North Carolina House of Representatives districts established by an act of the General Assembly in 2021, N.C. Sess. Laws 2021-174 (Senate Bill 750), 2021-173 (Senate Bill 739), and 2021-175 (House Bill 976) (collectively the “Enacted Plans”), violate the rights of Plaintiffs under the North Carolina Constitution. Plaintiffs seek to enjoin the future use of the 2021 congressional and state legislative districts.

On December 13, 2021, after receiving an order from the Supreme Court of North Carolina directing this Court to resolve all Plaintiffs’ claims on the merits by January 11, 2022, this Court entered a Case Scheduling Order giving the parties until December 23, 2021, to exchange expert witness reports; December 28, 2021, to exchange rebuttal evidence, including rebuttal expert reports; and December 31, 2021, for parties to conduct expert discovery depositions.

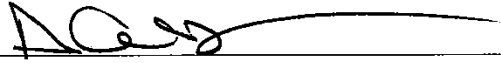
On December 29, 2021, Plaintiff Common Cause and Harper Plaintiffs filed the present Motion, alleging the affidavit submitted by Sean P. Trende (“Trende Affidavit”) on behalf of Legislative Defendants on December 28, 2021, is not an expert report or rebuttal report pursuant to North Carolina’s rules because it fails to contain Trende’s opinions or analysis, fails to offer specialized knowledge to assist the Court, and fails to rebut any evidence submitted by Plaintiffs. The Motion also contends that because the Trende Affidavit is not a rebuttal report, it was untimely submitted to Plaintiffs on December 28, 2021—the deadline for parties to exchange rebuttal evidence.

Legislative Defendants submitted a written response to the Motion on December 30, 2021, informing the Court of its position on the Motion. This Court rendered its ruling upon the Joint Motion in open court at the start of trial of these consolidated cases on January 3, 2022, and the Court’s reasoning is more fully set forth below.

The Court finds that while the Trende Affidavit largely does not necessarily present expert analysis, the Court finds that the Trende Affidavit does present some information requiring specialized knowledge that will be helpful to the Court in analyzing the issues in this litigation. The Court further finds that Plaintiff Common Cause and Harper Plaintiffs will not be prejudiced by the denial of this Motion. Accordingly, the Court concludes that the Motion should be denied.

WHEREFORE, the Court, for the reasons stated herein and in the exercise of its discretion, hereby **ORDERS** that Harper Plaintiffs' and Plaintiff Common Cause's Joint Motion to Strike the Trende Affidavit is **DENIED**.

SO ORDERED, this the 21 day of January 2022.


A. Graham Shirley, Superior Court Judge

/s/ Nathaniel J. Poovey

Nathaniel J. Poovey, Superior Court Judge

/s/ Dawn M. Layton

Dawn M. Layton, Superior Court Judge

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing document was served on the persons indicated below via e-mail transmission addressed as follows:

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Service is made upon local counsel for all attorneys who have been granted pro hac vice admission, with the same effect as if personally made on a foreign attorney within this state.

This the 5th day of January, 2022.

/s/ Kellie Z. Myers
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STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
FILE NO. 21 CVS 015426

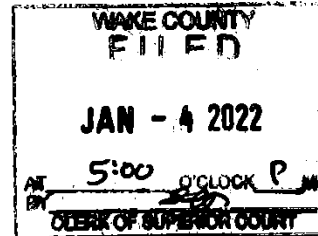
NORTH CAROLINA LEAGUE, OF
CONSERVATION VOTERS, INC., *et al.*,
Plaintiffs

and

COMMON CAUSE,
Plaintiff-Intervenor,

v.

REPRESENTATIVE DESTIN HALL, in
his official capacity as Chair of the House
Standing Committee on Redistricting, *et*
al.,
Defendants.



STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
FILE NO. 21 CVS 500085

REBECCA HARPER, *et al.*,
Plaintiffs

v.

REPRESENTATIVE DESTIN HALL, in
his official capacity as Chair of the House
Standing Committee on Redistricting, *et*
al.,
Defendants.

**ORDER ON LEGISLATIVE DEFENDANTS' MOTION TO STRIKE PORTIONS OF
DR. MOON DUCHIN'S REBUTTAL REPORT**

THIS MATTER came before the undersigned three-judge panel upon Legislative Defendants' Motion to Strike filed on January 3, 2022, pursuant to Rules 26(b)(4)(f) and 37 of the North Carolina Rules of Civil Procedure and Rules 702, 703, and 705 of the North Carolina Rules of Evidence.

Procedural and Factual Background

In this litigation, Plaintiffs seek a declaration that the North Carolina Congressional, North Carolina Senate, and North Carolina House of Representatives districts established by an act of the General Assembly in 2021, N.C. Sess. Laws 2021-174 (Senate Bill 750), 2021-173 (Senate Bill 739), and 2021-175 (House Bill 976) (collectively the “Enacted Plans”), violate the rights of Plaintiffs under the North Carolina Constitution. Plaintiffs seek to enjoin the future use of the 2021 congressional and state legislative districts.

On December 13, 2021, after receiving an order from the Supreme Court of North Carolina directing this Court to resolve all Plaintiffs’ claims on the merits by January 11, 2022, this Court entered a Case Scheduling Order giving the parties until December 23, 2021, to exchange expert witness’ reports; December 28, 2021, to exchange rebuttal evidence, including rebuttal expert reports; and December 31, 2021, for parties to conduct expert discovery depositions.

On January 3, 2022, Legislative Defendants filed the present Motion, alleging that portions of the rebuttal expert report submitted by Dr. Moon Duchin on behalf of NCLCV Plaintiffs on December 28, 2021, (“Duchin Rebuttal Report”) is not valid rebuttal evidence and, to the extent it constitutes initial expert opinion, is therefore untimely submitted.

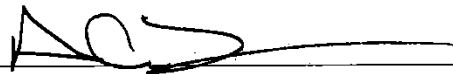
NCLCV Plaintiffs submitted a written response to the Motion on January 4, 2022, informing the Court of its position on the Motion. This Court rendered its ruling upon the Joint Motion in open court at the trial of these consolidated cases on January 4, 2022, and the Court’s reasoning is more fully set forth below.

The Court finds that while the Duchin Rebuttal Report does present expert analysis on the congressional maps at issue in this litigation when Dr. Barber’s initial expert report only addressed the state legislative maps, the information presented in the Duchin Rebuttal Report does go to an analysis and rebuttal of Dr. Barber’s analytical techniques and

methodology. Furthermore, in particular consideration of the expedited timeframe in which this case has proceeded, the Court finds that the Duchin Rebuttal Report in full will be helpful to the Court in analyzing the issues in this litigation. The Court further finds that Legislative Defendants will not be prejudiced by the denial of this Motion. Accordingly, the Court concludes that the Motion should be denied.

WHEREFORE, the Court, for the reasons stated herein and in the exercise of its discretion, hereby **ORDERS** that Legislative Defendants' Motion to Strike is **DENIED**.

SO ORDERED, this the 4 day of January 2022.



A. Graham Shirley, Superior Court Judge

/s/ **Nathaniel J. Poovey**

Nathaniel J. Poovey, Superior Court Judge

/s/ **Dawn M. Layton**

Dawn M. Layton, Superior Court Judge

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing document was served on the persons indicated below via e-mail transmission addressed as follows:

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Counsel for State Board Defendants

Service is made upon local counsel for all attorneys who have been granted pro hac vice admission, with the same effect as if personally made on a foreign attorney within this state.

This the 5th day of January, 2022.

/s/ Kellie Z. Myers
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Trial Court Administrator
10th Judicial District
Kellie.Z.Myers@nccourts.org

STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
21 CVS 015426, 21 CVS 500085

NORTH CAROLINA LEAGUE OF
CONSERVATION VOTERS, INC.;
HENRY M. MICHAUX, JR., et al.,

Plaintiffs,

REBECCA HARPER, et al.,

Plaintiffs,

v.

REPRESENTATIVE DESTIN HALL, in
his official capacity as Chair of the House
Standing Committee on Redistricting, et al.,

Defendants.

**AFFIDAVIT OF PROFESSOR
MOON DUCHIN**

Plaintiffs'
Exhibit
150

I, Dr. Moon, Duchin, having been duly sworn by an officer authorized to administer oaths, depose and state as follows:

1. I am over 18 years of age, legally competent to give this Affidavit, and have personal knowledge of the facts set forth in this Affidavit.
2. All of the quantitative work described in this Affidavit was performed by myself with the support of research assistants working under my direct supervision.

Background and qualifications

3. I hold a Ph.D. and an M.S in Mathematics from the University of Chicago as well as an A.B. in Mathematics and Women's Studies from Harvard University.
4. I am a Professor of Mathematics and a Senior Fellow in the Jonathan M. Tisch College of Civic Life at Tufts University.
5. My general research areas are geometry, topology, dynamics, and applications of mathematics and computing to the study of elections and voting. My redistricting-related work has been published in venues such as the Election Law Journal, Political Analysis, Foundations of Data Science, the Notices of the American Mathematical Society, Statistics and Public Policy, the Virginia Policy Review, the Harvard Data Science Review, Foundations of Responsible Computing, and the Yale Law Journal Forum.
6. My research has had continuous grant support from the National Science Foundation since 2009, including a CAREER grant from 2013–2018. I am currently on the editorial board of the journals Advances in Mathematics and the Harvard Data Science Review. I was elected a Fellow of the American Mathematical Society in 2017 and was named a Radcliffe Fellow and a Guggenheim Fellow in 2018.
7. A current copy of my full CV is attached to this report.
8. I am compensated at the rate of \$400 per hour.

Analysis of 2021 enacted redistricting plans in North Carolina

Moon Duchin
Professor of Mathematics, Tufts University
Senior Fellow, Tisch College of Civic Life

December 23, 2021

1 Introduction

On November 4, 2021, the North Carolina General Assembly enacted three districting plans: maps of 14 U.S. Congressional districts, 50 state Senate districts, and 120 state House districts. This affidavit contains a brief summary of my evaluation of the properties of these plans. My focus will be on the egregious partisan imbalance and racial vote dilution in the enacted plans, following a brief review of the traditional districting principles.

Because redistricting inevitably involves complex interactions of rules, which can create intricate tradeoffs, it will be useful to employ a direct comparison to an alternative set of plans. These demonstrative plans illustrate that it is possible to *simultaneously maintain or improve* metrics for all of the most important redistricting principles that are operative in North Carolina's constitution and state and federal law. Crucially, this shows that nothing about the state's political geography compels us to draw a plan with a massive and entrenched partisan skew or a significant dilutive effect on Black voters.

To this end, I will be comparing the following plans: the enacted plans SL-174, SL-173, and SL-175 and a corresponding set of alternative plans labeled NCLCV-Cong, NCLCV-Sen, and NCLCV-House (proposed by plaintiffs who include the North Carolina League of Conservation Voters). The accompanying block assignment files are Appendices A1, A2, A3 to this affidavit, and I understand that they will be provided to the court in native format.

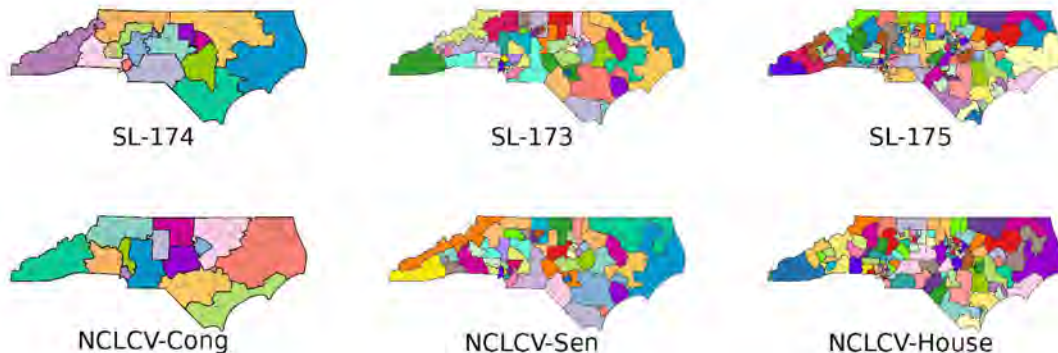


Figure 1: The six plans under discussion in this affidavit.

2 Partisan gerrymandering

2.1 Abstract partisan fairness

There are many notions of partisan fairness that can be found in the scholarly literature and in redistricting practitioner guides and software. Most of them are numerical, in the sense that they address *how a certain quantitative share of the vote should be translated to a quantitative share of the seats* in a state legislature or Congressional delegation.

The numerical notions of partisan fairness all tend to agree on one central point: an electoral climate with a roughly 50-50 split in partisan preference should produce a roughly 50-50 representational split. I will call this the *Close-Votes-Close-Seats* principle. North Carolina voting has displayed a partisan split staying consistently close to even between the two major parties over the last ten years, but the plans released by the General Assembly after the 2010 census were very far from realizing the ideal of converting even voting to even representation. This time, with a 14th seat added to North Carolina's apportionment, an exactly even seat outcome is possible. But the new enacted plans, like the plans from ten years ago, are decidedly not conducive to even representation.

Importantly, Close-Votes-Close-Seats is not tantamount to a requirement for proportionality. Rather, it is closely related to the principle of *Majority Rule*: a party or group with more than half of the votes should be able to secure more than half of the seats. In fact, Close-Votes-Close-Seats is essentially a corollary (or byproduct) of Majority Rule. It is not practicable to design a map that *always* attains these properties, but by contrast a map that *consistently thwarts* them should be closely scrutinized and usually rejected.

Unlike proportionality, neither Close-Votes-Close-Seats nor Majority Rule has any bearing on the preferred representational outcome when one party has a significant voting advantage: these principles are silent about whether 70% vote share should secure 70% of the seats, as proportionality would dictate, or 90% of the seats, as supporters of the efficiency gap would prefer. The size of the "winner's bonus" is not at all prescribed by a Close-Votes-Close-Seats norm.

2.2 Geography and fairness

Some scholars have argued that all numerical ideals, including Close-Votes-Close-Seats, ignore the crucial *political geography*—this school of thought reminds us that the location of votes for each party, and not just the aggregate preferences, has a major impact on redistricting outcomes. In [5], my co-authors and I gave a vivid demonstration of the impacts of political geography in Massachusetts: we showed that for a ten-year span of observed voting patterns, even though Republicans tended to get over one-third of the statewide vote, it was impossible to draw a single Congressional district with a Republican majority. That is, the geography of Massachusetts Republicans locked them out of Congressional representation. It is therefore not reasonable to charge the Massachusetts legislature with gerrymandering for having produced maps which yielded all-Democratic delegations; they could not have done otherwise.

In North Carolina, this is not the case. The alternative plans demonstrate that it is possible to produce maps that give the two major parties a roughly equal opportunity to elect their candidates. These plans are just examples among many thousands of plausible maps that convert voter preferences to far more even representation by party. In Congressional redistricting, present-day North Carolina geography is easily conducive to a seat share squarely in line with the vote share. In Senate and House plans, even following the strict detail of the Whole County Provisions, there are likewise many alternatives converting nearly even voting patterns to nearly even representation, across a large set of recent elections.

The clear conclusion is that the political geography of North Carolina today does not obstruct the selection of a map that treats Democratic and Republican voters fairly and evenhandedly.

2.3 Overlaying elections and plans

The enacted plans behave as though they are built to resiliently safeguard electoral advantage for Republican candidates. We can examine this effect without invoking any predictions or assumptions about future voting behavior by using a standard technique in election analysis: pairing proposed plans with actual recent elections. This method works by overlaying (or superimposing) the districting plans on a series of observed voting patterns from the recent past; this lets us take advantage of the rich dataset of real electoral outcomes in North Carolina in the last ten years to avoid speculative or predictive modeling about voting trends in the future.¹

The overlay method works best when there is a large set of statewide elections to apply, which is certainly true in North Carolina. Of the 52 statewide party-ID general elections from the last cycle, 29 are elections for Council of State (ten offices elected three times, with the Attorney General race uncontested in 2012), three are presidential races, three are for U.S. Senate, and 17 are judicial races since mid-decade, when those became partisan contests. See Table 1 for more detail on the election dataset.

2.4 Partisanship outcomes

North Carolina is a very "purple" state. In 38 out of the 52 contests in our dataset, the statewide partisan outcome is within a 6-point margin: 47-53 or closer.

To understand how the enacted plans create major shortfalls for Democratic representation, we will overlay the plans with voting patterns from individual elections in the past Census cycle. We can make a striking observation by laying our six plans over the vote patterns, shown in Table 1. This reveals that the enacted Congressional plan (SL-174) shows a remarkable lack of responsiveness, giving 10–4 partisan outcomes across a wide range of recent electoral conditions, meaning that 10 Republicans and only 4 Democrats would represent North Carolina in Congress. The alternative plan (NCLCV-Cong) is far more faithful to the vote share, far more responsive, and tends to award more seats to the party with more votes—usually upholding both basic small-d-democratic principles of Majority Rules and Close-Votes-Close-Seats, which are violated by the enacted plan.

The same patterns are visible at the Senate and House level. Overall, the three enacted plans combine with those 38 relatively even vote patterns to produce 114 outcomes. Every single pairing of an enacted plan with a close statewide contest—a complete sweep of 114 opportunities—gives an *outright Republican majority* of seats. All three enacted plans will lock in an extreme, resilient, and unnecessary advantage for one party.

By every measure considered above that corresponds to a clear legal or good-government redistricting goal or value, the alternative plans meet or exceed the performance of the enacted plans. This demonstrates that it is possible, without any cost to the redistricting principles in play, to select maps that are far fairer to the voters of North Carolina.

Below, the outcomes of overlaying the plans on the elections will be presented in a series of tables and figures. First, Table 1 overviews the overlays with numbers.² Then, Figure 2 offers a visualization to depict the same big picture of entrenched partisan advantage in the enacted plans with the full 52-election dataset. The diagonals show various lines of *responsiveness* that pivot around the central point of fairness: half of the votes securing half of the seats.

Finally, we will restrict to a smaller set of the 14 "up-ballot" races and consider the comparison for one office at a time in Figures 3-5.

¹Many authors have used this technique of overlaying "exogenous" statewide elections rather than using statistical regressions and other modeling to manipulate "endogenous" districted elections. For instance this can be found in peer-reviewed work and expert reports of scholar-practitioners such as Bernard Grofman and Steven Ansolabehere.

²The backup data supporting Table 1 is attached to this report as Appendix C and I understand that it will be provided to the court in native format.

Do close votes translate to close seats?

The table records the number of districts in each plan with a Democratic win. This shows that the enacted maps systematically violate the principles of Close-Votes-Close-Seats and Majority Rule.

	D Vote Share	SL-174	NCLCV-Cong	SL-173	NCLCV-Sen	SL-175	NCLCV-House
GOV12	0.4418	4	4	16	18	41	44
AGC16	0.4444	4	4	17	17	40	42
LAC16	0.4475	4	5	18	20	42	45
JHU16	0.4563	4	5	18	19	42	49
AGC20	0.4615	3	4	17	19	40	51
JZA16	0.4619	4	5	19	21	43	50
JDI16	0.4653	4	6	19	21	44	53
LTG16	0.4665	4	6	19	21	44	54
LAC12	0.4674	4	5	20	20	44	51
AGC12	0.4678	4	5	18	18	43	50
SEN16	0.4705	4	6	19	21	43	55
TRS16	0.4730	4	6	19	21	45	53
TRS20	0.4743	4	6	17	20	45	51
JA620	0.4806	4	7	17	21	46	55
PRS16	0.4809	4	7	19	22	48	56
JA420	0.4822	4	7	17	22	47	56
INC20	0.4823	4	7	18	23	47	56
LTG20	0.4836	4	7	18	21	46	55
JA720	0.4842	4	7	17	22	48	56
SUP20	0.4862	4	7	19	23	49	56
JA520	0.4874	4	7	18	22	49	57
JA218	0.4876	4	7	18	22	45	55
JS420	0.4879	4	7	19	24	49	56
J1320	0.4885	4	7	19	23	49	56
PRS12	0.4897	4	6	20	21	46	55
SEN20	0.4910	4	7	20	24	48	56
LAC20	0.4918	4	8	21	25	51	58
SEN14	0.4919	4	6	20	22	46	52
PRS20	0.4932	4	8	20	25	50	60
JS220	0.4934	4	8	21	24	51	59
SUP16	0.4941	4	6	22	23	49	57
JS118	0.4955	4	7	20	25	50	58
INC16	0.4960	4	6	22	22	50	57
JST16	0.4976	4	7	21	23	50	58
LTG12	0.4992	5	7	22	22	50	58
JS120	0.5000	4	8	22	27	52	60
AUD16	0.5007	5	8	22	23	51	56
GOV16	0.5011	4	7	20	27	50	58
ATG20	0.5013	4	8	21	25	51	58
ATG16	0.5027	4	7	20	23	50	57
JA118	0.5078	4	8	22	26	51	58
AUD20	0.5088	4	8	24	28	54	61
JA318	0.5091	4	8	21	26	52	59
SOS20	0.5116	5	8	24	28	53	62
JGE16	0.5131	5	8	22	25	52	59
INC12	0.5186	5	8	22	22	55	61
SOS16	0.5226	5	9	24	24	57	62
GOV20	0.5229	4	8	23	27	58	63
AUD12	0.5371	8	9	27	28	61	65
SOS12	0.5379	7	9	26	26	59	63
TRS12	0.5383	7	9	25	24	59	65
SUP12	0.5424	8	9	28	28	61	66

53 – 47 or closer

AGC = Agriculture Commissioner; ATG = Attorney General; AUD = Auditor; GOV = Governor; INC = Insurance Commissioner; LAC = Labor Commissioner; LTG = Lieutenant Governor; PRS = President; SEN = Senator; SOS = Secretary of State; SUP = Superintendent of Public Instruction; TRS = Treasurer. The prefix JA* refers to judicial elections to the Court of Appeals (so that, for instance, JA118 is the election to the Seat 1 on the Court of Appeals in 2018), JS* are elections to the state Supreme Court. All other J* prefixes refer to an election to replace a specific judge on the Court of Appeals. Where there was more than one judicial candidate from a given party on the ballot, they were combined for this analysis. The two-digit suffix designates the election year.

Table 1: 52 general elections, sorted from lowest to highest Democratic share.

Seats vs. Votes

Majority Rule says that outcomes should tend to fall in the Northeast and Southwest quadrants, avoiding the Southeast and Northwest. Close-Votes-Close-Seats says that points should not miss the bulls-eye near the center by systematically deviating to the North or the South. These principles are clearly upheld by the alternative plans (**green**) and violated by the enacted plans (**maroon**).

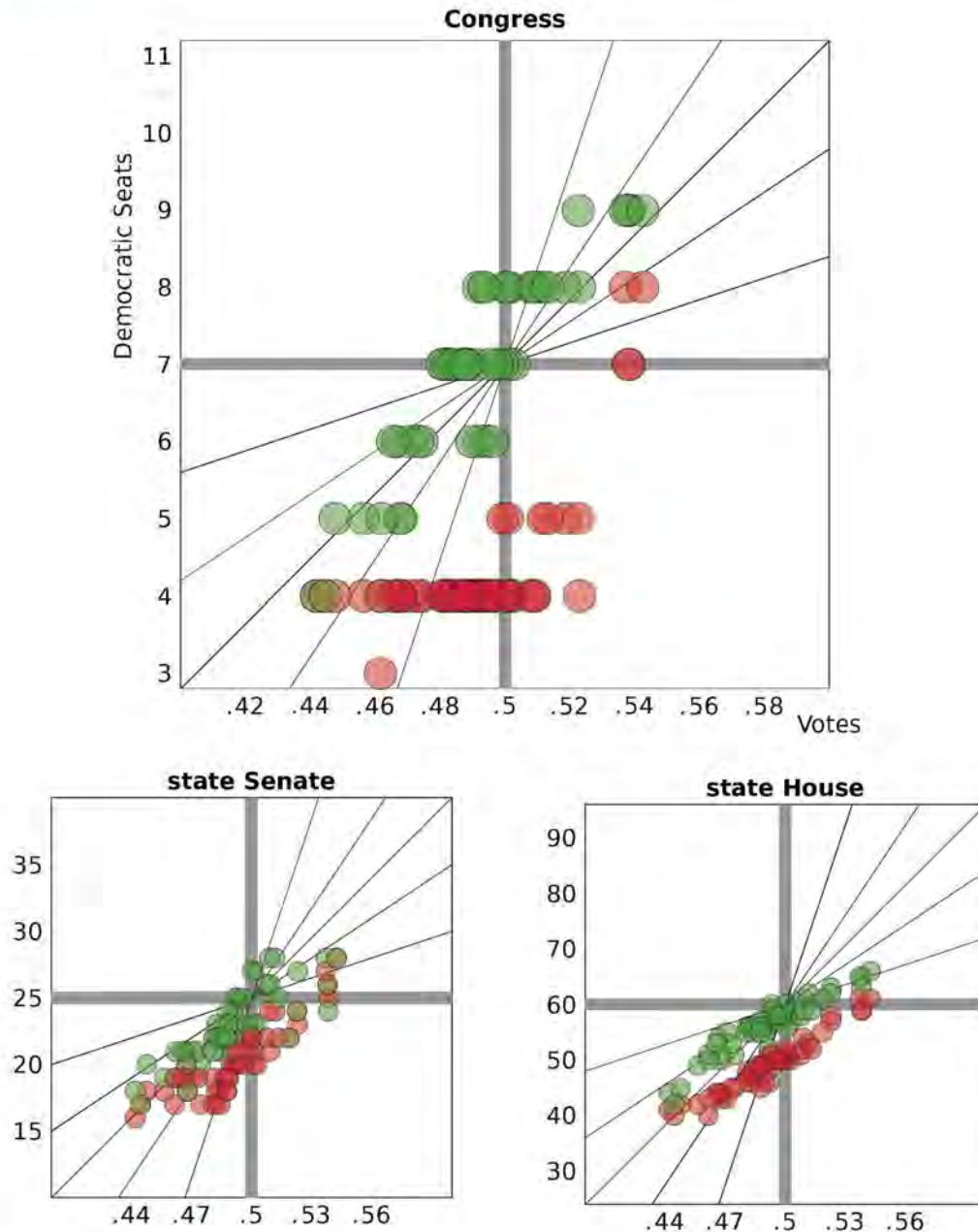


Figure 2: On these seats-vs.-votes plots, we see the election results when overlaying the six maps on the 52 general election contests in the last decade; each colored dot is plotted as the coordinate pair (vote share, seat share).

2.5 Up-ballot races

The same patterns are apparent if we narrow our focus to the smaller set of better-known "up-ballot" races: in order, the first five to appear on the ballot are the contests for President, U.S. Senator, Governor, Lieutenant Governor, and Attorney General. Together these occurred 14 times in the last Census cycle.

	Up-ballot generals (14)		All generals (52)	
	D vote share	D seat share	D vote share	D seat share
SL-174		.2908		.3118
NCLCV-Cong	.4883	.4796	.4911	.4931
SL-173		.3957		.4065
NCLCV-Sen	.4883	.4557	.4911	.4592
SL-175		.3994		.4080
NCLCV-House	.4883	.4649	.4911	.4684

Table 2: Comparing overall fidelity of representation to the voting preferences of the electorate. Vote shares are computed with respect to the major-party vote total.

Figure 3 shows the performance of the Congressional maps in the three Presidential contests in the last Census cycle, where the Democratic vote share (pink box) was between 48% and 50% of the major-party total each time. For a contest that is so evenly divided, we would expect a fair map to have 6, 7, or 8 out of 14 districts favoring each party. The alternative Congressional map NCLCV-Cong does just that, while the enacted plan SL-174 has just 4 out of 14 Democratic-majority districts each time (green and maroon circles). The alternative plan is far more successful at reflecting the even split of voter preferences.

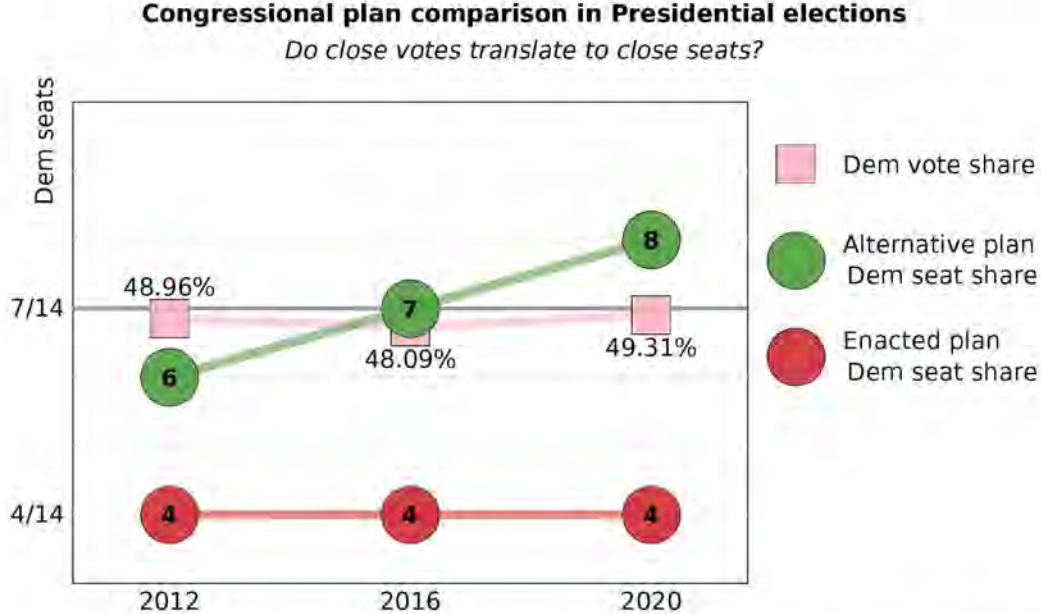


Figure 3: When Presidential voting is overlaid on the plans, we can compare the Democratic seat share in the enacted Congressional plan SL-174 (maroon) and the alternative Congressional plan NCLCV-Cong (green) to the vote share (pink) for Democratic candidates. The 50% line is marked.

Next, simplified versions of the same type of graphic are presented for all five up-ballot offices. Figure 4 compares Congressional maps, and Figure 5 compares legislative maps in the same fashion.

In these figures, we can view whether the plans display a tendency to uphold the Close-Votes-Close-Seats norm, for one office at a time. The pink squares are the vote share. If they are close to the 50-50 mark, then a fair map would also produce seat shares that are close to that mark. This is consistently true for the alternative plans and consistently false for the enacted plans.

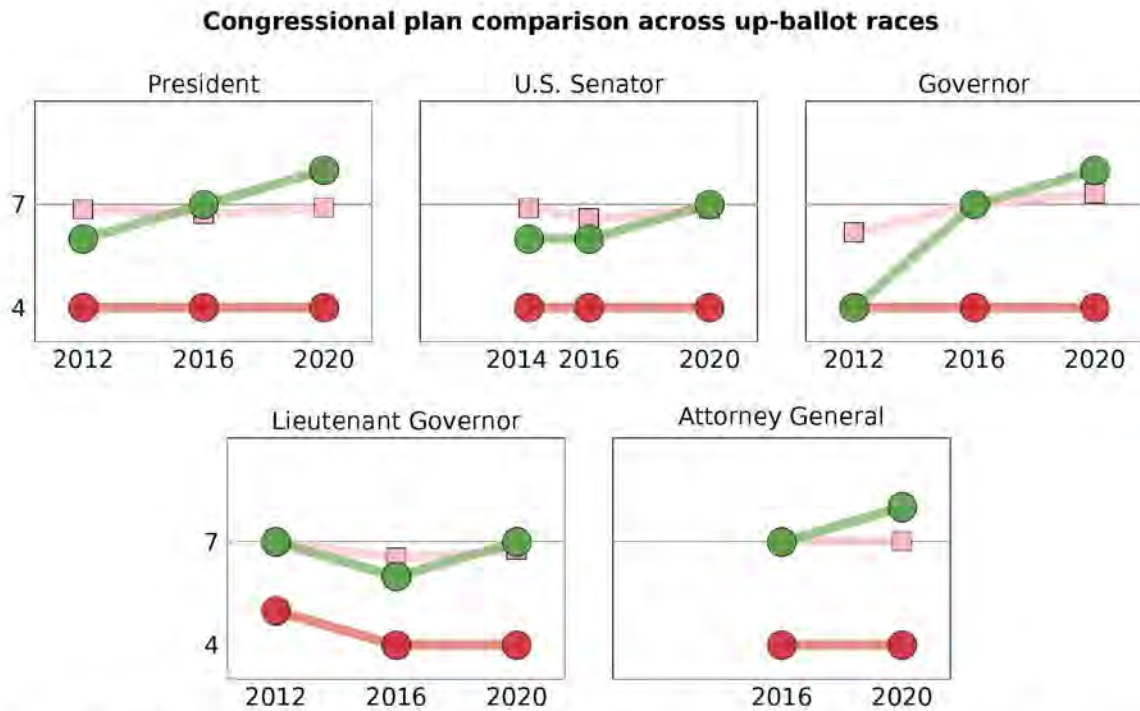


Figure 4: For up-ballot general election contests across the previous Census cycle, we can compare the seat share under the enacted Congressional plan SL-174 (maroon) and the seat share under the alternative Congressional plan NCLCV-Cong (green) to the vote share (pink) for Democratic candidates. The presidential comparison from the previous figure is repeated here, alongside the other four up-ballot offices. The 50% line is marked each time.

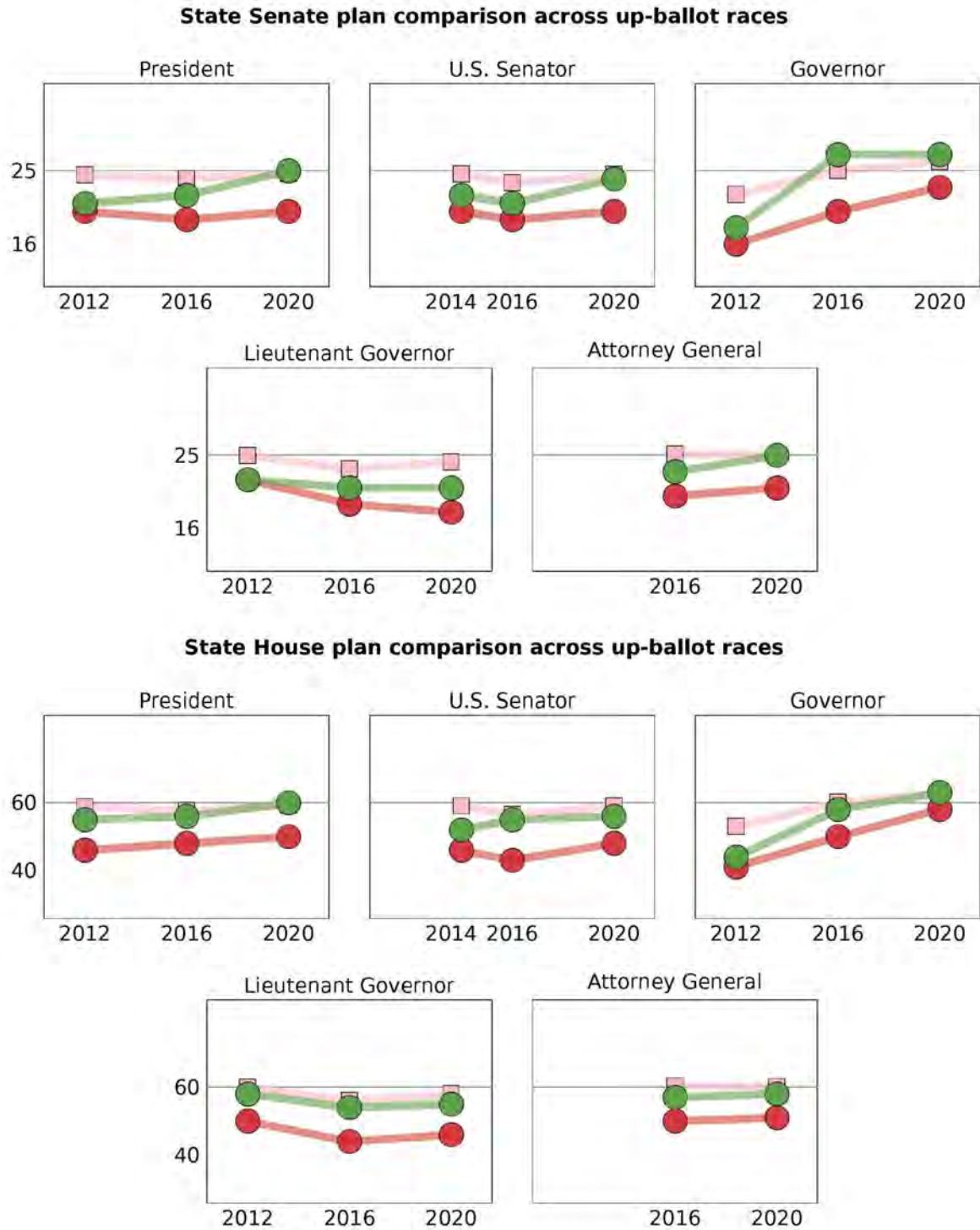


Figure 5: Legislative plans overlaid with voting patterns from up-ballot elections. The enacted plans SL-173 and SL-175 are shown in **maroon**. The alternative plans NCLCV-Sen and NCLCV-House, in **green**, have seat shares tracking much closer to the nearly even voting preferences.

3 Racial vote dilution

North Carolina has a large minority of Black-identified residents. Over two million North Carolinians—2,107,526 out of 10,439,388 to be precise, or about 20.2%—were identified as non-Hispanic Black-alone on the Census. Within the voting-age population, the numbers shift to 1,620,569 out of 8,155,099, or about 19.9%. Increasing numbers of Americans identify as Black in combination with other races and/or Hispanic ethnicity. Passing to this more expansive definition of Black voting age population raises the numbers to 1,743,052 out of 8,155,099, or 21.4%.

Minority groups' opportunity to elect candidates of choice is protected by both state and federal law. A detailed assessment of opportunity must not primarily hinge on the demographics of the districts, but must also rely on electoral history and an assessment of polarization patterns.³

I have used industry-leading techniques to study the racial polarization patterns in North Carolina general and primary elections from the last decade. They indicate a consistent pattern of polarization in statewide general elections, such that White voters are estimated to support the Republican candidate at a rate of over 61% in every general election, and Black voters are estimated to support the Democratic candidate at a rate of over 94% each time. Polarization is present in many Democratic primary elections as well, particularly in elections in which there is a Black Democratic candidate. I have designated a selection of eight elections—four generals and four primaries—chosen to be particularly informative in determining whether Black voters have an opportunity to elect their candidates of choice.

Democratic Primaries

- Sutton preferred over Mangrum in the 2020 Superintendent primary;
- Smith preferred over Wadsworth in the 2020 Ag. Commissioner primary;
- Williams preferred over Stein in the 2016 Attorney General primary;
- Coleman preferred over the field in the 2016 Lieutenant Governor primary.

General Elections

- Holley preferred over Robinson in the 2020 Lieutenant Governor election;
- Cunningham preferred over Tillis in the 2020 U.S. Senate election;
- Coleman preferred over Forest in the 2016 Lieutenant Governor election;
- Blue preferred over Folwell in the 2016 Treasurer election.

These eight contests were chosen by a combination of factors that combine to make an election particularly informative with respect to the preferences of Black voters. Namely: I prioritized elections that are more recent, that have a Black candidate on the ballot, that are clearly polarized, and that are close enough to produce variation at the district level.⁴

The electoral alignment score derived from these elections is a value from 0 to 8. I consider a district in which the Black candidate of choice prevails in at least 6 of these 8 contests to be aligned with Black voting preferences in the state.⁵ If, in addition, at least 25% of the voting age population is Black, then I label the district to be effective for Black voters.

I note that the use of electoral history is not just cosmetic: there are House-sized districts with 35-39% BVAP that are nonetheless not labeled effective in these lists because they fall short of the standard of inclining to the Black candidate of choice in at least six out of the eight chosen elections.

³A detailed discussion of the inadequacy of using demographics alone as a proxy can be found in [3].

⁴Of the candidates above, Sutton, Williams, Coleman, Colley, and Blue are themselves Black-identified.

⁵I have used statewide ecological inference ("EI") runs to determine the candidate of choice for Black voters. I note that it is also possible to run EI on smaller geographies (such as counties or county clusters) to detect regional candidates of choice rather than statewide candidates of choice; in most cases, these will be the same, but in some cases, regional effects may be meaningful and could affect these results at the margin.

At all three levels, the NCLCV alternative maps provide more effective opportunity-to-elect districts for Black voters than the corresponding enacted plans.

Effective districts for Black voters

Out of 14 Congressional districts, SL-174 has 2 effective districts, while NCLCV-Cong has 4.

Out of 50 Senate districts, SL-173 has 8 effective districts, while NCLCV-Sen has 12.

Out of 120 House districts, SL-175 has 24 effective districts, while NCLCV-House has 36.

effective districts in state plan	effective districts in alternative plan
CD2, 9	CD2, 4, 9, 11
SD5, 11, 14, 19, 28, 38, 39, 40	SD1, 5, 11, 14, 18, 19, 26, 27, 32, 38, 39, 40
HD8, 23, 24, 25, 27, 32, 38, 39, 42, 44, 48, 57, 58, 60, 66, 71, 92, 99, 100, 101, 102, 106, 107, 112	HD2, 8, 9, 10, 23, 24, 25, 27, 31, 32, 33, 38, 39, 40, 42, 43, 44, 45, 48, 57, 58, 59, 60, 61, 63, 66, 71, 88, 92, 99, 100, 101, 102, 106, 107, 112

4 Detailed plan comparison

Detailed maps showing how the district lines cut through the patterns of Democratic and Republican support, and how they cut through the demographic location of Black voting age population, can be found in Appendix B.

4.1 Traditional districting principles

Principles that are relevant to North Carolina redistricting include the following.

- **Population balance.** The standard interpretation of *One Person, One Vote* for Congressional districts is that districts should be fine-tuned so that their total Census population deviates by no more than one person from any district to any other.

There is more latitude with legislative districts; they typically vary top-to-bottom by no more than 10% of ideal district size. In North Carolina, the Whole County Provisions make it very explicit that 5% deviation must be tolerated if it means preserving more counties intact.

All six plans have acceptable population balance.

Population deviation

	Max Positive Deviation	District	Max Negative Deviation	District
SL-174	0	(eight districts)	–1	(six districts)
NCLCV-Cong	0	(eight districts)	–1	(six districts)
SL-173	10,355 (4.960%)	5	–10,434 (4.997%)	13,18
NCLCV-Sen	10,355 (4.960%)	5	–10,427 (4.994%)	15
SL-175	4250 (4.885%)	18	–4189 (4.815%)	112
NCLCV-House	4341 (4.990%)	82	–4323 (4.969%)	87

Table 3: Deviations are calculated with respect to the rounded ideal district populations of 745,671 for Congress, 208,788 for Senate, and 86,995 for House.

- **Contiguity.** All six plans are contiguous; for each district, it is possible to transit from any part of the district to any other part through a sequence of census blocks that share boundary segments of positive length. As is traditional in North Carolina, contiguity through water is accepted.

- **Compactness.** The two compactness metrics most commonly appearing in litigation are the *Polsby-Popper score* and the *Reock score*. Polsby-Popper is the name given in redistricting to a metric from ancient mathematics: the isoperimetric ratio comparing a region's area to its perimeter via the formula $4\pi A/P^2$. Higher scores are considered more compact, with circles uniquely achieving the optimum score of 1. Reock is a different measurement of how much a shape differs from a circle: it is computed as the ratio of a region's area to that of its circumcircle, defined as the smallest circle in which the region can be circumscribed. From this definition, it is clear that it too is optimized at a value of 1, which is achieved only by circles.

These scores depend on the contours of a district and have been criticized as being too dependent on map projections or on cartographic resolution [1, 2]. Recently, some mathematicians have argued for using discrete compactness scores, taking into account the units of Census geography from which the district is built. The most commonly cited discrete score for districts is the *cut edges score*, which counts how many adjacent pairs of geographical units receive different district assignments. In other words, cut edges measures the "scissors complexity" of the districting plan: how much work would have to be done to separate the districts from each other? Plans with a very intricate boundary would require many separations. This score improves on the contour-based scores by better controlling for factors like coastline and other natural boundaries, and by focusing on the units actually available to redistricters rather than treating districts like free-form Rorschach blots.

The alternative plans are significantly more compact than the enacted plans in all three compactness metrics.

Compactness

	block cut edges (lower is better)	average Polsby-Popper (higher is better)	average Reock (higher is better)
SL-174	5194	0.303	0.417
NCLCV-Cong	4124	0.383	0.470
SL-173	9702	0.342	0.416
NCLCV-Sen	9249	0.369	0.428
SL-175	16,182	0.351	0.437
NCLCV-House	13,963	0.414	0.465

Table 4: Comparing compactness scores via one discrete and two contour-based metrics. These scores were computed using dissolved districts based on the census blocks that were assigned in the plans under discussion.

District-by-district compactness scores for the contour-based metrics are shown in Tables 5-7.

	Reock		Polsby-Popper	
CD	SL-174	NCLCV-Cong	SL-174	NCLCV-Cong
1	0.517	0.534	0.324	0.403
2	0.303	0.47	0.278	0.323
3	0.484	0.212	0.331	0.228
4	0.487	0.412	0.39	0.304
5	0.468	0.582	0.347	0.514
6	0.418	0.472	0.231	0.483
7	0.424	0.664	0.199	0.434
8	0.472	0.523	0.532	0.398
9	0.678	0.579	0.469	0.43
10	0.41	0.285	0.197	0.254
11	0.282	0.553	0.207	0.532
12	0.247	0.388	0.243	0.368
13	0.41	0.558	0.266	0.379
14	0.232	0.354	0.221	0.313

Table 5: Compactness scores by district for the Congressional plans.

SD	Reock		Polsby-Popper	
	SL-173	NCLCV-Sen	SL-173	NCLCV-Sen
1	0.263	0.297	0.213	0.174
2	0.231	0.397	0.105	0.178
3	0.409	0.409	0.179	0.179
4	0.564	0.564	0.406	0.406
5	0.403	0.403	0.335	0.335
6	0.616	0.616	0.595	0.595
7	0.213	0.553	0.219	0.411
8	0.446	0.457	0.439	0.478
9	0.443	0.441	0.217	0.226
10	0.618	0.618	0.614	0.614
11	0.464	0.464	0.376	0.376
12	0.42	0.388	0.395	0.404
13	0.284	0.357	0.257	0.4
14	0.399	0.523	0.247	0.45
15	0.397	0.52	0.231	0.398
16	0.619	0.51	0.473	0.388
17	0.488	0.54	0.361	0.505
18	0.376	0.644	0.309	0.514
19	0.53	0.53	0.34	0.34
20	0.384	0.387	0.363	0.344
21	0.218	0.218	0.137	0.137
22	0.473	0.459	0.471	0.517
23	0.498	0.498	0.529	0.529
24	0.52	0.52	0.452	0.452
25	0.283	0.325	0.271	0.276
26	0.451	0.397	0.301	0.331
27	0.541	0.364	0.437	0.321
28	0.444	0.544	0.248	0.457
29	0.317	0.378	0.202	0.252
30	0.4	0.4	0.456	0.456
31	0.482	0.429	0.344	0.355
32	0.62	0.455	0.422	0.354
33	0.322	0.322	0.294	0.294
34	0.49	0.477	0.523	0.489
35	0.375	0.342	0.225	0.348
36	0.463	0.314	0.411	0.294
37	0.401	0.397	0.421	0.437
38	0.523	0.566	0.334	0.444
39	0.356	0.391	0.295	0.368
40	0.381	0.453	0.382	0.538
41	0.287	0.519	0.294	0.531
42	0.429	0.397	0.273	0.469
43	0.533	0.341	0.522	0.274
44	0.386	0.425	0.46	0.357
45	0.343	0.391	0.25	0.3
46	0.229	0.249	0.184	0.213
47	0.186	0.116	0.127	0.113
48	0.404	0.373	0.38	0.264
49	0.479	0.424	0.358	0.22
50	0.422	0.312	0.441	0.335

Table 6: Compactness scores by district for the Senate plans.

HD	Reock		Polsby-Popper	
	SL-175	NCLCV-House	SL-175	NCLCV-House
1	0.413	0.393	0.213	0.168
2	0.316	0.404	0.326	0.468
3	0.377	0.448	0.298	0.329
4	0.482	0.337	0.448	0.237
5	0.28	0.28	0.3	0.3
6	0.389	0.539	0.479	0.549
7	0.476	0.442	0.44	0.403
8	0.394	0.437	0.327	0.314
9	0.587	0.698	0.411	0.425
10	0.589	0.606	0.567	0.398
11	0.359	0.654	0.246	0.473
12	0.312	0.312	0.291	0.291
13	0.379	0.367	0.425	0.488
14	0.384	0.305	0.291	0.204
15	0.546	0.468	0.371	0.395
16	0.404	0.483	0.242	0.388
17	0.416	0.668	0.227	0.473
18	0.589	0.336	0.37	0.374
19	0.462	0.482	0.285	0.359
20	0.463	0.172	0.557	0.173
21	0.45	0.591	0.206	0.469
22	0.528	0.528	0.361	0.361
23	0.453	0.453	0.359	0.359
24	0.463	0.554	0.538	0.638
25	0.463	0.402	0.511	0.455
26	0.45	0.474	0.4	0.412
27	0.433	0.433	0.353	0.353
28	0.573	0.411	0.498	0.43
29	0.36	0.519	0.333	0.645
30	0.381	0.306	0.356	0.389
31	0.415	0.476	0.323	0.533
32	0.534	0.528	0.587	0.543
33	0.491	0.254	0.289	0.252
34	0.414	0.383	0.289	0.349
35	0.28	0.528	0.292	0.464
36	0.586	0.396	0.532	0.443
37	0.417	0.372	0.369	0.379
38	0.377	0.522	0.247	0.383
39	0.649	0.399	0.519	0.245
40	0.413	0.342	0.336	0.242
41	0.521	0.581	0.423	0.498
42	0.537	0.402	0.395	0.258
43	0.52	0.415	0.281	0.372
44	0.587	0.564	0.419	0.564
45	0.248	0.555	0.274	0.495
46	0.316	0.432	0.239	0.275
47	0.604	0.535	0.498	0.453
48	0.479	0.479	0.442	0.442
49	0.447	0.555	0.358	0.604
50	0.375	0.384	0.343	0.388
51	0.48	0.427	0.283	0.262
52	0.352	0.468	0.214	0.28
53	0.322	0.597	0.256	0.449
54	0.459	0.486	0.376	0.442
55	0.458	0.534	0.312	0.399
56	0.502	0.652	0.37	0.691
57	0.436	0.589	0.368	0.475
58	0.397	0.521	0.257	0.432
59	0.455	0.463	0.334	0.56
60	0.383	0.361	0.261	0.407

HD	Reock		Polsby-Popper	
	SL-175	NCLCV-House	SL-175	NCLCV-House
61	0.388	0.356	0.294	0.346
62	0.318	0.651	0.312	0.589
63	0.56	0.596	0.353	0.533
64	0.329	0.48	0.257	0.459
65	0.594	0.594	0.764	0.764
66	0.457	0.46	0.264	0.293
67	0.444	0.444	0.486	0.486
68	0.45	0.577	0.305	0.502
69	0.539	0.49	0.346	0.364
70	0.542	0.638	0.535	0.65
71	0.267	0.488	0.275	0.509
72	0.521	0.495	0.27	0.398
73	0.487	0.46	0.421	0.612
74	0.367	0.548	0.299	0.425
75	0.388	0.468	0.266	0.53
76	0.43	0.43	0.497	0.497
77	0.408	0.408	0.297	0.297
78	0.341	0.479	0.204	0.447
79	0.523	0.353	0.36	0.2
80	0.285	0.413	0.319	0.359
81	0.481	0.434	0.312	0.359
82	0.311	0.444	0.32	0.477
83	0.474	0.473	0.328	0.342
84	0.498	0.57	0.515	0.645
85	0.501	0.493	0.315	0.299
86	0.49	0.49	0.437	0.437
87	0.538	0.512	0.437	0.526
88	0.233	0.367	0.211	0.364
89	0.304	0.462	0.291	0.338
90	0.508	0.431	0.349	0.381
91	0.541	0.563	0.522	0.583
92	0.28	0.399	0.244	0.455
93	0.317	0.33	0.288	0.319
94	0.507	0.496	0.348	0.371
95	0.616	0.49	0.596	0.516
96	0.358	0.316	0.351	0.33
97	0.321	0.321	0.515	0.515
98	0.593	0.574	0.576	0.589
99	0.469	0.471	0.322	0.443
100	0.537	0.359	0.333	0.312
101	0.488	0.518	0.31	0.515
102	0.392	0.621	0.23	0.36
103	0.278	0.546	0.349	0.479
104	0.573	0.432	0.32	0.313
105	0.395	0.437	0.419	0.391
106	0.599	0.485	0.419	0.503
107	0.304	0.529	0.183	0.556
108	0.374	0.402	0.24	0.288
109	0.466	0.485	0.421	0.522
110	0.355	0.514	0.277	0.39
111	0.348	0.641	0.24	0.436
112	0.58	0.266	0.397	0.229
113	0.392	0.368	0.224	0.186
114	0.307	0.549	0.182	0.46
115	0.559	0.308	0.349	0.289
116	0.401	0.532	0.159	0.332
117	0.422	0.581	0.271	0.393
118	0.412	0.412	0.247	0.247
119	0.276	0.276	0.22	0.22
120	0.4	0.4	0.367	0.367

Table 7: Compactness scores by district for the House plans.

• **Respect for political subdivisions.** For legislative redistricting, North Carolina has one of the strongest requirements for county consideration of any state in the nation. In my understanding, courts have interpreted the Whole County Provisions as follows.⁶

- First, if any county is divisible into a whole number of districts that will be within $\pm 5\%$ of ideal population, then it must be subdivided accordingly without districts crossing into other counties.
- Next, seek any contiguous grouping of two counties that is similarly divisible into a whole number of districts.
- Repeat for groupings of three, and so on, until all counties are accounted for.

Once clusters have been formed, there are more rules about respecting county lines within clusters. The legal language is again explicit: "[T]he resulting interior county lines created by any such groupings may be crossed or traversed in the creation of districts within said multi-county grouping but only to the extent necessary" to meet the $\pm 5\%$ population standard for districts. To address this, I have counted the *county traversals* in each plan, i.e., the number of times a district crosses between adjacent counties within a grouping.

Table 8 reflects the county integrity metric that is most relevant at each level: the enacted congressional plan splits 11 counties into 25 pieces while the alternative plan splits 13, but splits no county three ways. (The enacted plans unnecessarily split three counties into three pieces.) In the legislative plans, the law specifies traversals as the fundamental integrity statistic.

County and municipality preservation

# county pieces		# traversals	
SL-174	25	SL-173	97
NCLCV-Cong	26	NCLCV-Sen	89
		SL-175	69
		NCLCV-House	66

# municipal pieces (considering all blocks)		# municipal pieces (considering populated blocks)
SL-174	90	50
NCLCV-Cong	58	41
SL-173	152	91
NCLCV-Sen	125	100
SL-175	292	222
NCLCV-House	201	173

Table 8: Comparing the plans' conformance to political boundaries.

⁶A complete set of solutions is described in detail in the white paper of Mattingly et al.—though with the important caveat that the work "does not reflect... compliance with the Voting Rights Act" [4]. Absent a VRA conflict, the 2020 Decennial Census population data dictates that the North Carolina Senate plan must be decomposed into ten single-district fixed clusters and seven multi-district fixed clusters (comprising 2, 2, 3, 3, 4, 6, and 6 districts, respectively). It has four more areas in which there is a choice of groupings. In all, there are sixteen different possible clusterings for Senate, each comprising 26 county clusters. The House likewise has 11 single-district fixed clusters and 22 multi-district fixed clusters (with two to thirteen districts per cluster), together with three more areas with a choice of groupings. In all, the House has only eight acceptable clusterings, each comprising 40 county clusters. Again, it is important to note that VRA compliance may present a compelling reason to select some clusterings and reject others.

The alternative plans are comparable to the enacted plans, and often superior, in each of these key metrics regarding preservation of political boundaries. This remains true whether splits of municipalities are counted by the division of any of their census blocks, or only by the division of populated census blocks.

I will briefly mention several additional redistricting principles.

- **Communities of interest.** In North Carolina, there was no sustained effort by the state or by community groups to formally collect community of interest (COI) maps, to my knowledge. Without this, it is difficult to produce a suitable metric.
- **Cores of prior districts.** In some states, there is statutory guidance to seek districting plans that preserve the cores of prior districts. In North Carolina, this is not a factor in the constitution, in statute, or in case law. In addition, attention to core preservation would be prohibitively difficult in the Senate and House because of the primacy of the Whole County Provisions, which forces major changes to the districts simply as a consequence of fresh population numbers.
- **Incumbent pairing.** In 2017, the North Carolina legislative redistricting committee listed "incumbency protection" as a goal in their itemization of principles. In 2021, this was softened to the statement that "Member residence may be considered" in the drawing of districts. I have counted the districts in each plan that contain more than one incumbent address; these are sometimes colorfully called "double-bunked" districts. For this statistic, it is not entirely clear whether a high or low number is preferable. When a plan remediates a gerrymandered predecessor, we should not be surprised if it ends up pairing numerous incumbents.

Double-bunking

# districts pairing incumbents	
SL-174	3
NCLCV-Cong	1
SL-173	5
NCLCV-Sen	9
SL-175	6
NCLCV-House	16

Table 9: For Congress and Senate, the enacted and alternative plans are comparable; at the House level, the alternative plan has more double-bunking. *Note: These numbers were calculated using incumbent addresses that I understand were provided by the Legislative Defendants.*

4.2 Swing districts and competitive contests

Another way to understand the electoral properties of districting plans is to investigate how many districts always give the same partisan result over a suite of observed electoral conditions, and how many districts can "swing" between the parties. Figure 6 compares the six plans across the up-ballot elections. The enacted plans lock in large numbers of always-Republican seats. In the Senate and House, nearly half the seats are locked down for Republicans. In the Congressional plan, it's well over half. This provides another view from which the NCLCV plans provide attractive alternatives.

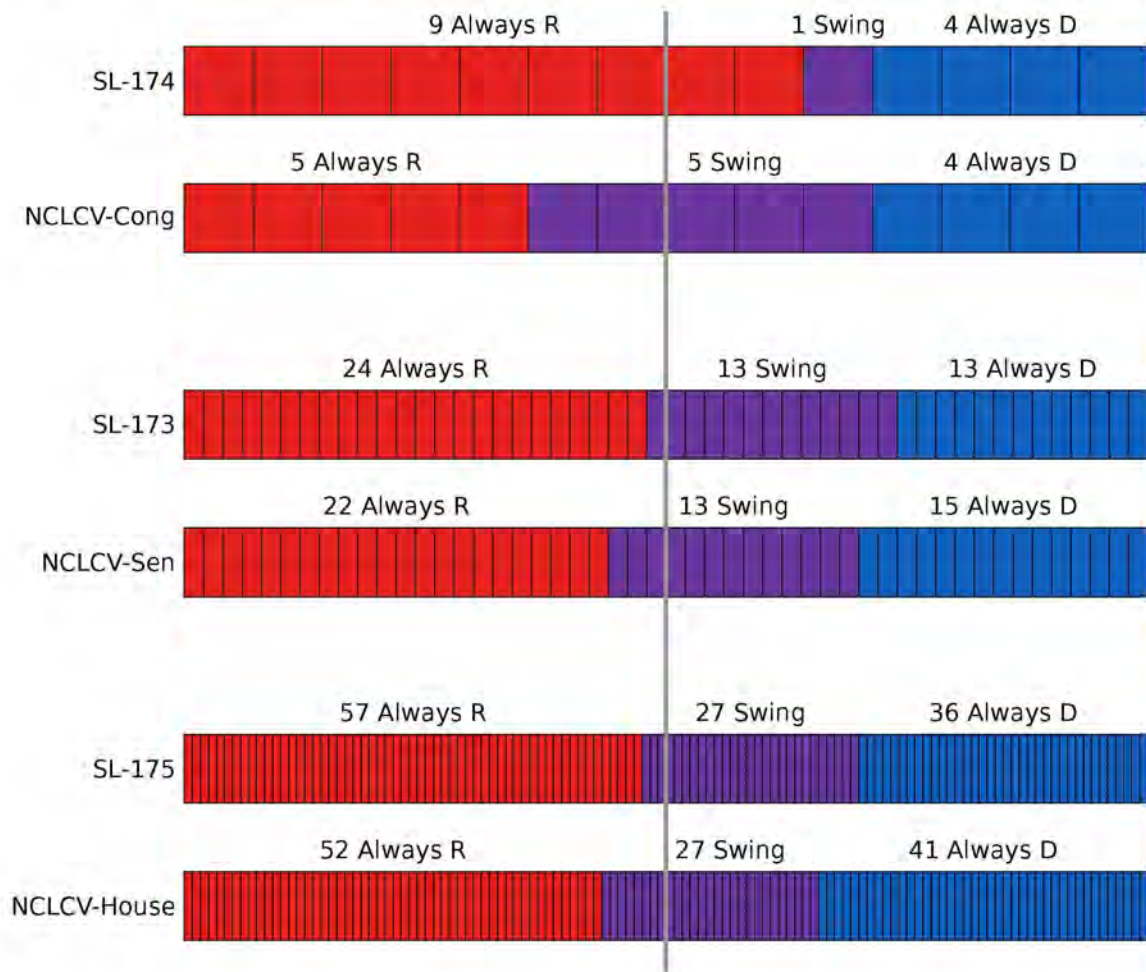


Figure 6: These visuals show the breakdown of seats that always have a Republican winner, always have a Democratic winner, or are sometimes led by each party across the 14 up-ballot elections over the previous Census cycle. The 50-50 split is marked.

In interpreting this visualization, note that this is consistent with the discussion elsewhere of entrenched Republican majorities in the enacted maps. These Always-Republican districts provide a *floor* for Republican performance from the viewpoint of these up-ballot contests.

One more measure of partisan fairness, frequently referenced in the public discourse, is the tendency of a districting plan to promote close or competitive contests. We close with a comparison of the enacted and alternative plans that displays the number of times across the full dataset of 52 elections that a contest had a partisan margin of closer than 10 points, 6 points, or 2 points, respectively. This can occur up to $14 \cdot 52 = 728$ times in Congressional maps, $50 \cdot 52 = 2600$ times in state Senate maps, and $120 \cdot 52 = 6240$ times in state House maps. The figures below show horizontal rules at every 10% interval of the total number of possible competitive contests; we can see, for instance, that the alternative Congressional plan has contests within a 10-point margin more than 40% of the time.

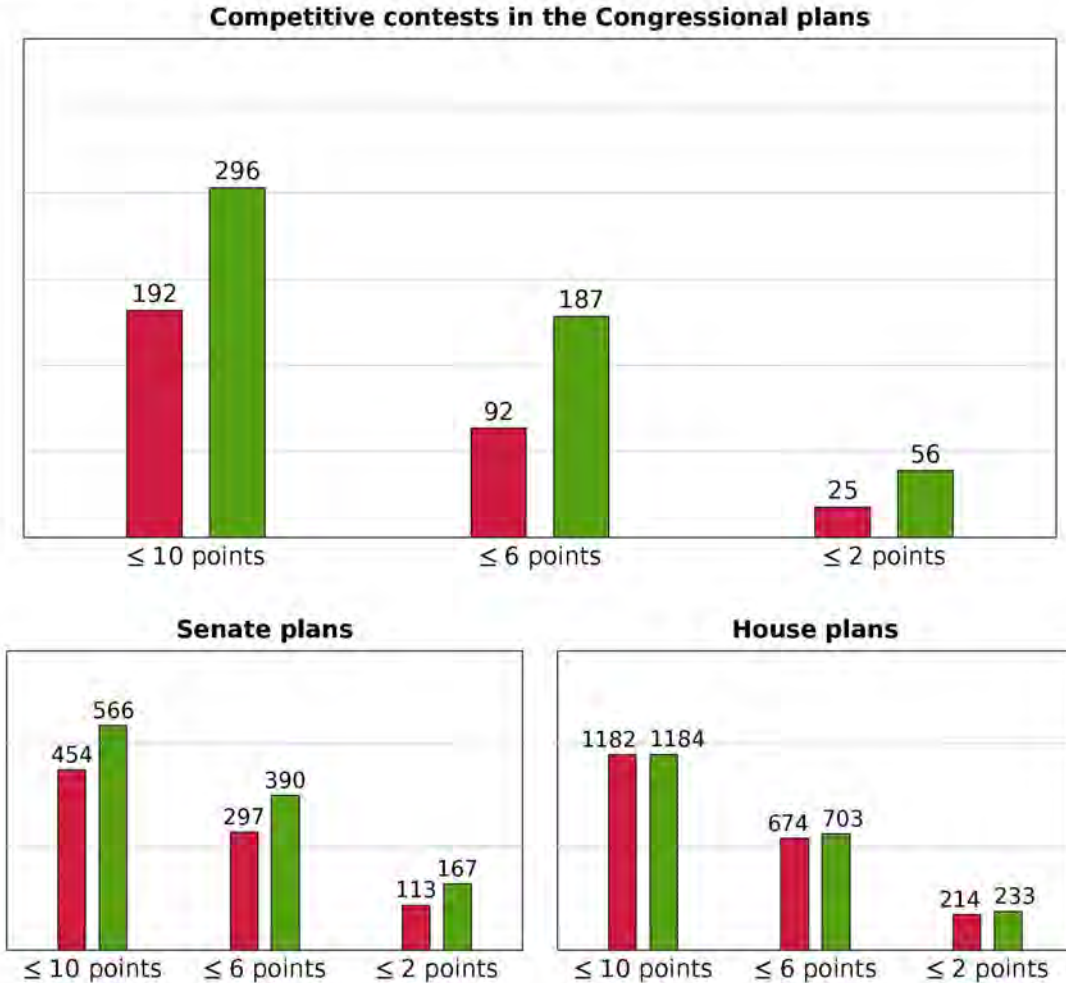


Figure 7: These bar graphs show the number of competitive contests for the enacted plans (maroon) and the alternative plans (green). In each plot, we consider increasingly restrictive definitions of "competitive" from left to right, counting districts in which the major-party vote split is closer than 45-55, 47-53, and 49-51, respectively.

5 Location-specific comparison of electoral opportunity

I received information reflecting the residential locations of 147 individuals, who come from either of two groups:

- plaintiffs in the NCLCV v. Hall case; or
- registered voters belonging to the NCLCV membership who are Black and/or are registered as Democrats.

In Table 10 below, I summarize the impact on the identified individuals in terms of electoral opportunity if the enacted maps are compared to the alternative maps.

Subsequently, Figures 8 and 9 provide a visualization that pinpoints the geographical sites where the alternative plans improve electoral opportunities for plaintiffs and NCLCV members—that is, places where the identified individuals (as Democrats and/or Black voters) have measurably greater ability to elect their candidates of choice under the alternative plans than under the existing plans.

This is backed up by the data in Tables 11-13 below, which identify the district numbers in the six enacted and alternative plans for each of these identified individuals. The district numbers were computed using census block information to specify the locations, but the table reports the locations by larger units (VTDs) in order to protect privacy.

Lost opportunity for Democratic and Black voters

greater Democratic opportunity in alternative plan than enacted plan	
Congress	51 individuals
Senate	37 individuals
House	39 individuals

resides in effective district in alternative plan but not enacted plan	
Congress	28 Black voters
Senate	21 Black voters
House	21 Black voters

Table 10: Of the 147 identified individuals, how many saw a change in their opportunity for Democratic representation? How many Black voters saw a change in their opportunity to elect Black candidates of choice?

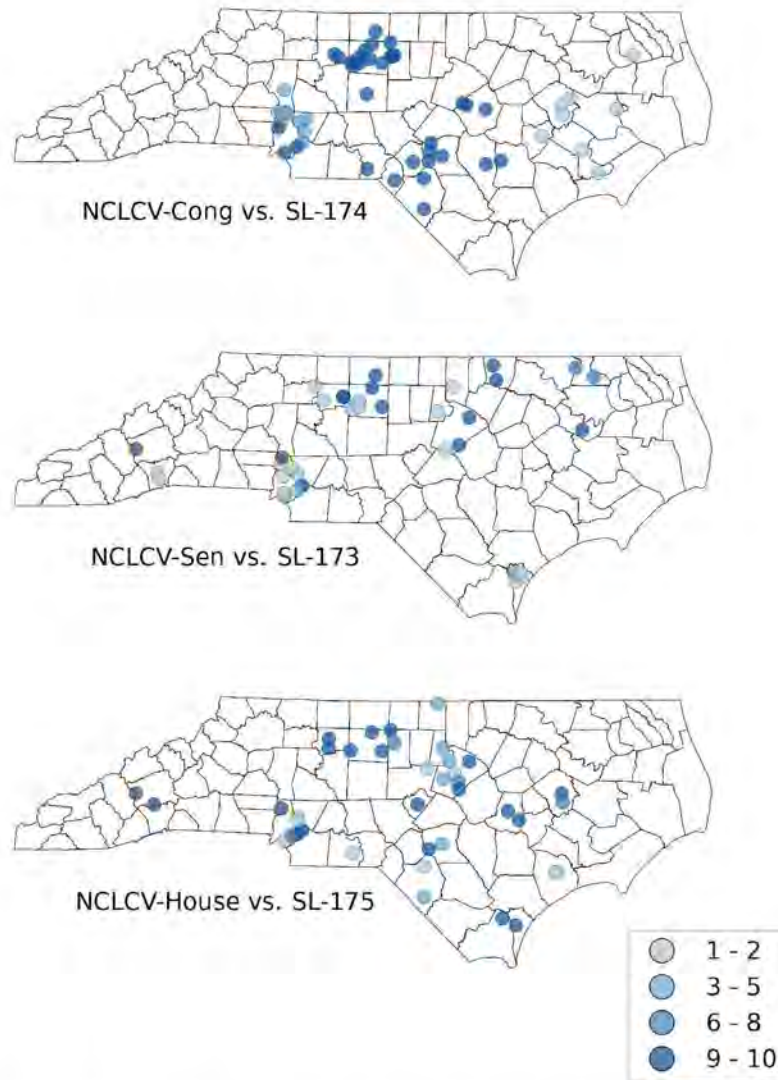


Figure 8: Locations where identified individuals have less opportunity to be represented by a Democrat in Congress, state Senate, and state House under the enacted plans. The shading indicates the drop in Democratic wins across the 14 up-ballot races in the enacted map relative to the alternative map. There are 51 such individuals in the Congressional maps, 37 in the Senate maps, and 31 in the House maps.

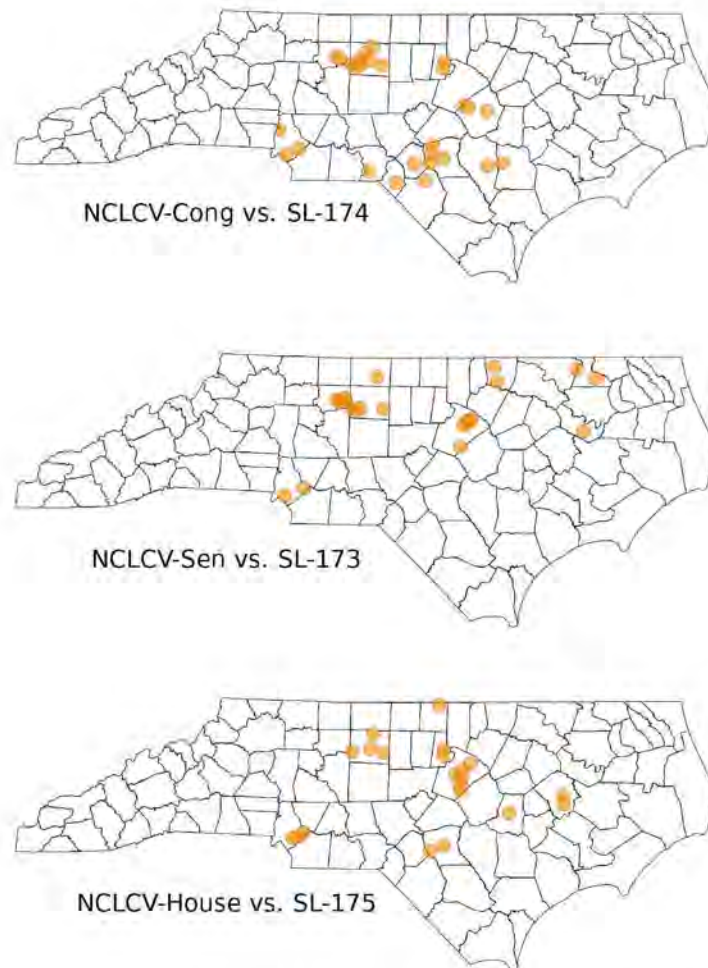


Figure 9: Locations where Black voters from the identified individuals list would be in a district that provides effective electoral opportunity under the alternative plan, but not under the enacted plan. There are 28 such voters at the Congressional level and 21 at each of the Senate and House level.

VTD Census ID	VTD/Precinct Name	SL-174	NCLCV-Cong	SL-173	NCLCV-Sen	SL-175	NCLCV-House
37025001-07	01-07	10	10	34	34	73	73
37025012-03	12-03	10	10	34	34	82	82
37025002-07	02-07	10	10	34	34	83	73
37009000002	CLIFTON	11	12	47	47	93	93
37063000029	GLENN ELEMENTARY	6	2	22	22	2	2
37063000043	FOREST VIEW ELEMENTARY	6	6	22	20	30	30
37063000052	EVANGEL ASSEMBLY OF GOD	6	2	22	22	31	31
37063055-11	055-11	6	6	20	22	29	29
37071000012	FLINT GROVES	13	13	43	43	108	108
37071000004	FOREST HEIGHTS	13	13	43	43	109	109
37057000076	THOMASVILLE 10 76	7	8	30	30	80	80
371350000EF	EFLAND	6	6	23	23	50	50
371050000A2	A2	7	7	12	12	51	54
37131NEWTOW	NEWTOWN	2	2	1	1	27	27
371350000CF	CEDAR FALLS	6	6	23	23	56	56
37081000H25	H25	10	11	27	27	62	60
37093000061	RAEFORD 1	8	4	24	24	48	48
37081000RC2	RC2	7	11	26	26	59	59
3712700P15A	OAK LEVEL	2	2	11	11	25	25
3707700TYHO	00TYHO	2	2	13	13	32	32
370910000CO	COFIELD	2	1	1	1	5	5
37057000038	EASTSIDE 38	7	8	30	30	81	81
370210021.1	HAW CREEK ELEMENTARY SCHOOL	14	14	49	49	115	114
37019000015	GRISSETTOWN	3	3	8	8	17	19
37047000P15	TATUM	3	3	8	8	46	46
37019000002	LELAND	3	3	8	8	17	17
370450CASAR	CASAR	13	13	44	44	110	111
370210007.1	KENILWORTH PRESBYTERIAN CHURCH	14	14	49	49	114	115
370210053.1	LEICESTER 2 - COMMUNITY CENTER	14	14	46	49	116	116
370210054.2	LUTHERAN CHURCH OF THE NATIVITY	14	14	49	49	116	115
37193000108	FAIRPLAINS	11	12	36	36	94	94
37173000BC2	BC2	14	14	50	47	119	119
37119000054	54	9	9	40	42	102	112
37119000108	108	9	9	40	40	100	100
37119000208	208	13	10	37	38	98	98
371190204.1	204.1	9	10	40	40	99	106
37119000097	97	9	9	42	39	112	105
37119000222	222	9	9	38	39	101	101
370970005T6	STATESVILLE 6	12	10	37	37	84	84
370970DV1-B	DAVIDSON 1-B	10	10	37	37	95	95
37119000048	48	9	9	42	42	88	104
37119000216	216	8	9	41	41	103	99
37081000G27	G27	11	11	28	28	57	57
37081000G43	G43	11	11	27	28	58	62
37153000006	WOLF PIT 3	8	4	29	29	52	52
371570000MS	MOSS STREET	11	6	26	26	65	65
3716300ROWA	ROWAN	4	4	9	9	22	22
3719500PRWI	WILSON I	2	2	4	4	24	24
37119000206	206	13	10	37	37	98	98
37119000236	236	8	10	41	40	103	99

Table 11: Locations of identified individuals, Part 1 of 3. For each location, the district numbers are given for the six plans discussed here. VTDs are listed rather than the more precise census block in order to protect privacy. Rows highlighted **blue** indicate individuals who lose Democratic opportunity in at least one of the enacted plans, relative to the alternative plans. Rows highlighted **orange** indicate Black voters who lose the opportunity to be in an effective district for Black candidates of choice in at least one level. (As it turns out, every instance of lost opportunity for Black voters is also an instance of lost Democratic opportunity.)

VTD Census ID	VTD/Precinct Name	SL-174	NCLCV-Cong	SL-173	NCLCV-Sen	SL-175	NCLCV-House
37119000142	142	13	10	38	38	98	112
37081000G65	G65	11	11	27	27	58	58
37081000G70	G70	11	11	28	26	61	61
3708100H19A	H19A	10	11	27	27	60	60
3708100MON3	MON3	11	11	26	28	59	57
37183015-01	15-01	5	7	17	14	37	38
37183019-17	19-17	5	5	18	18	39	66
37183001-31	01-31	5	5	15	15	11	33
37183012-02	12-02	7	7	17	17	37	37
37119000087	87	8	9	41	41	105	105
37119000068	68	9	9	42	41	104	100
371190223.1	223.1	13	9	39	39	101	101
37119000081	81	9	9	39	39	92	101
37119000237	237	9	10	38	40	106	106
37119000127	127	13	10	37	37	98	98
37191000014	14	2	1	4	4	4	10
37183005-01	05-01	6	7	16	16	41	41
37183020-09	20-09	6	7	16	17	36	36
37183004-18	04-18	6	7	16	16	49	11
37191000010	10	2	1	4	4	10	10
37183019-21	19-21	5	5	13	18	35	66
37183001-46	01-46	5	5	18	18	34	40
37183001-50	01-50	5	5	14	14	33	38
37183016-05	16-05	5	5	14	14	21	38
37119000145	145	9	10	38	38	107	107
37183008-03	08-03	5	5	15	15	40	49
37183017-05	17-05	5	5	14	18	38	40
37183013-09	13-09	5	5	18	18	66	66
370490000N2	FORT TOTEN	1	1	3	3	3	3
37049000002	HAVELOCK	1	1	3	3	13	13
37001000004	MORTON	7	6	25	25	64	63
37001000126	BURLINGTON 6	7	6	25	25	63	64
3700100003N	NORTH BOONE	7	6	25	25	64	64
37001000124	BURLINGTON 4	7	6	25	25	63	63
37165001-16	01-16/01	8	4	24	24	48	48
37067000063	CASH ELEMENTARY SCHOOL	12	12	31	32	75	75
37067000074	MEADOWLARK MIDDLE SCHOOL	12	12	31	31	74	74
37067000709	WARD ELEMENTARY SCHOOL	12	12	32	31	74	71
37067000065	KERNERSVILLE 7TH DAY AD-VENTIST CHURCH	12	12	31	32	75	75
37067000507	SEDGE GARDEN REC CTR	12	11	32	32	71	75
371510000AE	ASHEBORO EAST	7	11	29	29	70	70
37067000905	BETHABARA MORAVIAN CH	12	12	32	31	91	72
37067000402	FOURTEENTH STREET REC	12	11	32	32	72	72
370890000FR	FLAT ROCK	14	14	48	48	113	117
3708900HV-1	HENDERSONVILLE-1	14	14	48	48	117	117
37023000039	MORGANTON 09	13	13	46	46	86	86
3710900LB34	LABORATORY	12	13	44	46	97	97
3706100WARS	WARSAW	3	4	9	9	4	4
3712900CF01	CF01	3	3	8	7	18	17
370130BELHV	BELHAVEN	1	1	3	3	79	1

Table 12: Locations of identified individuals, Part 2 of 3. For each location, the district numbers are given for the six plans discussed here. VTDs are listed rather than the more precise census block in order to protect privacy. Rows highlighted **blue** indicate individuals who lose Democratic opportunity in at least one of the enacted plans, relative to the alternative plans. Rows highlighted **orange** indicate Black voters who lose the opportunity to be in an effective district for Black candidates of choice in at least one level. (As it turns out, every instance of lost opportunity for Black voters is also an instance of lost Democratic opportunity.)

VTD Census ID	VTD/Precinct Name	SL-174	NCLCV-Cong	SL-173	NCLCV-Sen	SL-175	NCLCV-House
37037NWM117	NORTH WILLIAMS	7	7	20	20	54	54
3714100CL05	COLUMBIA	3	3	9	9	16	16
3713300BM08	BRYNN MARR	1	3	6	6	14	15
3713300NR02	NEW RIVER	1	3	6	6	15	15
37051SL78-3	Spring Lake 3	4	4	21	21	42	44
3705100G10A	STONE POINT 2-G10	4	4	19	19	45	45
37051000G1A	CROSS CREEK 02-G1	4	4	19	19	43	42
37035000035	SWEETWATER	12	13	45	45	96	96
37035000032	SOUTH NEWTON	12	13	45	45	89	89
3705100CC32	CROSS CREEK 32	4	4	19	19	44	44
37059000007	JERUSALEM	10	8	30	30	77	77
3708500PR01	ANDERSON CREEK	4	7	12	12	6	6
3708500PR07	BARBECUE	4	7	12	12	6	6
371070000K8	KINSTON-8	1	1	3	3	12	12
37189000009	ELK	14	12	47	47	87	93
371170000BG	BEAR GRASS	2	1	2	1	23	23
371010PR12B	NORTH CLEVELAND 2	4	2	10	10	26	26
371010PR31B	SOUTHWEST CLEVELAND	4	2	10	10	53	53
3710100PR24	EAST SELMA	4	2	10	10	28	28
3714701102A	SIMPSON A	1	1	5	5	9	8
37167000003	ALBEMARLE NUMBER 3	8	8	33	33	67	67
3700700LILE	LILESVILLE	8	8	29	29	55	55
3704500KM-N	KM N	13	13	44	44	111	110
37143BETHEL	BETHEL	1	1	1	2	1	1
37147000601	CHICOD	1	1	5	5	9	9
37147001201	PACTOLUS	1	1	5	5	8	8
37159000040	NORTH WARD	10	8	33	33	76	76
3712900FP04	FP04	3	3	7	8	19	20
37129000W16	W16	3	3	7	7	20	18
37129000H11	H11	3	3	7	7	18	20
37129000H02	H02	3	3	7	7	20	20
37159000036	SOUTH WARD	10	8	33	33	76	76
37125000DHR	DEEP RIVER/HIGH FALLS/RITTER	8	7	21	21	78	51
37069000015	EAST FRANKLINTON	2	2	11	11	7	7
3719908-CRA	CRABTREE	14	14	47	47	85	85
3719700EBND	EAST BEND	12	12	36	31	77	77
37171000018	MT AIRY 8	11	12	36	36	90	90
3708700WS-2	WAYNESVILLE SOUTH 2	14	14	50	50	118	118
3715500005A	FAIRMONT	3	4	24	24	46	47
37155000028	RENNERT	3	4	24	24	47	47
37113000011	SMITHBRIDGE	14	14	50	50	120	120
3714500WDSO	WOODSDALE	2	6	23	23	2	2
3717900029A	SHILOH ELEMENTARY SCHOOL	8	8	35	35	68	69
3717900037A	NEXT LEVEL CHURCH	8	8	35	35	69	69
37169000017	WEST WALNUT COVE	11	12	31	36	91	91
37185000007	SHOCCO	2	2	2	1	27	27
37185000013	NORLINA	2	2	2	1	27	27

Table 13: Locations of identified individuals, Part 3 of 3. For each location, the district numbers are given for the six plans discussed here. VTDs are listed rather than the more precise census block in order to protect privacy. Rows highlighted **blue** indicate individuals who lose Democratic opportunity in at least one of the enacted plans, relative to the alternative plans. Rows highlighted **orange** indicate Black voters who lose the opportunity to be in an effective district for Black candidates of choice in at least one level. (As it turns out, every instance of lost opportunity for Black voters is also an instance of lost Democratic opportunity.)

References

- [1] Assaf Bar-Natan, Lorenzo Najt, and Zachary Schutzmann, *The gerrymandering jumble: map projections permute districts' compactness scores*. Cartography and Geographic Information Science, Volume 47, Issue 4, 2020, 321–335.
- [2] Richard Barnes and Justin Solomon, *Gerrymandering and Compactness: Implementation Flexibility and Abuse*. Political Analysis, Volume 29, Issue 4, October 2021, 448–466.
- [3] Amariah Becker, Moon Duchin, Dara Gold, and Sam Hirsch, *Computational redistricting and the Voting Rights Act*. Election Law Journal.
Available at <https://www.liebertpub.com/doi/epdf/10.1089/elj.2020.0704>
- [4] Christopher Cooper, Blake Esselstyn, Gregory Herschlag, Jonathan Mattingly, and Rebecca Tippet, *NC General Assembly County Clusterings from the 2020 Census*.
<https://sites.duke.edu/quantifyinggerrymandering/files/2021/08/countyClusters2020.pdf>
- [5] Moon Duchin, Taissa Gladkova, Eugene Henninger-Voss, Heather Newman, and Hannah Wheelen, *Locating the Representational Baseline: Republicans in Massachusetts*. Election Law Journal, Volume 18, Number 4, 2019, 388–401.

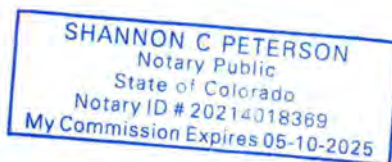
I declare under penalty of perjury that the foregoing is true and correct.

Executed this 23 day of December, 2021.


Professor Moon Duchin

Sworn and subscribed before me
this the 23rd of December, 2021


Notary Public



Name: Shannon C. Peterson

My commission expires: 05/10/2025

STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
21 CVS 015426, 21 CVS 500085

NORTH CAROLINA LEAGUE OF
CONSERVATION VOTERS, INC.;
HENRY M. MICHAUX, JR., et al.,

Plaintiffs,

REBECCA HARPER, et al.,

Plaintiffs,

v.

REPRESENTATIVE DESTIN HALL, in
his official capacity as Chair of the House
Standing Committee on Redistricting, et al.,

Defendants.

**AFFIDAVIT OF PROFESSOR
MOON DUCHIN**

Plaintiffs'
Exhibit
234

I, Dr. Moon Duchin, having been duly sworn by an officer authorized to administer oaths, depose and state as follows:

1. I am over 18 years of age, legally competent to give this Affidavit, and have personal knowledge of the facts set forth in this Affidavit.
2. All of the quantitative work described in this Affidavit was performed by myself with the support of research assistants working under my direct supervision.

Background and qualifications

3. I hold a Ph.D. and an M.S in Mathematics from the University of Chicago as well as an A.B. in Mathematics and Women's Studies from Harvard University.
4. I am a Professor of Mathematics and a Senior Fellow in the Jonathan M. Tisch College of Civic Life at Tufts University.
5. My general research areas are geometry, topology, dynamics, and applications of mathematics and computing to the study of elections and voting. My redistricting-related work has been published in venues such as the Election Law Journal, Political Analysis, Foundations of Data Science, the Notices of the American Mathematical Society, Statistics and Public Policy, the Virginia Policy Review, the Harvard Data Science Review, Foundations of Responsible Computing, and the Yale Law Journal Forum.
6. My research has had continuous grant support from the National Science Foundation since 2009, including a CAREER grant from 2013–2018. I am currently on the editorial board of the journals Advances in Mathematics and the Harvard Data Science Review. I was elected a Fellow of the American Mathematical Society in 2017 and was named a Radcliffe Fellow and a Guggenheim Fellow in 2018.
7. A current copy of my full CV is attached to this report.
8. I am compensated at the rate of \$400 per hour.

Rebuttal Report

Moon Duchin
Professor of Mathematics, Tufts University
Senior Fellow, Tisch College of Civic Life

December 28, 2021

1 Background and Introduction

I have previously submitted expert reports in NCLCV vs. Hall. I have been asked by counsel to respond to the report of Dr. Michael Barber, examining his study design and his conclusions.

1.1 Summary of Barber report

In Dr. Barber's report, he uses a new statistical sampling method called Sequential Monte Carlo (SMC) to produce a large collection (called an *ensemble*) of alternative districting plans for both bodies of the North Carolina state legislature—state Senate and state House. SMC is a method based on ideas developed in my research group,¹ but which has not been supported by any peer-reviewed publications.

Dr. Barber proceeds to build ensembles of districting plans for the purposes of comparison, but primarily does so individually on small pieces of the state: groups of counties (often called "county clusters") that correspond to groupings in the Senate and House plans recently enacted in North Carolina (SL-173 and SL-175).

- For legislative redistricting, the Barber report discusses the clusters only on an individual basis, neglecting to assemble them into the big picture for the whole state.
- Dr. Barber omits an ensemble comparison for the enacted Congressional plan, SL-174.

1.2 Summary of findings

- When assembling the statistics from Dr. Barber's own ensembles—completely granting him all methodological choices for algorithm selection and specifications—the enacted House plan is shown to be a major partisan outlier, while the NCLCV alternative plans are not (Figure 6).
- In exactly the same way, the enacted Senate plan is likewise shown to be a major partisan outlier, while the NCLCV alternative plans are not (Figure 5).
- Finally, I was able to run Barber's code to create a Congressional ensemble in the same fashion as his legislative ensembles. Here, too, the enacted plan is a significant outlier in a direction of partisan advantage that is not justified by any good-government goal (Figure 3).

¹The McCartan-Imai article introducing SMC [5] acknowledges Deford-Duchin-Solomon [3] for "pioneer[ing] the spanning tree-based proposal used in the merge-split algorithm."

2 Ensembles and outliers

Today, the dominant method in computational redistricting analysis is to employ Markov chains to generate ensembles of thousands or millions of alternative valid redistricting plans against which to compare a given proposed plan. When a quantity of interest is measured over the ensemble, it frequently forms a "bell curve" of values, and we can then examine whether the proposed plan falls in the thick of the observed values or whether it is an extreme outlier, falling in one of the tails. If this exercise is carried out with respect to each party's representation, a telltale sign of a partisan gerrymander is when the seat share for a proposed plan falls (a) far from the corresponding vote share, and (b) far to the side of advantage for the party that controlled the line-drawing process. This is particularly problematic in a politically competitive "purple" state like North Carolina.

It is important to note that outlier status is a flag of intentionality, but not necessarily a smoking gun of wrongdoing. Being in a tails of a distribution that was created around certain design principles can often provide persuasive evidence that other principles or agendas were in play. For example, a map might be an outlier as the most compact, or the map that gives minority groups the greatest chance to elect their candidates of choice—these kinds of outlier status would not be marks of a bad plan. But being an outlier can indeed be a sign of problems, as when a plan systematically converts close voting to lopsided seat shares for the party that controls the process.

2.1 Barber methods

The creation and use of districting ensembles in the Barber report can be summarized as follows.

Step 1 *Fix a set of clusters.* Barber focuses on the county clustering found in the enacted plan, not exhaustively considering the dozens of other possibilities.

Step 2 *Partition each cluster.* Split each multi-district cluster into the corresponding number of districts using Sequential Monte Carlo sampling. Create 50,000 partitions (i.e., districting plans) for each cluster.

Step 3 *Winnow.* Selectively discard some of the partitions. Barber uses two statistics from the enacted plan (average Polsby-Popper score and county traversals) as the cutoff for inclusion.

Step 4 *Create an election index.* Barber blends the 11 up-ballot elections since 2014 into a single vote index rather than considering them one at a time. In particular, he sums the votes over all elections before taking shares, which does not control for turnout differences across elections.

Step 5 *Plot histograms and declare outliers.* Barber forms histograms counting "Democratic-leaning districts" for individual clusters, and does not present an overall compilation. His non-standard definition of "outlier" includes a full 50% of the ensemble.

In my opinion, better and more reliable results would have been obtained if several of the choices required in this study design were executed differently.

One glaring omission from Barber's methods is any consideration of the State's obligations under the Voting Rights Act of 1965, which could impact the partisan bottom line.² A non-exhaustive list of other potential flaws in Dr. Barber's methods includes the following.

- *Failure to consider all alternative clusterings.*
North Carolina law dictates that districts be drawn within groupings or clusters of counties from which several districts will be formed. Sometimes, however, the General Assembly has a choice and can pick multiple groupings consistent with North Carolina law. Dr. Barber only gives cursory attention to alternative clusterings.
- *Use of sampling methodology not vetted by peer review.*
Even when an idea is promising, peer review is an essential component of vetting. A method may appear promising in concept, but not work in practice. A method may work at small tasks—like the 34-map dataset used for testing in [5]—but not scale well to the enormous sizes needed for realistic problems. Peer review helps surface those issues, which is why the scientific community regards peer review as a mark of reliability.
- *Use of bright-line thresholds for compactness and traversals.*
Dr. Barber's code already samples with a preference for compactness, and is fully capable of handling traversals in a similar manner.³ Imposing sharp cutoffs for these at the level of the enacted plan creates highly misleading results.⁴
- *Use of election data in a blended rather than serial fashion.*
If Barber records a Democratic share of 49% in his outputs, that is likely to reflect a Democratic win in some of the 11 elections and a Republican win in others—this is obscured when the results are blended to a single number. By the same token, a Democratic share of 45% in the blended election index might downplay a map that favors Republicans 11 out of 11 times, which entrenches an advantage.⁵
- *Employing a highly unconventional use of the "outlier" label.*
As Dr. Barber himself puts it, "I consider a plan to be a partisan outlier if the number of Democratic districts generated by the plan falls outside the middle 50% of simulation results [sic]. This is a conservative definition of an outlier. In the social sciences, medicine, and other disciplines it is traditional to consider something an outlier if it falls outside the middle 95% or 90% of the comparison distribution." As I will show below in my whole-state comparisons, the enacted plans are outliers at any of these levels of significance, while the NCLCV alternative plans are not.

I will discuss the thresholding question further in §2.3. For the remainder of the report, I will set aside the other concerns and will simply assess Dr. Barber's outputs within his own methodological framework.

²Robust VRA consideration is fully compatible with computational redistricting, as is shown in [1].

³A preference for compactness is coded in the `smc_redist` parameterization in `house_clusters.R`, lines 354–356 and `senate_clusters.R`, lines 349–351.

⁴The imposition of cutoffs, which Dr. Barber calls "culling," occurs in two stages. Stage 1 (country traversals) is found in `house_clusters.R`, lines 531–536 and `senate_clusters.R`, lines 539–544. Stage 2 (average Polsby-Popper) is found in `house_clusters.R`, line 543–564 and `senate_clusters.R`, lines 552–573. An ad hoc adjustment in the Duplin and Wayne House County Grouping is found in lines 566–568 of the House code.

⁵The 49% Democratic lean occurs, for instance, in the NCLCV alternative maps in the Onslow/Pender House cluster. Vote averaging is found in the Barber replication materials in `house_clusters.R` lines 18–28 and `senate_clusters.R` lines 18–29.

2.2 Analysis methods

Reading Dr. Barber's report, it is striking that he only reported that the enacted plan often performed within the middle 50% of each small comparison while never evaluating how the individual choices aggregate at the level of the map as a whole. After all, if moderate partisan advantage is secured over and over again, it may well accrue to extreme advantage overall. In the context of a state legislature, the overall results are crucial: they determine who controls the chamber. Pursuing this in the Barber materials, I found that this is exactly what happens.

First, I was able to extract Dr. Barber's raw statistical outputs for legislative runs from his materials obtained by counsel.⁶ With those, I was able to assemble his ensembles for individual clusters into a compiled ensemble for the entire state. The histogram of Senate outcomes can be found in Figure 6 and the histogram of House outcomes can be found in Figure 5. Second, I was able to run Dr. Barber's code to create an ensemble of alternative Congressional plans with exactly the algorithm and with similar specifications to those he used for his legislative demonstrations.⁷ A corresponding plot of Congressional outcomes can be found in Figure 3. For all phases of analysis, Dr. Barber pulled electoral data from a free webapp called Dave's Redistricting App (davesredistricting.org). In replicating his analysis, I used the same data source in the same manner.

2.3 Filtered and unfiltered results

As I described above, Dr. Barber took his raw districting plan samples (50,000 maps created for each of 12 Senate cluster ensembles and 26 House cluster ensembles) and aggressively filtered them, applying a cutoff that sometimes left under ten maps out of the original set of 50,000. In fact, when Dr. Barber's filtering rule was applied in the Duplin and Wayne House County Grouping (§6.6 on p.58 of Barber Report), zero maps were left, because none of the randomly constructed maps had an average compactness score to match the enacted plan in that cluster. Since this is blatantly unworkable for comparison purposes, Dr. Barber made the ad hoc decision to loosen the rule to retain 2704 maps. Other cluster ensembles were filtered down to leave only 4, 6, or 2 out of 50,000 alternatives and did not receive an adjustment. The "outlier" label was then applied to these tiny sets.

To illustrate why this is methodologically unreasonable, consider JaVale McGee, a basketball center who recently signed with the Phoenix Suns of the NBA on a one-year, \$5 million contract. If McGee wanted to argue that he is not unusually wealthy, he could choose to restrict the universe of comparison to Americans at least as tall as he is. Since he is 7 feet tall, this would greatly restrict the comparison pool to a relatively tiny group that also includes Mo Bamba (Orlando Magic), Joel Embiid (Philadelphia 76ers), and Brook Lopez (Milwaukee Bucks), all of whom make more money than he does. Not satisfied with this comparison, he could keep increasing the requirements by insisting on comparing to people who don't speak any more languages than he does, are no older than he is, and have lived in at least as many different cities. Eventually he will narrow the pool enough that he doesn't look like an outlier anymore.

Dr. Barber's filtering skews his sample in a similar way, because he effectively insists that maps have a statistic matching or exceeding the enacted map in every cluster—and then uses that pool to compare the enacted map. Overall, this reduces the number of plans under consideration by a factor of over 500 trillion. And it excludes options that may be better than the enacted plan overall but are less compact or have more traversals in a particular cluster.

Generally, if you are trying to argue that you look typical of a range of alternatives, it is obviously unreasonable to first require the alternatives to look like you in dozens of independent ways (i.e., in each cluster individually).

⁶His materials include the numerical outputs from his runs, but as far as I can determine he does not seem to have saved the district assignments for the individual plans in the ensemble.

⁷To be precise, the ensemble was generated at the state level for Congress, since the concept of county clusters is not applicable, and without the compactness and traversal thresholds. I ran the code exactly as Dr. Barber did, except tightening the allowed population deviation to 1% from ideal instead of 5% as in legislative maps. All other choices are identical. My congressional ensemble includes 20,000 maps rather than 50,000 just because of time limitations.

3 Findings

In this section, I will present the full histograms (or "bell curves") of all the results from Dr. Barber's methodology, compiled to the state level and shown without filtering. (Filtered ensembles can be seen in Appendix A, for comparison purposes.)

By Dr. Barber's own constructs, all three levels of districting show that **the enacted plans are partisan outliers and the NCLCV alternative plans are not.**

In the House, the enacted map is in the most extreme 0.00133 fraction of the Barber ensemble—well under 1 percent of sampled House plans are as extreme as SL-175. By contrast, the NCLCV alternative plan is in the upper .2516 share of the ensemble, not an outlier even by the Barber standard.

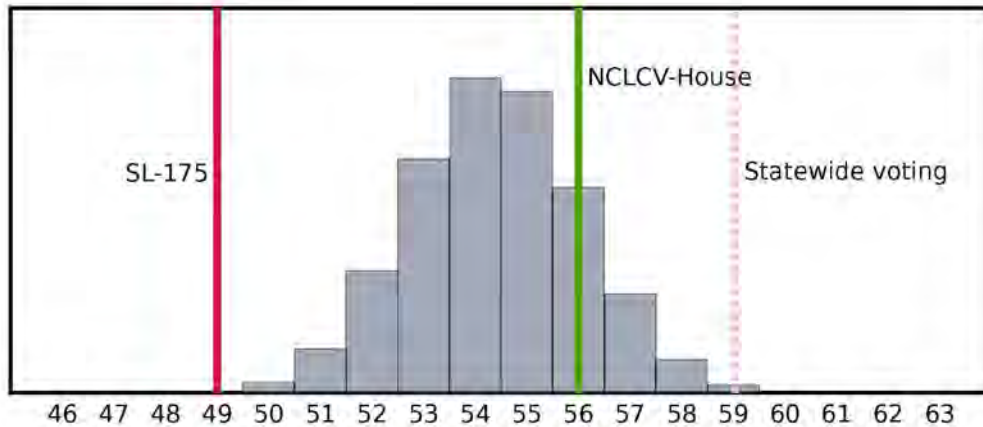


Figure 1: "Democratic-leaning seats" in Dr. Barber's House district ensemble.

At the Senate level, the enacted map is in the most extreme .007 fraction of the Barber ensemble—again, less than 1 percent of sampled plans are as extreme as SL-173. By contrast, the NCLCV alternative map is in the upper .2787 share of ensemble, not an outlier even by the Barber standard.

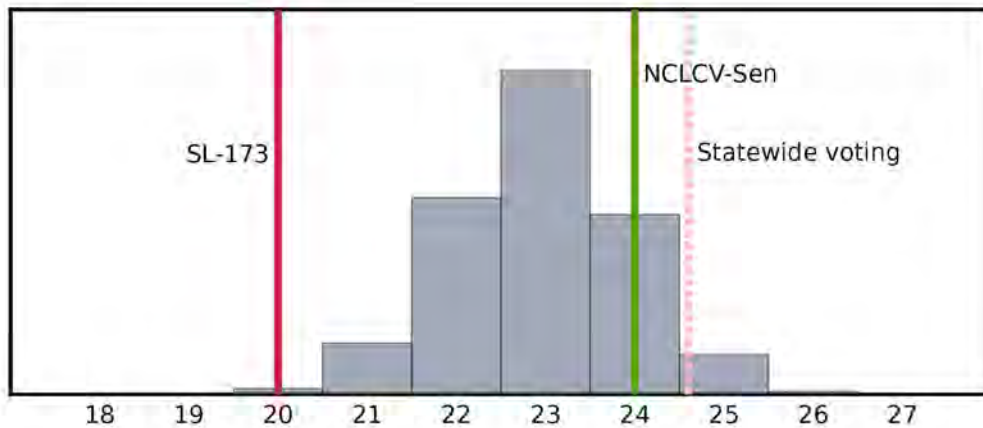


Figure 2: "Democratic-leaning seats" in Dr. Barber's Senate district ensemble.

The Congressional picture, omitted from the Barber report, is likewise crystal clear. The enacted plan is in the most extreme 0.0056 fraction of this Barber-style ensemble, while the NCLCV alternative map is very near the ensemble center—0.5620 share of the ensemble (more than half of randomly constructed maps) has an equal or greater Democratic lean.

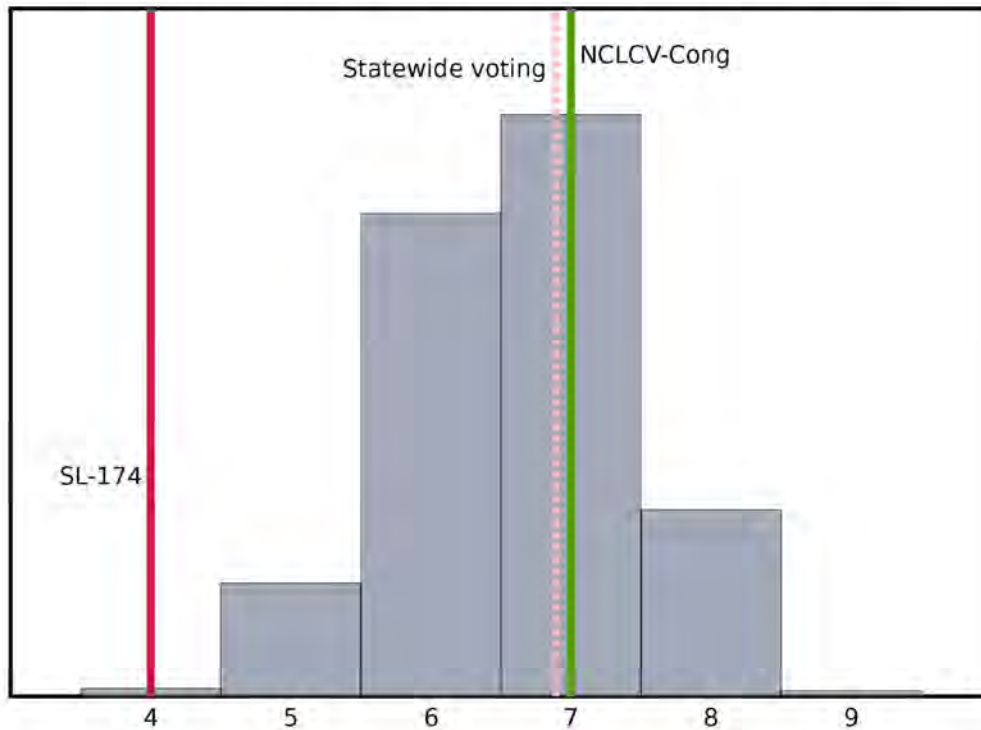


Figure 3: "Democratic-leaning seats" in a Congressional ensemble created with Dr. Barber's code, following his specifications.

4 Conclusion

Granting Dr. Barber all of his methodological choices, the enacted maps are extreme partisan outliers at all three levels, while the NCLCV alternative maps are not.

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I declare under penalty of perjury that the foregoing is true and correct.

Executed this 28 day of December, 2021.


Professor Moon Duchin

Sworn and subscribed before me
this the 28 of December, 2021


Notary Public

Name: Simarjit Manhas

My commission expires: 02/02/2024

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

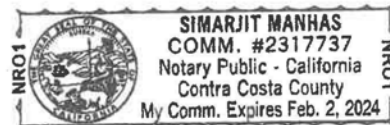
State of California, County of Alameda

Subscribed and sworn to (or affirmed) before me
on this 28 day of December, 2021.

by: Moon Duchin

proved to me on the basis of satisfactory evidence
to be the person(s) who appeared before me.

Signature: Simarjit Manhas



Appendix A: Filtering comparison

To illustrate the skewing effects of the thresholds applied by Dr. Barber, consider a single example: the Pitt House County Cluster, where the number of Democratic-leaning seats in the sample is either 1 or 2. By thresholding compactness and traversals at the level of the enacted map, Dr. Barber is able to drop the frequency of the 2-seats outcome from roughly 25% of the sample to just 9%.



Figure 4: Just focusing on the Pitt House County Cluster (Barber report, p.42), we see that the filtering changes the outcome of 2 "Democratic-leaning seats" from occurring in roughly 25% of the full set of sampled maps (gray) to only occurring in 9% of the reduced sample (blue).

The effects of this cluster-by-cluster restriction do not wash out when aggregated to the full state, but instead add up to a noticeable shift toward the enacted plan, as demonstrated in the House and Senate figures below.

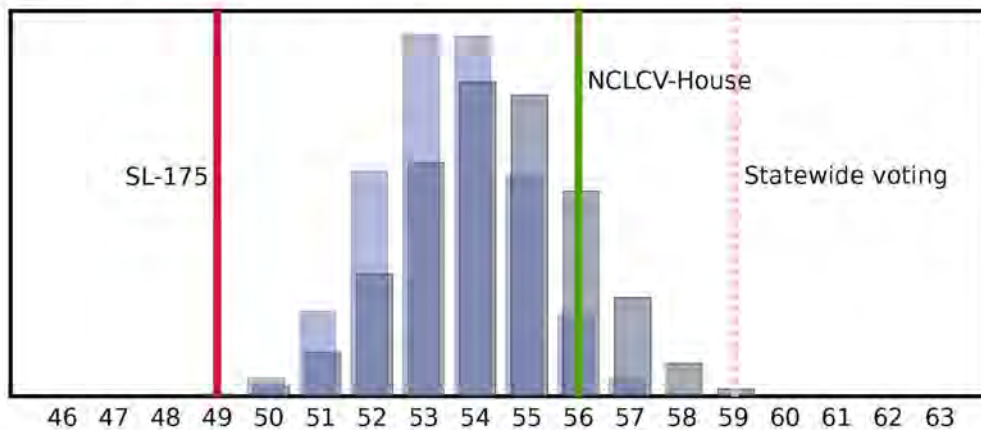


Figure 5: "Democratic-leaning seats" in Dr. Barber's House district ensemble. The unfiltered ensemble (gray) includes $50,000^{26} \approx 1.5 \cdot 10^{122}$ maps; the filtered ensemble (blue) is smaller by a factor of octillions.

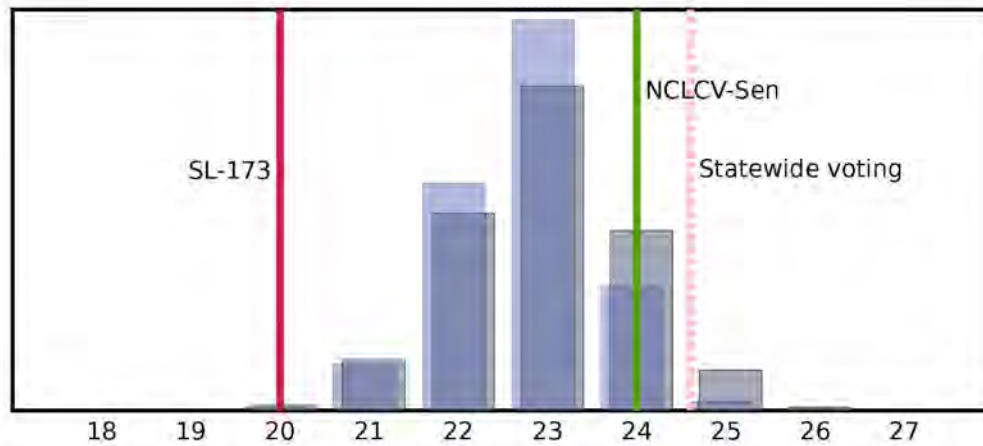


Figure 6: "Democratic-leaning seats" in Dr. Barber's Senate district ensemble. The unfiltered ensemble (gray) includes $50,000^{12} \approx 2.4 \cdot 10^{56}$ maps; the filtered ensemble (blue) is smaller by a factor of trillions.

Significantly, even the subsets of alternative plans that have been heavily limited by the cluster-by-cluster thresholds—that is, the blue bell curves instead of the gray—still show the enacted plans to be extreme outliers, while the NCLCV alternative plans are both far less extreme and comport with statewide voting.

An Evaluation of North Carolina's Congressional, State Senate, and State House District Maps

Daniel B. Magleby, Ph.D

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1 Introduction

I am an Associate Professor in the Department of Political Science at Binghamton University, SUNY where I also hold a courtesy appointment in the Department of Economics. At Binghamton, I am also the director of the Center for the Analysis of Voting and Elections at Binghamton University. In 2007, I received an M.S. in Mathematical Methods in the Social Sciences from Northwestern University. I hold an M.A. in political science from the University of Michigan, Ann Arbor where I also received a Ph.D in political science in 2011. I have published academic papers on legislative districting and political geography in several political science journals, including *Political Analysis*, the *Election Law Journal*, *American Politics Research*, and *Social Science Quarterly*. My academic areas of expertise include legislative elections, geographic information systems (GIS) data, redistricting, voting rights, legislatures, and political geography. I have expertise in analyzing political geography, elections, and redistricting using computer simulations and other techniques. I have been retained by plaintiff Common Cause to perform the analysis described below at a rate of \$250 an hour. My compensation is not predicated on arriving at any particular opinion.

1.1 Data

My opinions follow from analysis of the following data:

- VTD boundaries provided as ESRI Shapefiles by the US Census Bureau available on at the following URL
- Census block boundaries and population data provided by the US Census Bureau. These are collected as part of the constitutionally mandated decennial census that most recently concluded in 2020.
- County boundaries as reported by the US Census Bureau.
- County clusterings provided Christopher Cooper, Blake Esselstyn, Gregory Herschlag,

Jonathan Mattingly, and Rebecca Tippet in a report that may be accessed at the following URL. <https://sites.duke.edu/quantifyinggerrymandering/files/2021/08/countyClusters2020.pdf>

- Election returns as reported by the Voting and Election Science Team¹ group and aggregated to Census-provided VTD boundaries and provided on the Redistricting Data Hub² website. I aggregate statewide elections returns from 2016 and 2020 to set of legislature drawn districts and to the districts in each of the hypothetical alternative maps. In my analysis, I set aside election returns from 2018 because the only statewide races held that year were judicial elections which follow very different patterns compared to elections for other offices.
- 1,000 alternative, hypothetical maps of North Carolina’s congressional, Senate, and House districts generated by a neutral, partisan-blind computer algorithm. The redistricting algorithm I use in my analysis was developed by me and a collaborator, Daniel Mosesson (consultant in private practice), in a paper that is forthcoming in *Political Analysis*. In our published work, we show that the algorithm produces a large number of unique maps of legislative districts without any indication of bias.
- Legislature-drawn boundaries of districts intended to elect representatives to Congress, the North Carolina Senate, and the North Carolina House of Representatives. These data are available on the North Carolina General Assembly website and may be accessed at the following URLs. <https://www.ncleg.gov/Redistricting>

2 Methods and Data

In this section I inform my analysis of North Carolina’s map using computer-simulated redistricting methods. I discuss the data I use to analyze the maps, and describe the methods

¹<https://dataverse.harvard.edu/dataverse/electionscience>

²<https://redistrictingdatahub.org>

for measuring partisan bias in electoral maps. The purpose of these methods is to assess and describe potential biases that arise from the legislature-drawn electoral maps. In particular, I will describe how computer simulations may be used to evaluate alternative, hypothetical scenarios that are free of bias that human mapmakers may incorporate into a system of electoral districts. For the purposes of this report, I will define bias to mean a party receiving more representation than it should given underlying patterns of partisan support. Critically, I will not measure bias as an absolute deviation from proportionality, but rather as deviation from patterns of representation we would expect if an electoral map were drawn in a neutral manner.

2.1 Computer-Drawn Maps

The purpose of my analysis is to determine if the legislature intended to discriminate against a particular group in North Carolina, or if the dilution of one group’s influence arises for other more benign reasons. For example, political scientists have observed that even in systems that award representation in an unbiased manner, political parties receive a representational “bonus” for votes they receive over the majoritarian threshold of 50%. That is, a 1% increase in votes produces an increase of more than 1% in representation. As a result, parties that receive a little more than a majority of the votes may receive much more than a majority of seats in a legislature (see Edgeworth 1898; Butler 1952, 1951; Niemi and Deegan 1978). Likewise, electoral advantages may arise out of the geographic distribution of voters. For example, one group of voters may be evenly distributed across a jurisdiction that must be divided into multiple districts. If the distribution is even enough, it may be that it is impossible for a neutral process to draw a single-member district in which that group constitutes a majority. Alternatively, it may be that voters of one particular type are concentrated in an area or region. If that is the case, even a neutral process may collect those voters into a district in which they form a large majority leaving likeminded voters in neighboring districts in which they form a modest minority. My academic work focuses on developing

tools to account for natural sources of bias through dilution and over-concentration of voters as a result of residential geography (Magleby and Mosesson 2018).

One way to evaluate a districting plan’s bias is to compare a set of districts to an alternative set that we know to be unbiased. If the enacted plan is similar to the unbiased alternative, we may conclude that the enacted plan is also unbiased. Alternatively, if the enacted plan differs significantly from the alternative we know to be unbiased, we may conclude that the enacted plan is unbiased.

For this report, I used a computer algorithm I developed as part of my academic research to generate a large set of fair, hypothetical alternatives against which we may compare the North Carolina’s legislature drawn maps. The algorithm has been subject to peer review (see Magleby and Mosesson 2018) and has formed an important part of the analysis for several other peer reviewed articles (see e.g. Best et al. 2017; Krasno et al. 2018). The algorithm simulates a redistricting process constrained to draw districts that are contiguous and contain roughly equal population.³ For the purposes of this report, I have constrained the algorithm to prioritize maintaining VTDs, roughly voting precincts, in North Carolina whole. The algorithm builds districts using data provided by the US Census Bureau. Census data include information about the number of people who reside within a geographic units and the geographies to which blocks are adjacent. Critically, the algorithm is blind to partisanship and race, so it does not consider the political preferences or race of residents as it constructs various hypothetical districts.

I use the algorithm to generate large sets (between 20,000 and 100,000) of maps from which I take a random sample of 1,000 maps that meet the set of redistricting criteria announced by the North Carolina legislature in advance of the last round of redistricting there. Each iteration of the computer algorithm combines geographies in different ways, so the result is 1,000 maps that contain unique combinations of contiguous districts that meet the legislature’s announced criteria. This large set of maps constitutes a sample of the larger

³For a more technical discussion of the algorithm please see Appendix ??

set of possible maps that mapmakers could have drawn. Each map represents a distinct, hypothetical example of a map of North Carolina’s congressional, Senate, or House districts that was produced by a neutral process.

The maps generated by the computer are examples of outcomes we would expect if mapmakers were not motivated by partisan goals. Since each map is slightly different, the set of maps represents a range of possible outcomes from a neutral redistricting process. If the partisan characteristics of the enacted plan of congressional, Senate, and House districts in North Carolina falls outside the normal range of neutral outcomes generated by the algorithm, we can conclude that the map represents a significant deviation from a fair outcome.

This approach to evaluating districting plans is common in academic settings. Advances in computers made it possible for scholars to implement methods for developing a neutral, unbiased counterfactual of a jurisdiction’s legislative districts (see Chen and Cottrell 2014; Chen and Rodden 2013; Tam Cho and Liu 2016; Cirincione, Darling and O’Rourke 2000; Engstrom and Wildgen 1977; Fifield et al. 2015; McCarty, Poole and Rosenthal 2009; O’Loughlin and Taylor 1982). Recently, courts have also relied upon maps generated by computer algorithms to determine the presence of dilution in enacted plans of legislative districts.

2.2 Measuring Gerrymanders

Measuring Partisanship in the Simulated Districts

To assess the partisanship of the maps produced by the computer algorithm, I use election returns from the 2016 and 2020 general election in North Carolina aggregated to the VTD-level. For each hypothetical map, I determine which simulated district a precinct would fall, and assign the votes cast in that precinct to that district. If a precinct falls in more than one simulated district, I assign the the votes in that precinct to a simulated district according to the proportion of the precinct’s population that falls inside that district.

I use statewide races (as opposed to congressional races) because scholars have shown

those data to be reliable predictors of future behavior (Meier 1975). Moreover, a focus on statewide races serves to avoid problems of endogeneity that could be a problem with data from congressional elections. That is, differences in partisan performance in congressional elections can arise for many reasons besides the location of district boundaries. For example, incumbency, quality of challengers, campaign contributions, and campaign organization have all been shown to influence election outcomes, and those can vary widely across districts. By contrast, all those factors are held constant in statewide elections.

Statewide races have an additional advantage: the candidates on the ballot in statewide races appear in every precinct across the state. For this reason, returns from statewide contests are imperative when analyzing the computer generated, hypothetical maps. The computer frequently assigns precincts that fall in different districts in North Carolina’s legislature-drawn map to the same district in a hypothetical map. In such a scenario, voters considered different candidates for Congress, and comparing a vote for Democratic candidate for Congress in one district to a Democrat running for Congress in another district requires that we assume away possible differences between contests and candidates. On the other hand, these factors are held constant when if we consider statewide contests.

For robustness, I use returns from multiple statewide contests. For each district in the legislature-drawn map and algorithm drawn maps I calculate a composite partisan score based the election results from the 2016 and 2020 election cycles. In those elections North Carolina held statewide contests for President, US Senate, Governor, Lieutenant Governor, Attorney General, Treasurer, Secretary of State, Auditor, Agriculture Commissioner, Insurance Commissioner, Labor Commissioner, and Superintendent of Public Instruction. To calculate the composite score, I take the sum the votes cast for Republican candidates for statewide office in 2016. I likewise sum the votes cast for Democratic candidates for statewide office. Then I determine the proportion of votes cast for the Democratic candidates by dividing the total votes cast for the Democratic candidates by the sum of the total votes cast for Republicans and total votes cast for Democrats. The result, the Democratic

proportion of total votes cast in that district, is a composite measure of underlying support of for Democrats for voters living that district.

Using precinct-level returns for statewide races, I can determine the partisanship of the hypothetical districts drawn by the computer algorithm. The vast majority of VTDs are wholly contained within one district; however, I allow the computer algorithm to “break” VTDs into census blocks. It is therefore possible for the districts drawn by the algorithm to split existing VTDs. When that happens, I presume that the votes are distributed across blocks according to the proportion of a VTD’s voting age population (VAP) that resides within a block. For example, suppose a precinct has a VAP of 100, and that voters cast 20 votes for a Republican candidate and 30 votes for a Democratic candidate. If a block within that precinct has a VAP of 10 people, I calculate that 2 votes for the Republican and 3 votes for the Democrat came from that block.

Districts Carried

I use the composite partisanship to calculate the number of districts carried in each map. I presume that districts in which the Democratic proportion of the composite votes exceeds 0.5 is a district that is more likely than to elect a Democrat than a Republican. Conversely, if the Democratic proportion of the composite vote falls below 0.5, I presume that that Republicans carried the district. For example, suppose Democrats received proportions of the composite vote equaling 0.47, 0.58, and 0.52 in a three-district jurisdiction. In such a scenario, I say that Democrats “carried” the second and third district and failed to carry the first. In this analysis I consider three jurisdictions, a 14-district congressional map, a 50-district Senate map, and a 120-district House map.

Median-Mean Difference

I also use the proportion of the composite partisan vote to calculate the median-mean difference metric. Consider the same example districts in which Democrats received proportions of the voted equaling 0.47, 0.58, and 0.52. To find the mean, we divide the sum of the Democratic proportions by the number of districts. In this case, $(0.47+0.58+0.52)/3$

$= 1.57/3 = 0.52$. To find the median we sort the Democratic proportions so that they are ordered from smallest to largest. The median is the proportion for which number of proportions that are larger is equal to the number of proportions that are smaller. In this example, we would order 0.47, 0.52, 0.58. Here, the median is 0.52 because there is one proportion that is larger and one that is smaller. Of course, in my analysis in this report, I take the number of districts in the map as the denominator in each map I analyze.

3 Findings: Partisan Bias

In this section, I describe the results of 1000 simulations of the redistricting process for North Carolina’s congressional districts, Senate districts, and House districts. I show that the legislature drawn map of electoral districts for Congress, the Senate, and the House show significant bias against Democratic voters and that bias goes beyond anything we would expect based on the patterns of electoral geography in North Carolina. I begin by discussing the results of my simulations of the House map and comparing those results to the characteristics of the map drawn by the legislature. Next, I present the results of computer simulated redistricting for the North Carolina Senate electoral map and show that the legislature-drawn map exhibits more bias than we would expect based on chance alone. Finally, I repeat the analysis focused on the electoral map used to elected North Carolina’s congressional delegation. I show that, as with the other maps, the legislature-drawn map shows bias above and beyond what we would expect had the legislature used a neutral process, free from an intent to produce a partisan bias, to determine district boundaries.

3.1 State House Districts

To draw a set neutral and partisan-blind maps of North Carolina’s House districts, I take the following steps.

1. Build a map consisting of VTDs that are appropriate to the electoral map.

2. Divide that map into House-specific clusters as described by Cooper et. al.
3. Determine which VTDs are adjacent to each other in the cluster by cluster maps.
4. Run simulations for up to 40,000 maps per cluster.
5. For each cluster, I aggregate the characteristics of each VTD to the district to which it is assigned in each hypothetical map.
6. Aggregate the characteristics of each hypothetical map to ascertain its demographic and partisan characteristics. At this point, I subset the resulting maps to remove any maps in which the population of each district does not fall within 1.5% of constitutional requirements that districts contain equal population.⁴ For the purposes of exposition, I randomly sample remaining maps and focus my analysis on 1000 of those randomly sampled.
7. Finally, I combine the data from each of the clusters and describe the partisan characteristics of the full set of maps.

The result of this process is a set of maps that approximate the legislatures announced districting criteria. Each systemwide map is a unique combination of North Carolina’s geography. At no point in developing the sample of 1000 maps upon which I base my analysis do I consider any factors besides population and the geographic characteristics of units of geography upon which the maps are base. Thus, taken together, the maps represent the distribution of outcomes we might expect from a neutral redistricting process.

⁴Because of the compressed time available, a few counties posed coding problems because the average population deviation within clusters abutted the constitutional limit. Thus I allowed the algorithm slightly more flexibility. The algorithm draws maps randomly, there is no reason to believe this slight deviation from exact population parity should create an advantage for either Democrats or Republicans.

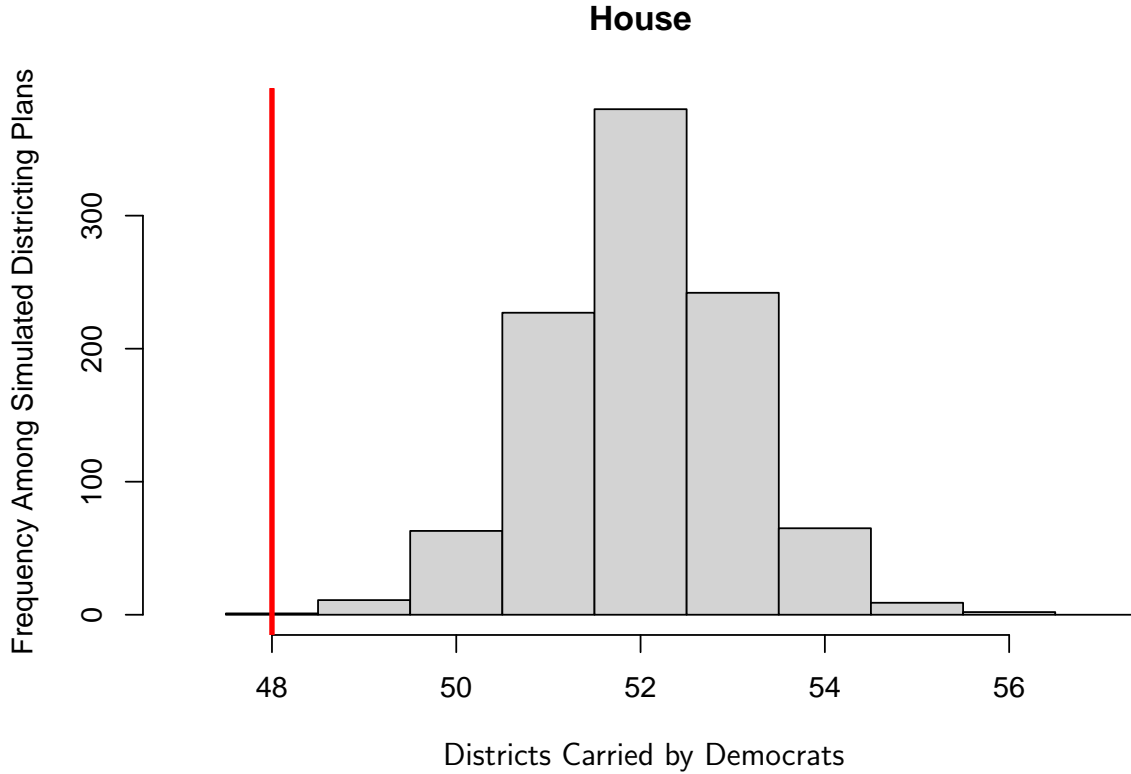


Figure 1: Distribution of outcomes from 1000 simulations of the redistricting process used to draw North Carolina’s House districts. The x-axis represents the number of districts carried (out of 120) by Democrats using the partisan composite score. The vertical red line corresponds to the number of districts carried by Democrats in the legislature-drawn map. Democrats carried in 48/120 districts in the legislature-drawn map. Democrats carried just one of the 1000 sampled algorithm-drawn maps ($p = 0.001$).

Figure 1 summarizes the partisan characteristics of set of algorithm-drawn maps and compares the distribution of those characteristics to the characteristics of the Legislature-drawn map of House districts. Here, I summarize the number of districts carried by Democrats. Recall that I say a Democrats carry a district if Democrats received more votes in that district in statewide contests during the 2016 and 2020 elections. Along the x -axis, numbers correspond to the number of districts favoring Democrats in a particular map. The y -axis describes the frequency with which I observe maps that exhibit a particular set of partisan characteristics. Thus, the relative height of the bars corresponds to the relative frequency with which I observe maps with particular characteristics in the set of Algorithm-drawn maps I analyzed.

In the sample of maps represented here, Democrats carried as few as 48 (out of 120) and as many as 56. In the sample, the most common outcome was one in which Democrats carried in 52/120 districts. By contrast, Democrats carried just 48 of the legislature-drawn districts. The algorithm drew just one map in which Democrats carried so few districts. Thus, based on this sample of maps, I may say that there is about a 1 in 1000 chance of drawing a map in which Democrats carried as few or fewer districts. In short, it is highly unlikely that the legislature-drawn map was developed through a process that treated partisanship of voters neutrally.

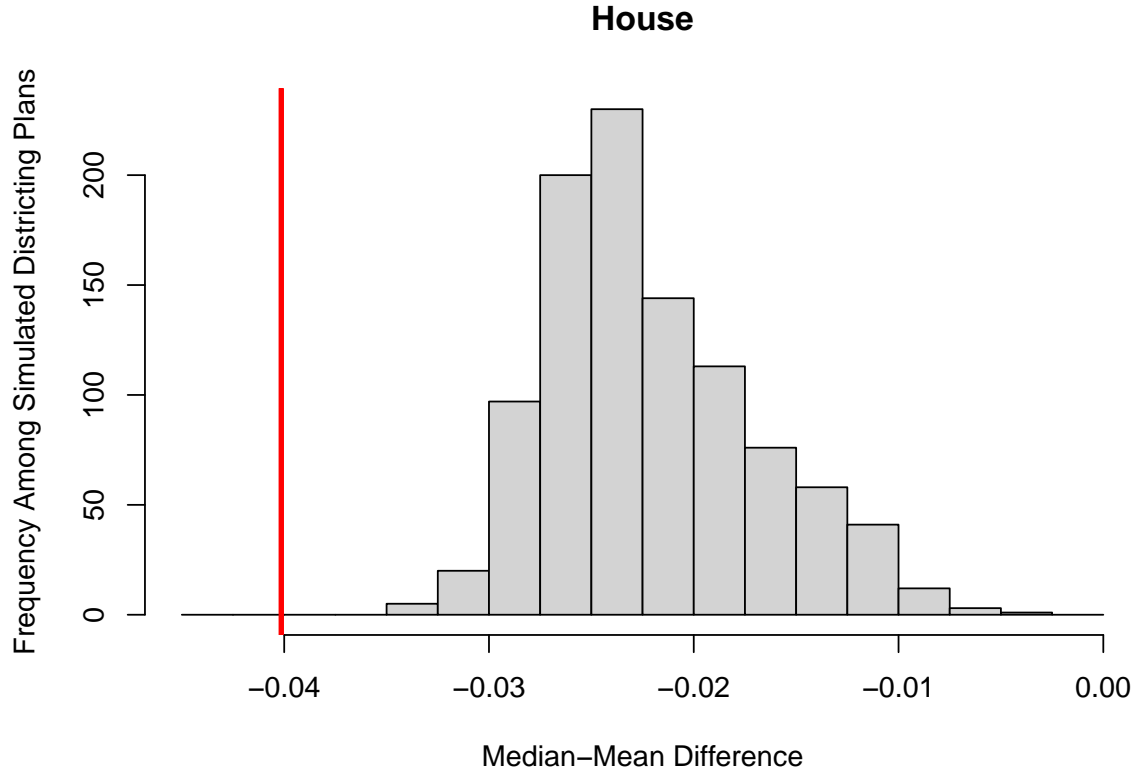


Figure 2: Distribution of outcomes from 1000 simulations of the redistricting process used to draw North Carolina’s House districts. The x-axis represents the difference in the median Democratic vote share and the mean Democratic vote share calculated using the partisan composite score. The vertical red line corresponds to the difference in the median Democratic vote share and mean of Democratic vote share in the legislature-drawn map. The legislature drawn map has a median-mean difference of -0.04 . None of the algorithm-drawn maps had a median-mean difference that extreme ($p = 0.0$).

The degree to which Democrats are disadvantaged by the legislature drawn map is even more stark when I consider the median-mean difference. Figure 4 summarizes the partisan characteristics of set of algorithm-drawn maps and compares the distribution of those characteristics to the characteristics of the Legislature-drawn map. Here, I summarize the median-mean difference in the algorithm-drawn map and the legislature-drawn map. Recall that the median-mean difference is found by taking the map-level median and the map-level mean of Democratic share of the two-party vote. If the difference takes a negative number, the map is biased against Democrats. If the difference takes a positive value, the map is biased in favor of Democrats. If the difference equals 0, then the map is neither biased in

favor nor biased against Democrats. Along the x -axis, numbers correspond to the number of districts carried by Democrats in a particular map. Maps are sorted into bins depending on whether the median-mean difference exhibited in the map falls into the interval the bar covers on the x -axis. The y -axis describes the frequency with which I observe maps that exhibit a particular set of partisan characteristics. Thus, the relative size of the bars corresponds to the relative frequency with which I observe maps with particular characteristics in the set of algorithm-drawn maps I analyzed.

In the sample of maps represented in my analysis, the most common median-mean difference in Democratic vote share fell between -0.0225 and -0.025 . The lowest median-mean difference in the sample of maps I analyze here was -0.034 , and the highest median-mean difference was -0.005 . By contrast, the legislature-drawn map has a median-mean difference of -0.04 . No map in the sample of algorithm drawn maps showed a degree of bias as extreme as the bias I observe in the legislature-drawn map. The data indicate that there is less than a 1 in 1000 chance that we would observe a map as extreme as the map drawn by the legislature if the legislature was following a neutral, party-blind process.

3.2 State Senate Districts

To draw a set neutral and partisan-blind maps of North Carolina’s House districts, I take follow the same steps I took to develop maps for the House.

1. Build a map consisting of VTDs that are appropriate to the electoral map.
2. Divide that map into Senate-specific clusters as described by Cooper et. al.
3. Determine which VTDs are adjacent to each other in the cluster by cluster maps
4. Run simulations for up to 40,000 maps per cluster
5. For each cluster, I aggregate the characteristics of each VTD to the district to which it is assigned in each hypothetical map.

6. Aggregate the characteristics of each hypothetical map to ascertain its demographic and partisan characteristics. At this point, I subset the resulting maps to remove any maps in which the population of each district does not fall within 1.5% of constitutional requirements that districts contain equal population.⁵ For the purposes of exposition, I randomly sample remaining maps and focus my analysis on the 1000 randomly sampled maps.
7. Finally, I combine the data from each of the clusters and describe the partisan characteristics of the full set of maps.

The result of this process is a set of maps that approximate the legislatures announced districting criteria. Each systemwide map is a unique combination of North Carolinas geography. At no point in developing the sample of 1000 maps upon which I base my analysis do I consider any factors besides population and the geographic characteristics of units of geography upon which the maps are base. Thus, taken together, the maps represent the distribution of outcomes we might expect from a neutral redistricting process.

⁵As described in an earlier footnote, we allow the algorithm more leeway to account for highly constrained average population deviations in some clusters.

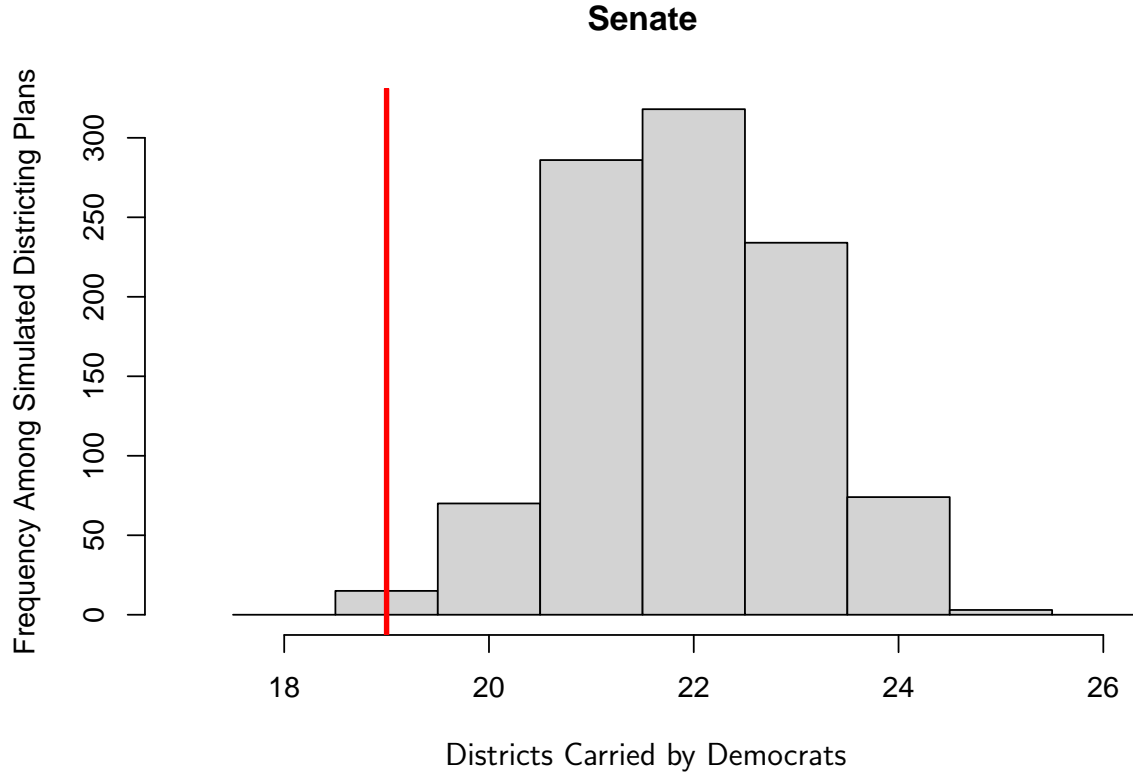


Figure 3: Distribution of outcomes from 1000 simulations of the redistricting process used to draw North Carolina’s Senate districts. The x-axis represents the number of districts carried (out of 50) by Democrats using the partisan composite score. The vertical red line corresponds to the number of districts carried by Democrats in the legislature-drawn map. Democrats carried 19/50 districts in the legislature-drawn map. Just 15 out of 1000 of the algorithm-drawn maps had so few districts carried by Democrats ($p = 0.015$).

Figure 3 summarizes the partisan characteristics of set of algorithm-drawn maps and compares the distribution of those characteristics to the characteristics of the Legislature-drawn map of Senate districts. Here, I summarize the number of districts carried by Democrats. Recall that I say Democrats carry a district if Democrats received more votes in that district in statewide contests during the 2016 and 2020 elections. Along the x -axis, numbers correspond to the number of districts carried by Democrats in a particular map. The y -axis describes the frequency with which I observe maps that exhibit a particular set of partisan characteristics. Thus, the relative size of the bars corresponds to the relative frequency with which I observe maps with particular characteristics in the set of Algorithm-drawn maps I analyzed.

In the sample of maps represented here, Democrats carried as few as 19 (out of 50) and as many as 25. In the sample, the most common outcome was one in which Democrats carried 22/50 districts. By contrast, Democrats carried just 18 of the legislature-drawn districts. The algorithm drew 15 maps in which Democrats carried so few districts. Thus, based on this sample of maps, I may say that there is about a 1.5 in 100 chance of drawing a map in which Democrats carried as few or fewer districts. In short, it is highly improbable that the legislature-drawn map was developed through a process that treated partisanship of voters neutrally.

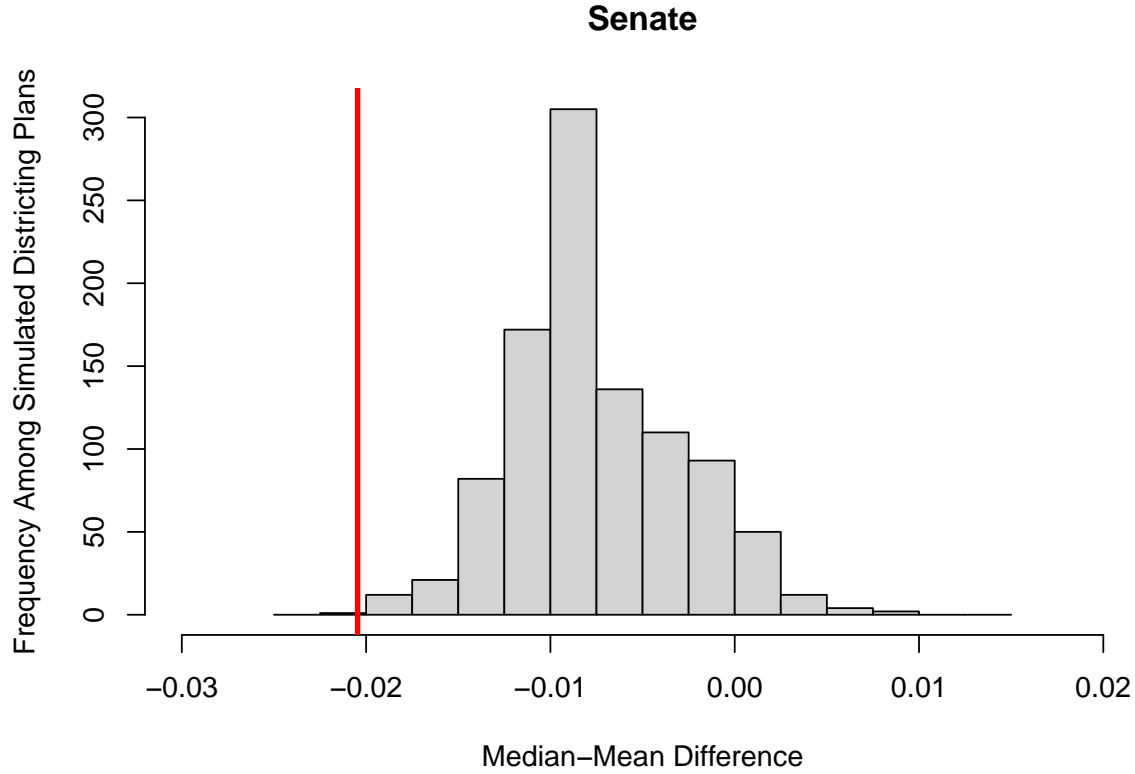


Figure 4: Distribution of outcomes from 1000 simulations of the redistricting process used to draw North Carolina’s Senate districts. The x-axis represents the difference in the median Democratic vote share and the mean Democratic vote share calculated using the partisan composite score. The vertical red line corresponds to the difference in the median Democratic vote share and mean of Democratic vote share in the legislature-drawn map. The legislature drawn map has a median-mean difference of -0.0204 . None of the algorithm-drawn maps had a median-mean difference that extreme ($p = 0.0$).

The degree to which Democrats are disadvantaged by the legislature drawn map is even more stark when I consider the median-mean difference. Figure 4 summarizes the partisan characteristics of set of algorithm-drawn maps of Senate districts and compares the distribution of those characteristics to the characteristics of the Legislature-drawn map in terms of median-mean difference. Recall that the median-mean difference is found by taking the map-level median and the map-level mean of Democratic share of the two-party vote. If the difference takes a negative number, the map is biased against Democrats. If the difference takes a positive value, the map is biased in favor of Democrats. If the difference equals 0, then the map is neither biased in favor nor biased against Democrats. Along the x -axis, numbers correspond to the number of districts carried by Democrats in a particular map. Maps are sorted into bins depending on whether the median-mean difference exhibited in the map falls into the interval the bar covers on the x -axis. The y -axis describes the frequency with which I observe maps that exhibit a particular set of partisan characteristics. Thus, the relative size of the bars corresponds to the relative frequency with which I observe maps with particular characteristics in the set of algorithm-drawn maps I analyzed.

In the sample of maps represented in my analysis, the most common median-mean difference in Democratic vote share fell between -0.0075 and -0.01 . The lowest median-mean difference in the sample of maps I analyze here was -0.0201 , and the highest median-mean difference was -0.005 . By contrast, the legislature-drawn map has a median-mean difference of -0.009 . No map in the sample of algorithm drawn maps showed a degree of bias as extreme as the bias I observe in the legislature-drawn map. The data indicate that there is less than a 1 in 1000 chance that the legislature would arrive a map as biased as their map of Senate districts if they followed a neutral, party-blind process.

3.3 Congressional Districts

To draw a set neutral and partisan-blind maps of North Carolina’s House districts, I take follow the same steps I took to develop maps for the House.

1. Build a map consisting of VTDs that are appropriate to the electoral map. In the case of the congressional map, I maintained whole all counties that the legislature did not break in their map.
2. Divide that map into Senate-specific clusters as described by Cooper et. al.
3. Determine which VTDs are adjacent to each other in the cluster by cluster maps.
4. Run simulations for 100,000 maps.
5. For each cluster, I aggregate the characteristics of each VTD to the district to which it is assigned in each hypothetical map.
6. Aggregate the characteristics of each hypothetical map to ascertain its demographic and partisan characteristics. At this point, I subset the resulting maps to remove any maps in which the population of each district does not fall within 0.01 of constitutional requirements that districts contain equal population. For the purposes of exposition, I randomly sample remaining maps and focus my analysis on 1000.
7. Finally, I combine the data from each of the clusters and describe the partisan characteristics of the full set of maps.

The result of this process is a set of maps that approximate the legislature’s announced districting criteria. Each systemwide map is a unique combination of North Carolinas geography. At no point in developing the sample of 1000 maps upon which I base my analysis do I consider any factors besides population and the geographic characteristics of units of geography upon which the maps are based. Thus, taken together, the maps represent the distribution of outcomes we might expect from a neutral redistricting process.

Figure 5 presents histogram summarizing findings from 1000 simulations of the redistricting process in North Carolina. The x-axis corresponds the possible number of districts that Democrats could carry by the composite partisan vote. The y-axis corresponds to the

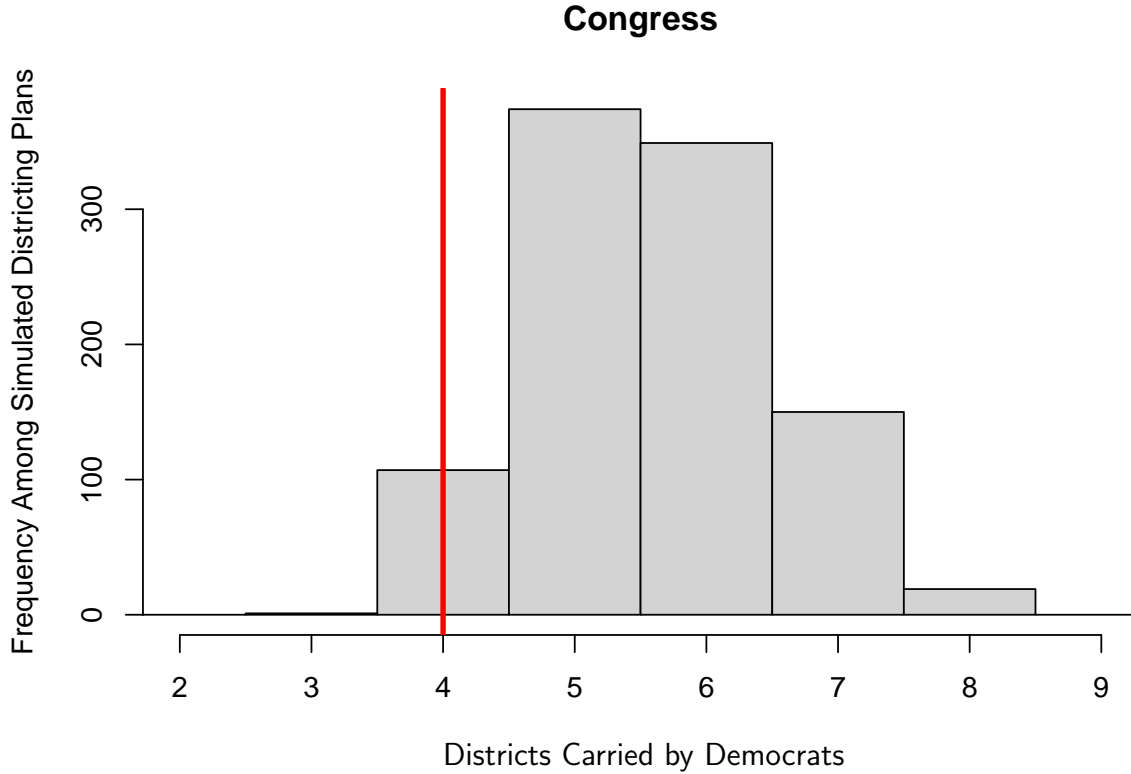


Figure 5: Distribution of outcomes from 1000 simulations of the redistricting process used to draw North Carolina’s congressional districts. The x-axis represents the number of districts carried (out of 14) by Democrats using the partisan composite score. The vertical red line corresponds to the number of districts carried by Democrats in the legislature-drawn map.

frequency with which maps with a particular count of districts carried appear in the set of simulated maps. Higher bars correspond to outcomes that occurred more often in the set of simulated maps. The simulations produced maps with as few as 3 and as many as 8 districts that would favor a Democratic candidate. The most common outcome, occurring in 374/1000 simulations, in the simulation was Democrats carrying 5/14 districts based on the composite partisan score. Democrats carried 6/14 districts in nearly as many districts (349/1000 simulations). Democrats carried 7/10 and 8/10 districts in 150/1000 and 19/1000 maps respectively. In the enacted map, we would expect Democrats to carry 4 districts by the composite partisan index. In 108/1000, Democrats carried 4 or fewer districts. Thus the legislature drawn map shares characteristics with roughly 1/10 of the maps drawn by the algorithm.

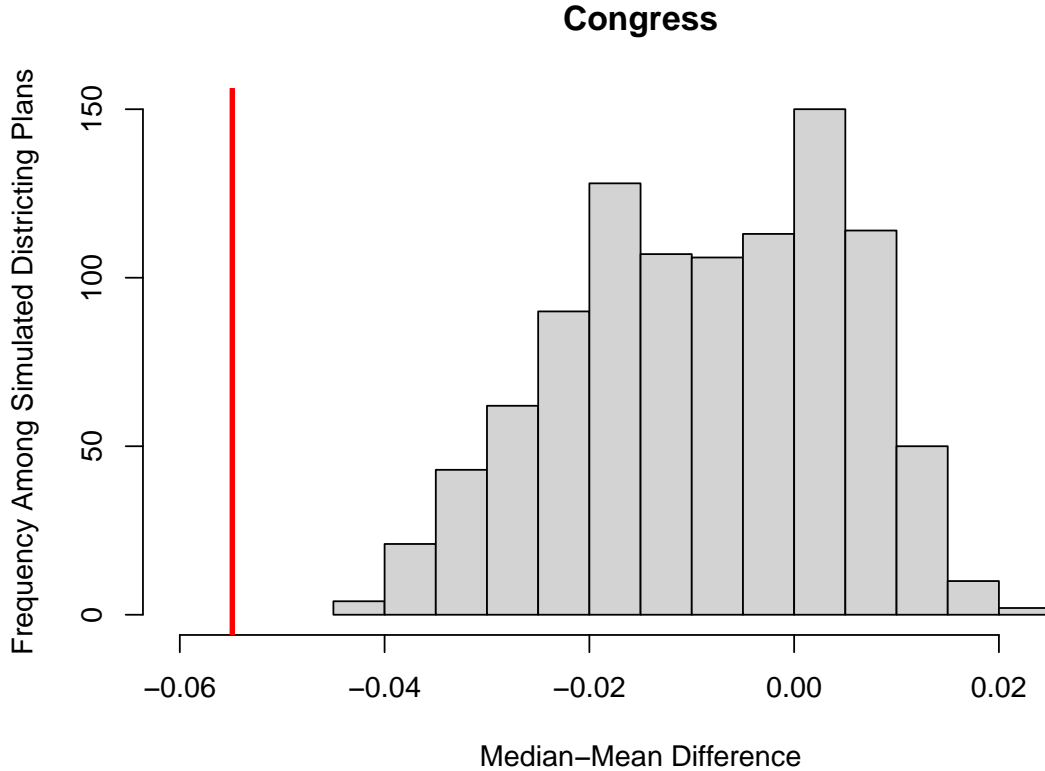


Figure 6: Distribution of outcomes from 1000 simulations of the redistricting process used to draw North Carolina’s congressional districts. The x-axis represents the difference in the median Democratic vote share and the mean Democratic vote share calculated using the partisan composite score. The vertical red line corresponds to the difference in the median Democratic vote share and mean of Democratic vote share in the legislature-drawn map.

Figure 6 presents a histogram that summarizes the difference in median composite partisan vote share and mean composite partisan vote share for 1000 simulated maps of North Carolina’s Congressional districts. Here the x-axis corresponds to possible values that the median-mean difference may take. The y-axis corresponds to frequency with which particular values appear in the algorithm-drawn map. As before, the vertical red line corresponds to the median-mean difference in the legislature-drawn map.

In the simulated maps, the median-mean difference ranged from -0.042 to 0.025 . the distribution is bimodal with two peaks at just greater than -0.02 and another peak at a little above 0.0 . The fact that simulations regularly median-mean difference of greater than 0.0 which corresponds to no votes being weight roughly equally in the system of districts.

In fact, 326/1000, just shy of a third of the simulations, corresponds to maps that were not skewed against Democrats. The legislature drawn map showed a median-mean score of -0.055 . Not a single algorithm-drawn map was more extreme than the map drawn by the legislature. By contrast, the minimum median-mean difference observed in the simulated maps was just -0.041 .

4 Conclusion

Each legislature-drawn map represents a significant deviation from unbiased alternatives produced by the computer algorithm I describe here. Based on the simulations, there is less than a 1 in 1000 chance that a neutral process produced the House map. There is less than a 2 in 100 chance that a neutral process led to the Senate map. The odds of arriving at the a congressional map as biased as the legislature-drawn map are similarly long.

As independent events, the emergence of these three maps would be cause for concern that partisan biased actions were taken in the construction. Taken together, concern compounds. The computer simulations that I described in this report suggest that the legislature drew three maps that represent gerrymanders in favor of Republicans.

A A Description of the Magleby-Mosesson Algorithm

The process we use to develop a large set of neutral counterfactuals draws maps in a four-step process. For a more technical representation along with evaluations of the authors’ claims of neutrality (see Magleby and Mosesson 2018).

Step 1: Convert map into a graph

We reduce the map to a connected graph where each geographic unit, a VTD in this setting, is a vertex of the graph. Two vertices are connected by edges if the units of geography share more than a single point of their boundary (thus, the resulting districts will be “rook” contiguous).

Step 2: Divide the graph randomly

The algorithm randomly collects connected vertices into groups and joins them into a new vertex that aggregates the demography of each of its constituent vertices and preserves the connectedness with any vertex with which a constituent vertex was adjacent. It continues to randomly join groups of vertices until the number of groups is equal to the number of districts in the state.

Step 3: Refine the divided graph

In order to achieve balance (population parity between districts), Magleby and Mosesson use an algorithm proposed by Kernigan and Lin to switch constituent vertices between groups of vertices. If it is not possible to achieve balance with a moderate number of switches, then we discard the map and start over. If balance is possible after a fixed number of switches, then we record the map for future analysis.

Step 4: Repeat

Repeat steps 1, 2, and 3 until we find a large sample maps that contain roughly equal district populations.

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I declare under penalty of perjury under the laws of NC that the foregoing is true and correct



Daniel B. Magleby, Ph.D.

Date: 12/23/21_____

A Rebuttal to Michael J. Barber, Ph.D.'s Expert Report

Daniel B. Magleby, Ph.D.

PLAINTIFF'S
EXHIBIT
1618

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1 Introduction

I am an Associate Professor in the Department of Political Science at Binghamton University, SUNY where I also hold a courtesy appointment in the Department of Economics. At Binghamton, I am also the director of the Center for the Analysis of Voting and Elections at Binghamton University. In 2007, I received an M.S. in Mathematical Methods in the Social Sciences from Northwestern University. I hold an M.A. in political science from the University of Michigan, Ann Arbor where I also received a Ph.D in political science in 2011. I have published academic papers on legislative districting and political geography in several political science journals, including *Political Analysis*, the *Election Law Journal*, *American Politics Research*, and *Social Science Quarterly*. My academic areas of expertise include legislative elections, geographic information systems (GIS) data, redistricting, voting rights, legislatures, and political geography. I have expertise in analyzing political geography, elections, and redistricting using computer simulations and other techniques. I have been retained by plaintiff Common Cause to perform the analysis described below at a rate of \$250 an hour. My compensation is not predicated on arriving at any particular opinion.

2 Research Question and Summary of Findings

In Dr. Barber’s report, he engages in a cluster-by-cluster analysis of the legislature-drawn plan. He compares the legislature’s plan to a large set of simulations he conducted using a computer-based redistricting algorithm. He concludes that the deviations he observes are not sufficient to deem the legislature-drawn maps “an extreme partisan gerrymander.” In this report, I will explain how Dr. Barber’s solely cluster-based analysis and his exclusive focus on seats carried does not provide a sufficient basis to reach the conclusion he makes in his report.

The legislature-drawn maps are partisan gerrymanders because they exhibit significant partisan bias, and the bias is likely to persist when Democrats increase their vote share in

North Carolina. Bias is present in cluster-by-cluster analysis; however, the consequences of the cluster-level bias are more pronounced when we consider the aggregate effect of cluster-level bias statewide. Finally, because Democrats are capable of carrying a majority of the vote statewide, the legislature drawn map will likely entrench Republicans in power even if only a minority of North Carolina voters support them.

2.1 Data

My opinions follow from analysis of the following data:

- Results of computer simulations reported by Michael J. Barber, Ph.D. in his Expert Report dated December 22, 2021.
- VTD boundaries provided as ESRI Shapefiles by the US Census Bureau available on at the following URL. <https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.html>
- Census block boundaries and population data provided by the US Census Bureau. These are collected as part of the constitutionally mandated decennial census that most recently concluded in 2020.
- County boundaries as reported by the US Census Bureau.
- County clusterings provided by Christopher Cooper, Blake Esselstyn, Gregory Herschlag, Jonathan Mattingly, and Rebecca Tippet in a report that may be accessed at the following URL. <https://sites.duke.edu/quantifyinggerrymandering/files/2021/08/countyClusters2020.pdf>
- Election returns as reported by the Voting and Election Science Team¹ group and aggregated to Census-provided VTD boundaries and provided on the Redistricting

¹<https://dataverse.harvard.edu/dataverse/electionscience>

Data Hub² website. I aggregate statewide elections returns from 2016 and 2020 to the set of legislature drawn districts and to the districts in each of the hypothetical alternative maps. In my analysis, I set aside election returns from 2018 because the only statewide races held that year were judicial elections which follow very different patterns compared to elections for other offices. I prefer to use all statewide elections because it ensures that my analysis captures lower-profile elections in which voters will rely on their partisan preferences rather than the personal appeal of candidates. Thus in all of my analyses, the Democratic two-party vote share is 48.8% in my composite partisan score. This makes my analysis a more conservative evaluation of the legislature-drawn maps, and adds confidence that when I observe a gerrymander it is in fact a gerrymander.

- 1,000 alternative, hypothetical maps of North Carolina’s congressional, Senate, and House districts generated by a neutral, partisan-blind computer algorithm. The redistricting algorithm I use in my analysis was developed by me and a collaborator, Daniel Mosesson (consultant in private practice), and published in *Political Analysis* in 2018. In our published work, we show that the algorithm produces a large number of unique maps of legislative districts without any indication of bias.
- Legislature-drawn boundaries of districts intended to elect representatives to Congress, the North Carolina Senate, and the North Carolina House of Representatives. These data are available on the North Carolina General Assembly website and may be accessed at the following URLs. <https://www.ncleg.gov/Redistricting>

3 Mechanics of Gerrymandering

Professor Barber evaluates his simulations relying solely on estimates of the number of seats carried under a composite partisan score that makes the unusual choice to include an election

²<https://redistrictingdatahub.org>

from 2014. A deviation from the number of seats carried compared to a neutral counterfactual can be indicative of a gerrymander. It is just one indicator of a gerrymander and by only examining the expected seats carried, Professor Barber misses the dynamics by which the maps drawn by the state legislature effectuate their cumulative and durable gerrymander.

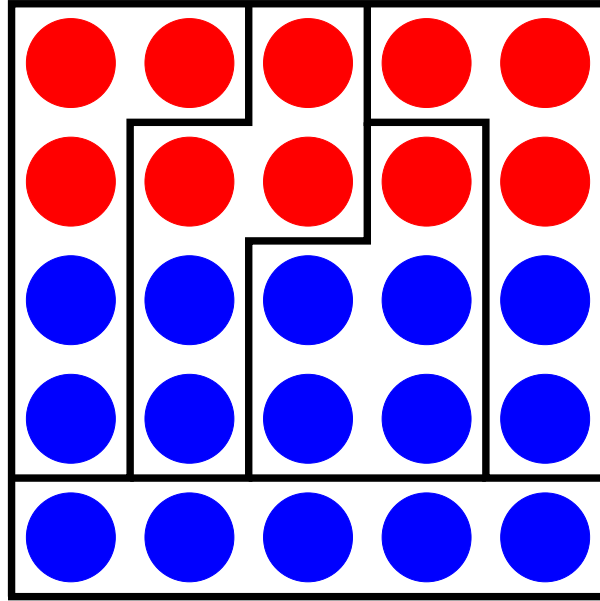


Figure 1: An example of a packing gerrymander in a hypothetical jurisdiction with 25 voters divided into 5 districts.

To understand why it can be problematic to focus exclusively on seats carried, it is helpful to review how gerrymanders work. Consider the example included in Figure 1. For simplicity, suppose each dot corresponds to one voter and that these voters are distributed in “geographic space” as represented in the figure. The voters have preferences that correspond to their voting preference. As I have drawn it, blues constitute a majority and reds are a minority. If a mapmaker was required to divide this space into five districts each with five voters he could do it in a number of ways. Suppose that the mapmaker’s goal was to maximize the number of districts carried by red voters. In this instance, a mapmaker might draw a map with district boundaries that look like those in Figure 1 in which there are three districts carried by reds and two blues. We call this a packing gerrymander.

Packing gerrymanders distort representation. In packed systems, one party receives more representation than they should as in the example of the packing gerrymander in Figure 1. In addition, packing gerrymanders can potentially entrench a group in power even when they receive a minority of votes. In the example I provide in Figure 1, the reds are a minority, yet they carry a majority of seats.

The mechanics by which a packing gerrymander accomplishes distortion in representation reveals the shortcomings of relying solely on seats carried as the metric. Observe that in addition to denying representation, packing gerrymanders serve to underweight the votes of one group of voters. In the example I provide here, blues cast more than 50% of the voters, but they carry fewer than 50% of the seats. The reverse is true for reds in the example I provide in Figure 1. This contrast in outcomes is significant because it indicates a significant difference in the ways that blue and red votes are weighted, with each red vote effectively counting for more than each blue vote. In practical terms, a packing gerrymander accomplishes this differential vote weighting by over-concentrating one group of voters, the blues in the example I provide in Figure 1. Thus, it is not enough to only consider the seats carried in a plan of legislative districts, but it is necessary to consider the margins by which districts are carried (as I did in my median-mean difference analysis).

One way to conceive of the effect of a packing gerrymander is that it treats parties asymmetrically. That is, for a given proportion of the vote, two parties receive different shares of representation. For example, suppose Republicans receive 52% of the vote and receive 54% of the seats. A map treats Democrats symmetrically if Democrats receive 54% of the seats with 52% of the vote. Note that symmetry does not require proportionality. Parties can receive more (or less) than $x\%$ of the seats when they receive $x\%$ of the vote so long as the opposing party receives the same number of seats at that voter percentage.

One of the simplest measures of symmetry we can apply to redistricting scenarios is the median-mean difference (see Katz, King and Rosenblatt 2020; McDonald and Best 2015; Best et al. 2017). The median-mean difference is a way of evaluating whether the distribution of

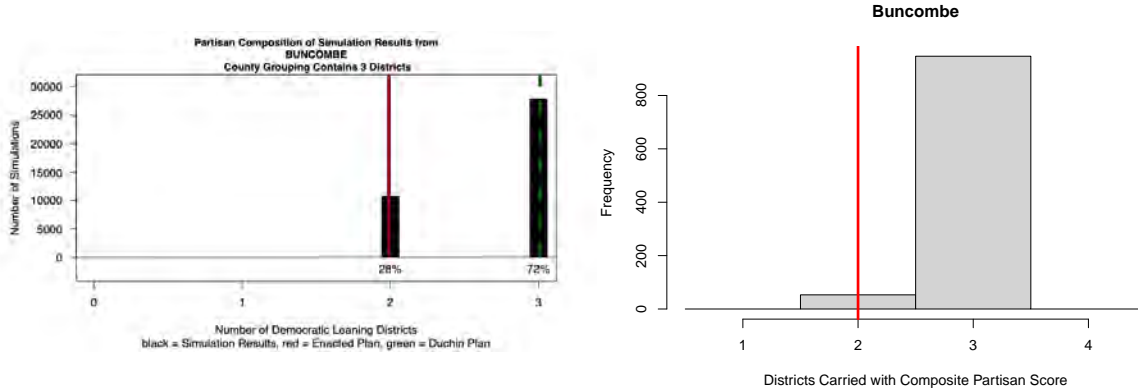
districts in a map is symmetrical. We find it by taking the mean (average) of the district-level vote share and comparing it to the median district-level vote-share, the district-level vote share for which there are an equal number of districts with higher vote shares as there are districts with lower vote shares. When the median and mean are equal, the distribution of districts is symmetrical and the map will treat the parties with symmetry. If the median-mean difference is not zero, it means that map will not treat votes cast for the parties equally.

4 County-Based Clusters

In order “to minimize the overall number of county splits while maintaining population balance in the redistricting process” the legislature adopted a set of county clusterings described Cooper et al (2021). One effect of the clustering is that each cluster represents a separate redistricting scenario. In effect, it turned North Carolina into a series of smaller “states” that all needed to be redistricted separately. Barber considers each of these clusters separately. He finds the legislature frequently deviates from most common outcomes of the simulations he conducted, but that the deviations most often fall “often within the range of the non-partisan simulated maps” (Barber, 269).

Barber is not always clear in what he means by “range.” In many places, he seems to mean that the legislature-drawn map is consistent with at least one of the simulations he produced; however, that is an unusual standard to use in statistical analysis. At one point, in evaluating the Cumberland map, he seems to adopt a new standard arguing that the optimal map “falls outside of the 50% range of simulation results and is thus classified as a partisan outlier result” (110).

An example from Professor Barber’s analysis is illustrative of why the legislature-drawn plan is problematic. For clarity, I provide a copy of a histogram of Professor Barber’s results in Figure 2. In Buncombe, 72% of Dr. Barber’s simulations have 3 Democratic leaning



Barber Simulations

Magleby Simulations

Figure 2: A copy of Dr. Barber’s summary of simulations of Buncombe copied from his report dated December 22, 2021 and a summary of 1000 simulations using the algorithm proposed by Magleby and Mosesson (2018).

districts, but the legislature only drew 2. Here, the outcome is consistent with some of the simulations produced by Dr. Barber, but most of his simulations suggest that Democrats should carry 3 of Buncombe County’s districts. In 72% of the simulated maps, Democrats made up a majority in all 3 of the districts. In contrast to the large majority of Dr. Barber’s simulations, the legislature managed to draw a single district carried by Republicans. In order to draw a Republican-majority district, they had to concentrate Democrats in fewer districts than Democrats would naturally carry. As a result, the district carried by Republicans is insulated against any wave in which Democrats might receive more votes than expected based on Dr. Barber’s partisan vote index.

Figure 2 also provides a summary of the 1000 cluster-level redistricting simulations I conducted in Buncombe County as part of my analysis of the House map. The patterns are broadly consistent with what Barber found; however, in the set of simulations I conducted

it was more likely that Democrats carry 3 as opposed to 2 districts. Where Dr. Barber finds that there is a 28% chance that Democrats carry just two districts, I find that Democrats carry 2 districts in 5.3% of the simulations. A shortage of time does not allow me to explore exactly what drives the difference in Barber’s estimates and my estimates, but it is noteworthy that the simulations are broadly similar and show the same outcome is most likely when following a neutral process.

The legislature-drawn map repeats this pattern in several clusters analyzed by Dr. Barber. He finds that in the Forsyth, Stokes cluster, 67% of his simulated maps have 3 or more Democratic districts. In the Forsyth, Stokes cluster, the legislature drew 2 districts carried by Democrats in Barber’s partisan composite. In Guilford County, 99% of Barber’s maps had 5 or more Democratic districts. In Guilford, Democrats carried 4 using Barber’s partisan index. In each of those instances, Democrats carry fewer seats, than Dr. Barber’s simulations indicate they should. Moreover, the legislature drew extra districts carried by Republicans by packing Democrats into relatively fewer districts than they should have carried based on the analysis presented by Dr. Barber. The consequence of the packing present in each of these clusters is a systematic under-weighting of Democratic votes.

In the Senate map, Barber’s analysis again shows that Republicans opted to pack Democratic voters in certain clusters. Consider the distribution represented in Figure 3. On the left side, I provide a copy of the results summarized in Dr. Barber’s analysis. Here he finds that 95% of his simulations yield a map in which Democrats carry more seats than they carry in the legislature drawn map. While that outcome is in the range of outcomes yielded by his simulations, it is not particularly likely and it is far from the most likely outcome. In Figure 3, I also summarize the analysis of Iredell and Mecklenburg County that arises from 1000 simulations using the Magleby-Mosesson Algorithm (2018). As before the patterns are broadly similar. The most likely outcome in Iredell and Mecklenburg counties is that Democrats carry 5 of 6 districts. I find that the algorithm generates maps in which Democrats receive as few as 4 seats, but that only occurs in a minority of simulations

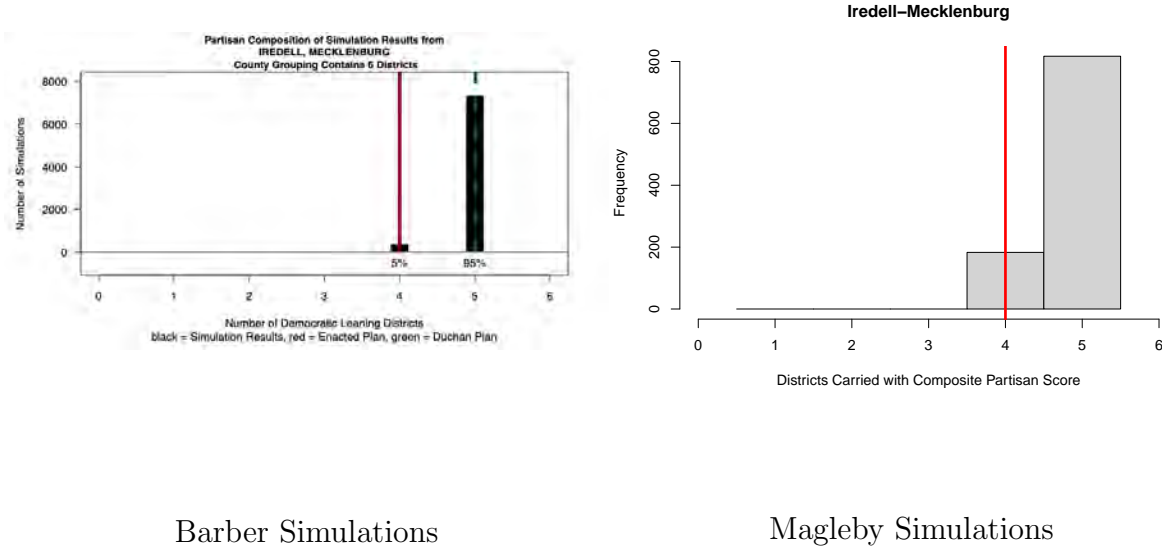


Figure 3: A copy of Dr. Barber’s summary of simulations of the Iredell-Mecklenburg cluster copied from his report dated December 22, 2021 and a summary of 1000 simulations using the algorithm proposed by Magleby and Mosesson (2018).

(18.3%). It is noteworthy again that the simulations yield broadly similar findings and that both Dr. Barber’s simulations and those that formed part of my analysis of the Senate map indicate that Democrats should carry more seats than they do in the legislature-drawn map.

The result of this pattern is the same in the Senate as it was in the House. By opting to pack democrats into fewer districts, the legislature underweights Democratic votes in Iredell and Mecklenburg Counties. By considering one cluster at a time, Barber describes the impact as relatively minor – Democrats receive one fewer seat than we would expect if the legislature engaged in a neutral district-drawing process. However, in reality, because this is repeated in other clusters, the resulting difference in vote-weights state-wide makes it extremely unlikely that Democrats will be able to achieve legislative majorities should they secure a majority of votes for legislative office.

5 Conclusion

The data presented in Dr. Barber’s report are inconsistent with his claim that the legislature-drawn maps are not a gerrymanders. One issue with Dr. Barber’s report is that he relies on a metric, seats carried, that does not allow us to directly consider the way the legislature’s maps systematically underweight Democratic votes. Yet in cluster after cluster, he shows that Republicans packed Democrats in ways that would underweight Democratic votes. In my analysis, I calculated the median-mean difference for the legislature-drawn Senate and House maps. I find that both legislature-drawn maps show patterns of treating Democratic and Republican voters asymmetrically with Democratic votes being systematically underweighted. Moreover, the median-mean difference is more extreme in the legislature-drawn maps than what I observe in any of the 1000 simulations of the House and Senate that I analyzed in my report.

The legislature-drawn maps are partisan gerrymanders because they exhibit significant partisan bias, and the bias is likely to persist when Democrats increase their vote share in North Carolina. The consequences of the cluster-level bias are pronounced when we consider the aggregate effect of cluster-level bias statewide.

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I declare under penalty of perjury under the laws of NC that the foregoing is true and correct

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Daniel B. Magleby, Ph.D.

Date: 12/28/21_____

An analysis of North Carolina’s legislative districtings: Expert Report

Wesley Pegden

December 23, 2021

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1 Qualifications

I am an associate professor in the department of Mathematical Sciences at Carnegie Mellon University, where I have been a member of the faculty since 2013. I received my Ph.D. in Mathematics from Rutgers University in 2010 under the supervision of József Beck, and I am an expert on stochastic processes and discrete probability. My research has been funded by the National Science Foundation and the Sloan Foundation. A current CV with a list of publications is attached as Exhibit A. A list of my publications with links to online manuscripts is also available at my website at <http://math.cmu.edu/~wes>.

I am an expert on the use of Markov Chains for the rigorous analysis of gerrymandering, and have published papers^[1] developing techniques for this application in *Proceedings of the National Academy of Sciences* and *Statistics and Public Policy*, hereafter referred to by [CFP] and [CFMP], respectively.

I testified as an expert witness in the *League of Women Voters of Pennsylvania v. Commonwealth of Pennsylvania* case in which the 2011 Congressional districting was found to be an unconstitutional partisan gerrymander, and as well as the *Common Cause v. Lewis* case in North Carolina. I previously served as a member of the bipartisan Pennsylvania Redistricting Reform Commission under appointment by the governor. I am being compensated at a rate of \$325 per hour for my work on the current case.

2 Executive Summary

I was asked to analyze whether the proposed Congressional, state House, and state Senate districtings of North Carolina were drawn in a way which made extreme use of partisan considerations.

To conduct my analysis, I take the enacted plan as a starting point and make a sequence of many small random changes to the district boundaries. This methodology is intended to detect whether the district lines were carefully drawn to optimize partisan considerations; in particular, if the plans in question were not intentionally drawn to maximize partisan advantage, then making random changes should not significantly decrease the plan’s partisan bias.

Specifically, my method begins with the enacted plan and uses a Markov Chain—a sequence of random changes—to generate trillions of comparison districtings against which I compare the enacted plans. These comparison districtings are generated by making a sequence of small random changes to the enacted plans themselves, and preserve districting criteria such as population deviation, compactness, and splitting of counties, municipalities, and precincts, among other criteria (a complete list is given in Section 4.3.1).

The analysis I conduct of the enacted plan using this data has two levels. The first level of my analysis consists simply of comparing the partisan properties of the enacted plans to the large sets of comparison maps produced by my Markov Chain, and I report how unusual the enacted plans are with respect to their partisan properties, against this comparison set. **Quantitatively, for the enacted Congressional, House, and Senate plans, I find that they have a greater partisan bias than 99.99999%, 99.99999%, and 99.97% of the trillions of districtings produced by my algorithm, respectively.**

The next level of my analysis uses the mathematical theorems I have developed with my co-authors in [CFP] and [CFMP] to translate the results of the above comparison into a statement about how the enacted plans compare against *all* other districtings of North Carolina satisfying the districting criteria I consider in this report. In other words, the theorem that I use in the second level analysis allows me to compare the enacted plan against not only the trillions of plans that my simulations produce through making small random changes, but also against all other possible districtings of North Carolina satisfying the districting criteria I consider.

Consider the following: when I make a sequence of small random changes to an enacted plan as described above, this can be viewed as a test of whether the partisan bias in the current districting is fragile, in the sense that it evaporates when the boundary lines of the district are perturbed. As discussed in Section B, our

[1]

- M. Chikina, A. Frieze, W. Pegden. Assessing significance in a Markov Chain without mixing, in *Proceedings of the National Academy of Sciences* **114** (2017) 2860–2864
- M. Chikina, A. Frieze, J. Mattingly, W. Pegden. Separating effect from significance in Markov chain tests, in *Statistics and Public Policy* **7** (2020) 101–114.

theorems in [CFP] and [CFMP] establish that it is mathematically impossible for the political geography of a state to cause such a result. That is: while political geography might conceivably interact with districting criteria to create a situation where typical districtings of a state are biased in favor of one party, it is mathematically impossible for the political geography of a state to interact with districting criteria to create a situation where typical districtings of a state appear to be *optimized for partisan bias*, in the sense that their bias is fragile and evaporates when small random changes are made. This allows us to rigorously demonstrate that a districting is optimized for partisanship, and is an outlier among *all* districtings of a state satisfying the criteria I consider, with respect to this property.

Quantitatively, my second-level analysis establishes that the enacted plans here are more optimized for partisanship than 99.9999% of all possible Congressional districtings satisfying the districting criteria I account for in my analysis, more than 99.9999% of all possible House districtings satisfying those criteria, and more than 99.9% of all Senate districtings satisfying those criteria. Thus the chance of drawing districtings that are as optimized with respect to their partisan properties as the current House and Senate districtings of North Carolina *without* using partisan considerations is exceedingly small.

In particular, I find that **North Carolina’s Congressional, House and Senate districtings were drawn in a way which made extreme use of partisan considerations, a finding which is mathematically impossible to be caused by the interaction of political geography and the districting criteria I consider.**

3 Topic of Expert Report

The question motivating my analysis in this case is: “*How significant a role did partisanship play in the drawing of the enacted Congressional, House and Senate districts of North Carolina?*”

My analysis approaches this question in a rigorous and quantifiable way. In short, I identify how much of an outlier the present districting lines are, with respect to how carefully they are drawn to line up with partisan goals. *A priori*, it is possible that political geography might conceivably interact with districting criteria to bias typical districtings for one party or another. But my analysis provides a rigorous quantifiable answer to the question of the extent to which partisanship was used in the districting process, whose validity *does not depend on the political geography of North Carolina*.

Apart from whole-state analyses of the enacted Congressional, House and Senate plans of North Carolina, I was also asked to conduct separate analyses of the following specific House and Senate clusters:

House:

- Mecklenburg
- Wake
- Forsyth-Stokes
- Guilford
- Buncombe
- Pitt
- Duplin-Wayne
- Alamance
- Durham-Person
- Cumberland
- Cabarrus-Davie-Rowan-Yadkin
- Brunswick-New Hanover

Senate:

- Iredell-Mecklenburg
- Granville-Wake
- Forsyth-Stokes
- Cumberland-Moore
- Guilford-Rockingham

4 Quantifying intentional and excessive use of partisanship

My approach begins with a simple idea: I make small random changes to the boundaries of enacted plans (while maintaining districting criteria) and study the effect this has on the partisan bias of the map. More specifically:

- I begin from the enacted plan I am evaluating, and then repeatedly:
 1. Randomly select a geographical unit (e.g., a voting precinct) on the boundary of two districts, and check: if I change which district this geographic unit belongs to, will the resulting districting still satisfy the districting criteria laid out in Section 4.3.1? If so, I make the change.
 2. Using historical voting data as a proxy for partisan voting patterns, evaluate the partisanship of the districting resulting from the previous step.
- These two steps are repeated many times, resulting in a sequence of districtings, each produced by a small random change to the districting preceding it, with the enacted map I am evaluating as the starting point for the sequence.

This procedure is implemented as a computer algorithm which carries out trillions of the above steps for a districting map.

4.1 First level analysis

The first level of my analysis simply uses the above procedure to generate a large set of comparison districtings against which one can compare the enacted plan. For example, for the Congressional districting, I conducted 32 runs of the above procedure. A “run” in this context consists of a single consecutive sequence of small random changes to the enacted plan, producing a set of comparison districtings. For example, for the Congressional districting, each run consisted of carrying out Steps 1 and 2 in the procedure above $2^{40} \approx 1$ trillion times. As discussed in later sections, these comparison maps adhere to districting criteria in ways that constrain them to be similar in several respects to the enacted map being evaluated. For example, the comparison districtings will preserve the same counties and municipalities preserved by the enacted plan.

In total for this districting, I conducted 32 such runs. I then show the results of these runs in a table, like this:

Congressional districting							
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9999947%	9	99.9999909%	17	99.9999955%	25	99.999995%
2	99.9999968%	10	99.9999966%	18	99.9999973%	26	99.9999961%
3	99.9999988%	11	99.9999943%	19	99.9999972%	27	99.9999977%
4	99.9999931%	12	99.999988%	20	99.99999981%	28	99.9999979%
5	99.999999927%	13	99.999988%	21	99.99999962%	29	99.9999981%
6	99.9999959%	14	99.999987%	22	99.9999919%	30	99.9999941%
7	99.9999984%	15	99.999996%	23	99.9999908%	31	99.9999901%
8	99.999999947%	16	99.999985%	24	99.999981%	32	99.9999969%

For example, we see here that in the first run, 99.9999947% of the comparison districtings exhibited less Republican bias than the enacted Congressional districting. Moreover, in *every* run, more than 99.999968% of the comparison districtings exhibited less Republican bias than the enacted plan.

The first level of my analysis simply reports this comparison of the enacted map to the comparison districtings produced in these runs. Even without applying the mathematical theorems we have developed in [CFP] and [CFMP], this gives strong, intuitively clear evidence that the district lines were intentionally drawn to optimize partisan advantage in the enacted plan: if the districting had not been drawn to carefully optimize its partisan bias, we would expect naturally that making small random changes to the districting would not have such a dramatic and consistent partisan effect.

4.2 Second level analysis

In the first level of my analysis, I compare enacted plans to comparison districtings produced by my algorithm (which makes random changes to the existing map while preserving districting criteria).

The next level of my analysis goes further than this, and enables a rigorous comparison to *all* alternative districtings of North Carolina satisfying the districting criteria I consider here. It does this by comparing how “optimized for partisanship” an evaluated plan is to how “optimized for partisanship” alternative plans are.

4.2.1 Defining “optimized for partisanship”

Roughly speaking, when I say that a districting is *optimized for partisanship*, I mean that its partisan characteristics are highly sensitive to small random changes to the boundary lines.

Formally, when I say that a districting is *optimized for partisanship* in this report, I mean that there is a high probability that when I make small random changes to the districting, its partisanship will be an extreme outlier among the comparison maps produced by the small random changes.

The yardstick I use to measure this property of a given map is the ε -*fragility* of a map. Given a small threshold ε —for example, 00.000031%, for the analysis of the Congressional districting given above—I can ask: what is the probability that when I make a sequence of small random changes to the map, the map will be in the most extreme ε fraction of maps encountered in the sequence of random changes? The probability of this occurrence is the ε -fragility of the map, and it is this probability that I use to quantify how optimized for partisanship a map appears to be.

In other words, **one districting is considered more optimized for partisanship than another if it is more likely to have its partisan bias consistently reduced when making a random sequence of small changes to its boundary lines.**

4.2.2 Comparing an enacted plan to the set of *all* alternatives

My analysis enables a rigorous comparison of an enacted plan to **all possible districting plans of the state** satisfying the districting criteria I consider, with respect to how optimized for partisanship the districtings are. I can report the maximum fraction of all such possible redistricting plans which could appear as optimized for partisanship as the enacted plan, in the sense of the test described above. For example, I report that the enacted Congressional districting of North Carolina is among the most optimized-for-partisanship 00.000031% of **all possible House districtings of North Carolina** satisfying the districting criteria I consider here, as measured by its ε -fragility.

My method produces a rigorous p -value (statistical significance level) which precisely captures the confidence one can have in the findings of my “second level” analyses. In particular, for my statewide analyses, my second-level claims are all valid at a statistical significance of $p = .002$. This means that the probability that I would report an incorrect number (for example, claiming that a districting is among the most optimized-for-partisanship 00.01% of all districtings, when in fact it is merely among the most 00.015% optimized-for-partisanship) is at most 00.2%. To put this in context, clinical trials seeking regulatory approval for new medications frequently target a significance level of $p = .05$ (5%), a looser standard of statistical significance than I hold myself to in this report.

4.2.3 Some intuition for why this is possible

It may seem remarkable that I can make a rigorous quantifiable comparison to *all* possible districtings, without actually generating all such districtings; this is the role of our theorems from [CFP] and [CFMP], which have simple proofs which have been verified by the mathematical community.

To give some nontechnical intuition for why this kind of analysis is possible, these results roughly work by showing that in a very general sense, it is not possible for an appreciable fraction of districtings of a state to appear optimized for partisanship in the sense defined in Section 4.2.1. In other words, it is *mathematically impossible* for any state, with any political geography of voting preferences and any choice of districting criteria, to have the property that a significant fraction of the possible districtings of the state satisfying the chosen districting criteria appear optimized for partisanship (as measured by their ε -fragility).

4.3 Implementation details

Here I specify the particulars of the random changes my algorithm makes to a map, my implementation of districting criteria, and my method of comparing the partisanship of a districting to that of districtings encountered on the sequence of random changes.

4.3.1 Districting criteria

All comparison maps produced by my algorithm are required to satisfy the following districting criteria:

- (a) **Contiguity:** I require comparison districtings to contain only contiguous districts.
- (b) **Compact districts:** I require comparison districtings to be at least as compact as the enacted plan being evaluated, up to an error of 5%. Districting compactness is quantified by taking the average, over each district, of the ratio of the perimeter squared to the area (Polsby-Popper reciprocal).
- (c) **County clusters:** For the House and Senate plans, I require comparison maps to respect the same county clustering as used by the enacted House and Senate plans.
- (d) **Country traversals:** I require comparison districts to not contain more county traversals than the enacted plan. Additionally, I constrain the total length of all district boundary which is not also county boundary to be at most that of the enacted map, up to an error of 5%.
- (e) **Municipality preservation:** There are at most as many municipal splits as in the enacted plan.
- (f) **VTD preservation:** The total number of VTD splits in comparison districtings must not exceed the total number of VTD splits in the enacted plan.
- (g) **Incumbency protection:** Any incumbent who, in the enacted plan, is not paired with any other incumbent must remain unpaired in the comparison districtings.
- (h) **Population deviation:** For House and Senate districtings, I require comparison districtings to have district populations within 5% of the ideal district population. For the Congressional districting, I use a 2% threshold in my main analysis. I discuss robustness of my Congressional analysis to differences in population criteria in Section 5.0.2. Population is measured by the 2020 decennial Census.

4.3.2 A conservative application of the criteria

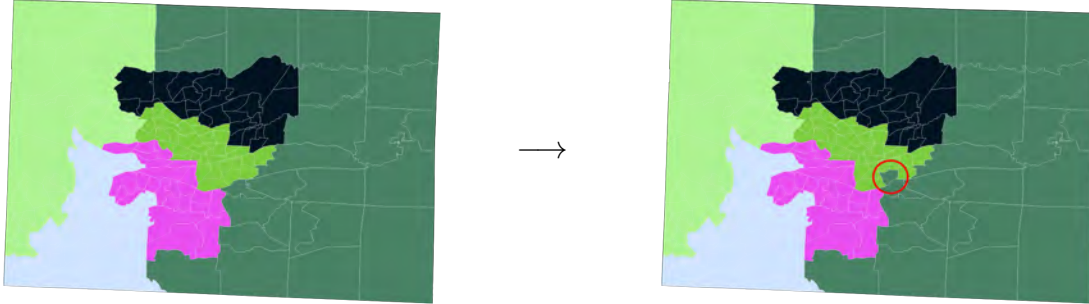
It is important to note that my analysis is designed to avoid second-guessing the mapmakers’ choices in how they implemented the districting criteria. In particular, while it is reasonable to ask whether the mapmakers could have drawn districtings which adhered better to nonpartisan criteria (more compact, preserving more municipalities, *etc*), my approach is different, and much more conservative.

In particular, my analysis asks the question: even if we accept that the mapmakers have made appropriate choices with respect to nonpartisan criteria such as compactness, population deviation, municipality preservation, incumbency protection, and so on, does their plan nevertheless stand out with respect to its *partisan* qualities?

Note that, for example, I choose my compactness threshold within 5% of value of the enacted map. And with respect to incumbents, I do not try to protect as many incumbents as are protected in the enacted map, but exactly the same incumbents as protected by the mapmakers. With respect to municipality preservation, I am not trying to answer the question: “if the mapmakers had tried to preserve more municipalities, would this have resulted in a more favorable districting for Democrats?” Instead, I am asking, among all alternative districtings of North Carolina with the same *nonpartisan* characteristics as the enacted map—their compactness, how many municipalities they preserve, *etc.*—whether the enacted plan is an extreme outlier with respect to the extent to which it is optimized for partisanship.

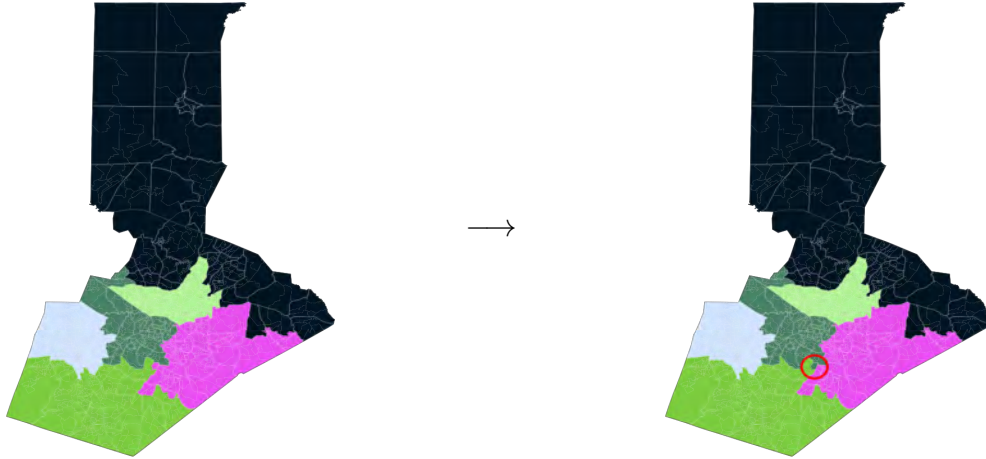
5 Random Changes

As described earlier, my method involves making small random changes to a map. For example, depicted here is a small random change made to the enacted House districting within the Guilford county cluster:



The geographical units used for these small random changes in this district are voting tabulation districts—VTDs. In particular, at each step of the sequence of random changes for the house districting within Guilford county, I move a randomly VTD that is at the boundary of two districts from one of those districts to the other (unless it would violate the constraints laid out in Section 4.3.1).

For House and Senate clusters that split VTDs, my analysis operates below the VTD level. In particular, my procedure in these case manipulates sub-VTD units (referred to hereafter as geounits). These are compact combinations of Census Blocks which respect VTD and district lines and contain on average approximately 1000 people. In particular, there are an average of around 4 geounits per VTD. In the following example from the Granville-Wake senate districting, we see an example of a random change at the geounit level:



The thick white lines here indicate current VTD boundaries. A geounit within an already broken VTD has changed district membership. When analyzing any districting at the below-VTD level, my algorithm constrains comparison maps to split at most as many VTDs as the enacted map.

For my whole-state analyses, my algorithm operates at the VTD level. This means that the algorithm is prohibited from splitting any VTD's not split in the enacted map. In Section C, I include runs where the Congressional districting is analyzed at the geounit level.

In each run, my chain generates comparison maps from a given enacted plan by making billions or trillions of these small changes to the enacted plan, while preserving districting criteria in specific ways chosen by the mapmakers, as discussed in Section 4.3.2.

These random changes can be either be made one-at-a-time or with several steps made simultaneously; the latter allows comparison maps to be generated when any single move would lead to a violation of the constraints laid out in Section 4.3.1 (e.g., because population would become too imbalanced), but combinations of moves can be found which would preserve all these criteria. My mathematical analysis applies equally well when using these “multi-move swaps” and I could analyze all clusters in this way if I wanted to, but

the algorithm is slower in this mode. In general, in the interest of efficiency, I conduct all state-level analysis with single-move swaps, cluster-level VTD-level runs with multi-move swaps, and cluster-level geounit runs with single-move swaps, but additionally use multi-move swaps any time it enables the algorithm to generate more comparison maps.

Technical details of my implementation of these multi-moves are found in Appendix A. A related implementation detail for VTD splitting is also discussed there.

5.0.1 The *seats expected* metric for comparing districtings

As described in Section 4.2.1, my definition of optimized for partisanship involves comparing the partisanship of an enacted plan to the partisanship of comparison districtings produced from it by a sequence of random changes. Here I describe the *seats expected* metric of partisanship I use for this comparison throughout this report. In short, the seats expected metric for the districting is **the average number of seats Democrats would expect to win in the districting**, based on a uniform swing model with the historical voting data I use.

The *uniform swing* is a simple model frequently used to make predictions about the number of seats a party might win in an election, based on partisan voting data. Suppose, for example, that given data from the last North Carolina House election, we would like to predict how many seats Democrats will win in an upcoming House election (with the same districting), assuming that at a statewide level, we expect them to outperform by 1.5 percentage points their results from the last election.

A uniform swing would simply add 1.5 percentage points to Democrat performance in every district in data from the last election, and then evaluate how many seats would be won with these shifted voting outcomes.

When I am evaluating the partisanship of a comparison districting (to compare it to the enacted plan), I am interested in the number of seats we expect Democrats might win in the districting, given unknown shifts in partisan support. In particular, the metric I use is:

How many seats, on average, would Democrats win in the given districting, if a random uniform swing is applied to the historical voting data being used?

As an example, let us consider the enacted Congressional plan, using the 2020 Attorney General election as a proxy for partisan voting patterns. Using these results as a direct proxy for future voting patterns, the enacted map would produce a 4:10 split of Democrat:Republican seats. If the Democrat vote share was increased by 1.68% in every district, the split would change to 5:9, and if it was increased by 3.05%, the split would rise to 6:8.

The random choice of my uniform swing is made from a normal distribution whose standard deviation is 4 percentage points, which is roughly the standard deviation of the swing in the past five North Carolina gubernatorial elections. Figure 1 visualizes the probabilities that this distribution assigns to the various seat splits which would arise from the enacted Congressional map under uniform swings of the 2020 Attorney General election:

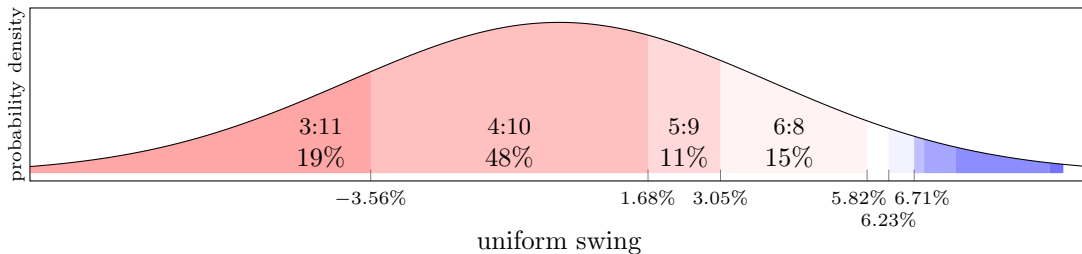


Figure 1: A normally distributed uniform swing applied to the enacted Congressional districting.

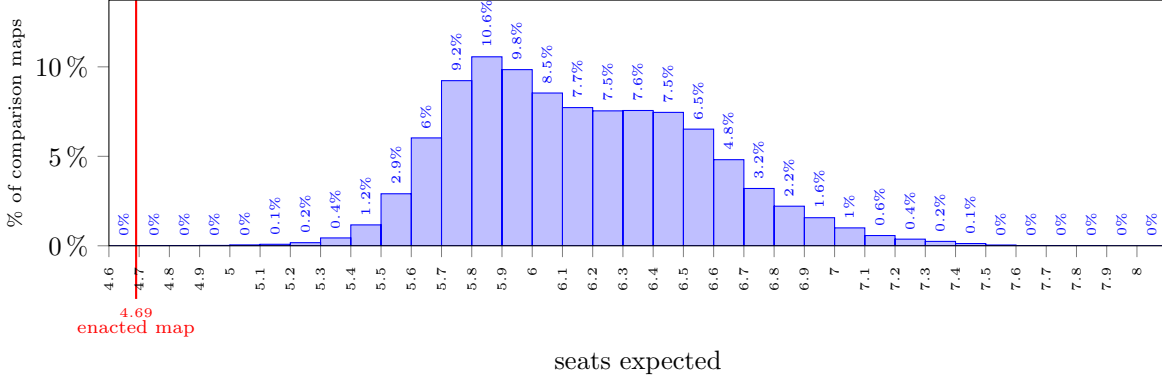
In particular, we can list the probability of any number of Democratic seats for the enacted Congressional plan according to this uniform swing model using the 2020 Attorney General race:

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0.0%	0.0%	0.0%	19%	48%	11%	15%	1.3%	1.3%	0.1%	0.5%	1.2%	2.0%	0.1%	0.9%

The weighted average of these seat outcomes is computed as

$$.19 \times 3 + .48 \times 4 + .11 \times 5 + .15 \times 6 + .013 \times 7 + .013 \times 8 + .001 \times 9 + .005 \times 10 + .012 \times 11 + .02 \times 12 + .001 \times 13 + .009 \times 14 = 4.69. \quad (1)$$

This “seats expected” number for the Congressional plan shows up in our analysis page for the Congressional districting (page 13), in a histogram we reproduce here for the purpose of illustration:



It is important to note that **my method does not evaluate the fairness of a districting by whether it produces a “small” or “large” number of seats for one party, or whether the uniform swing score calculated in this way is lower or higher than would be expected in a system of proportional representation.** Instead, this score is merely a metric used to **compare** one map to another. The only way these scores are used in my method is to evaluate which of two maps may be more advantageous to a particular political party, and when I find that a districting made extreme use of partisan consideration, it means that the enacted map is extreme outlier with respect to how optimized for partisanship it is **compared to the set of alternative comparison districtings of North Carolina** satisfying the districting criteria I impose.

5.0.2 Note on Population Deviation

My method does not simulate the results of hypothetical elections at the per-person level, and I do not enforce 1-person population deviation on Congressional districts. Instead, I use a cutoff 2%, as described above. I verify that the distinction between 1-person and 2% population deviation do not drive the results of my analysis in two ways.

First, in Section C, I show a run of my whole Congressional analysis exactly the same way but with a 1% population deviation constraint and obtain similar results. I also show a geounit-level analysis which operates at just 0.5% population deviation and still finds the enacted plan to be an extreme outlier.

Second, I analyze a coarse VTD-level version of the enacted map (itself with nearly 2% population deviation), and show that even this coarse version of the enacted map is an extreme outlier with respect to partisan bias, before small changes are made to it to produce the enacted 1-person-deviation map. This demonstrates that the coarse VTD-level “blueprint” for the map is an extreme outlier, optimized for partisan considerations, among alternative VTD-level maps with similar population deviation, even before the small changes used to achieve 1-person deviation are accounted for.

Finally, I note that by design, the seats-expected metric I use is not sensitive to the kinds of small changes that need to be made to districts to equalize population. This can already be seen by comparing the seats-expected metric for the enacted Congressional plan to the “VTD-level blueprint” version we analyze in Section C.8. As calculated above, the enacted map, with 1-person population deviation, scores 4.69 on the seats expected metric. The whole-VTD level blueprint, which has 1.8% population deviation, scores 4.70 by the same metric, as seen in the plot in C.8. This difference of 0.01 is much smaller than the sizes of differences in the seats-expected metric that are driving the results in my report.

5.1 A note on comparing results

For my cluster-by-cluster analysis of the House and Senate districtings, we will see that even among clusters for which we find that the enacted plan is an extreme outlier, there is quite a bit of variation from cluster to cluster for how extreme an outlier we find the enacted plan to be.

For example, in our second-level analysis of the Guilford county house districting, we find that it is among the most optimized-for-partisanship 00.000089% of all alternative districtings of the county satisfying our districting criteria, while for the Mecklenburg county districting, we find that it is among the most optimized-for-partisanship 5% of districtings.

Because it is tempting to compare results from cluster to cluster, it is important to emphasize that the mathematical results we employ in these findings are one-directional. In particular, while they imply that the Mecklenburg cluster is among the most optimized-for-partisanship 5% of districtings, they do *not* imply that it could not also be among the most optimized-for-partisanship 00.000089%.

What we know from my analysis is that we have extreme statistical certainty that the Guilford cluster districting is among the most optimized-for-partisanship 00.000089% of all districtings satisfying the criteria I consider, and we have extreme statistical certainty that the Mecklenburg cluster is among the most optimized-for-partisanship 5% of all districtings satisfying the criteria. The Mecklenburg cluster may be even more of an outlier, but my analysis does not address this latter question in either direction.

It should also be noted that it is natural to expect that my very conservative application of the districting criteria (discussed in Section 4.3.2) will affect some clusters more than others. In some clusters (e.g., Duplin/Wayne), it even prevents any comparison districtings from being generated by my algorithm at all. Of course, this should not be seen as settling in either direction the question of whether the enacted map of the Duplin/Wayne cluster is gerrymandered.

6 Results of Analysis

The following pages show the results of my analysis for the enacted Congressional, state House, and state Senate districting plans.

Each page has the following components:

Comparison map examples

I show four maps in each case. The first map is the enacted map. The other three are examples of comparison maps used by my method. In each case, these maps are either the final map from runs 1, 2 and 3, or, from just the first run, the last map, the map from the halfway point of the run, and the run from the 25% point of the run.

Results

Under results I show a **table**, with an entry for each run conducted for the districting. The table shows the fraction of maps in that run that exhibited less partisan bias in favor of Republicans than the enacted map under evaluation. In particular, this is the fraction of maps for which the “seats expected” metric was higher than for the enacted map. For example, on the next page, we will see that in the first run, 99.9999947% of comparisons exhibited less partisan bias in favor of Republicans than the enacted plan.

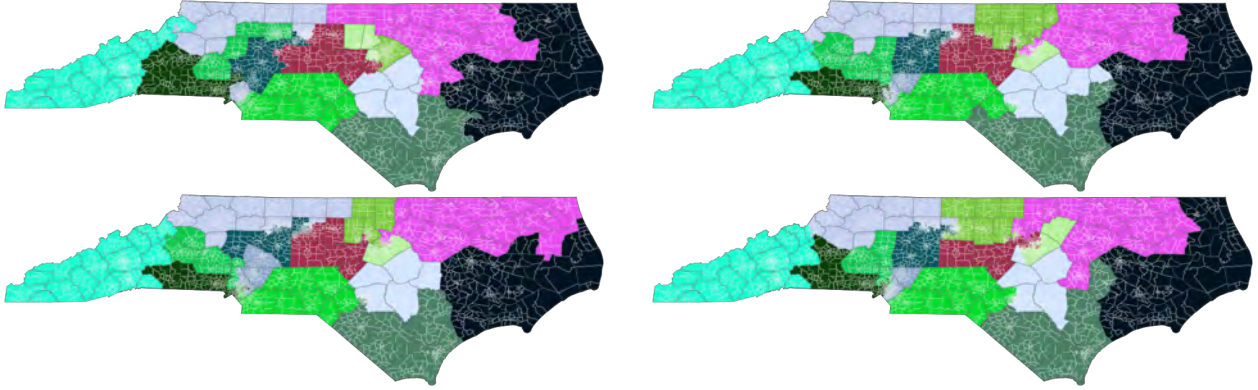
Below this table I show a **histogram** which plots the number of comparison maps whose “seats expected” value fell in various ranges. For example, on the next page, we see that 10.6% of comparison maps had a seats-expected value between 5.8 and 5.9. The histogram also shows the seats-expected value for the enacted map, which for the Congressional districting is 4.69. Note that the computation of this value 4.69 was illustrated earlier in Section 5.0.1. The same computation can be applied to every comparison map to build the histogram of resulting seats-expected values.

I present in each case a **First-level analysis**, which is simply a summary of how the enacted map compares to the set of comparison districtings generated by my algorithm. For example, for the Congressional map, we will see that in every one of the 32 runs I conducted, 99.999968% of maps produced exhibited less partisan bias than the enacted map itself.

After this I present the **Second-level analysis**, which is a rigorous evaluation of how the enacted map compares to *all* alternative districtings of North Carolina satisfying the districting criteria I consider here. For example, for the Congressional districting as evaluated on the next page, we see that it is more optimized-for-partisanship than 99.999905% of *all* alternative districtings of North Carolina satisfying the criteria I impose as outlined in Section 4.3.1.

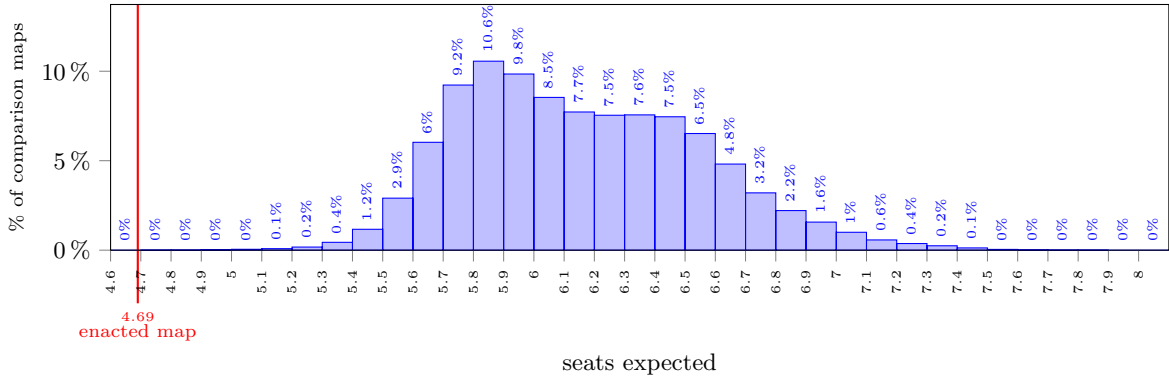
6.1 Congressional districting

6.1.1 Comparison map examples



6.1.2 Results

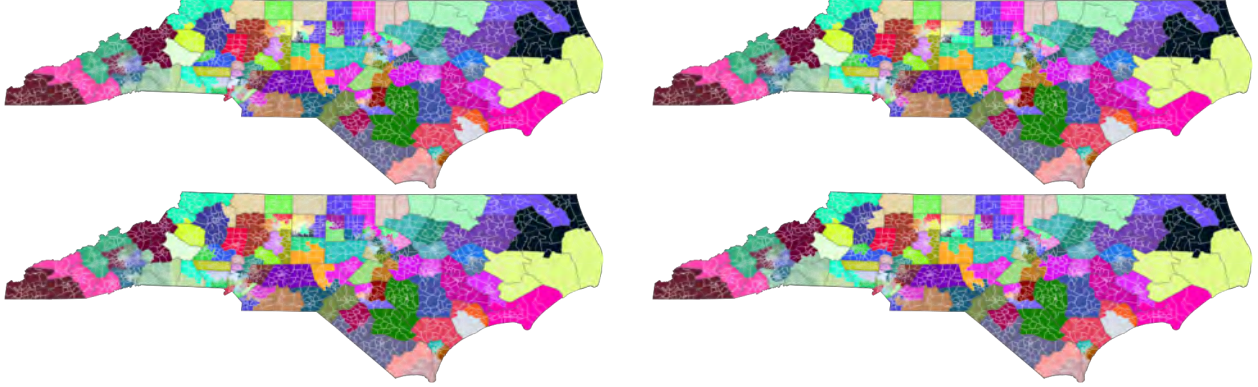
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9999947%	9	99.9999909%	17	99.9999955%	25	99.999995%
2	99.999968%	10	99.9999966%	18	99.9999973%	26	99.9999961%
3	99.9999988%	11	99.9999943%	19	99.9999972%	27	99.9999977%
4	99.9999931%	12	99.999988%	20	99.99999981%	28	99.9999979%
5	99.999999927%	13	99.999988%	21	99.99999962%	29	99.9999981%
6	99.999959%	14	99.999987%	22	99.9999919%	30	99.9999941%
7	99.9999984%	15	99.999996%	23	99.9999908%	31	99.9999901%
8	99.999999947%	16	99.999985%	24	99.999981%	32	99.9999969%



- **First level analysis:** In *every* run, the districting was in the most partisan 0.000031% of districtings (in other words, 99.999968% were less partisan, in *every* run).
- **Second level analysis:** My theorems imply that the enacted House districting is among the most optimized-for-partisanship 0.000094% of all alternative districtings of North Carolina satisfying my districting criteria (in other words, 99.999905% are less optimized-for-partisanship), measured by their ε -fragility for $\varepsilon = 0.000031\%$.

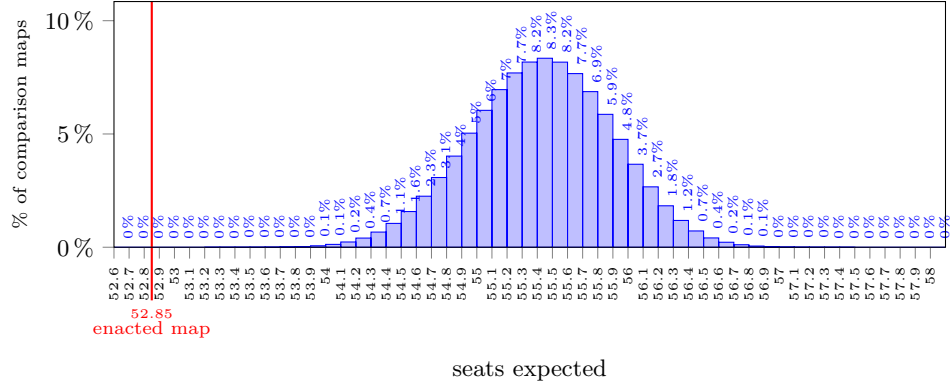
6.2 House districting

6.2.1 Comparison map examples



6.2.2 Results

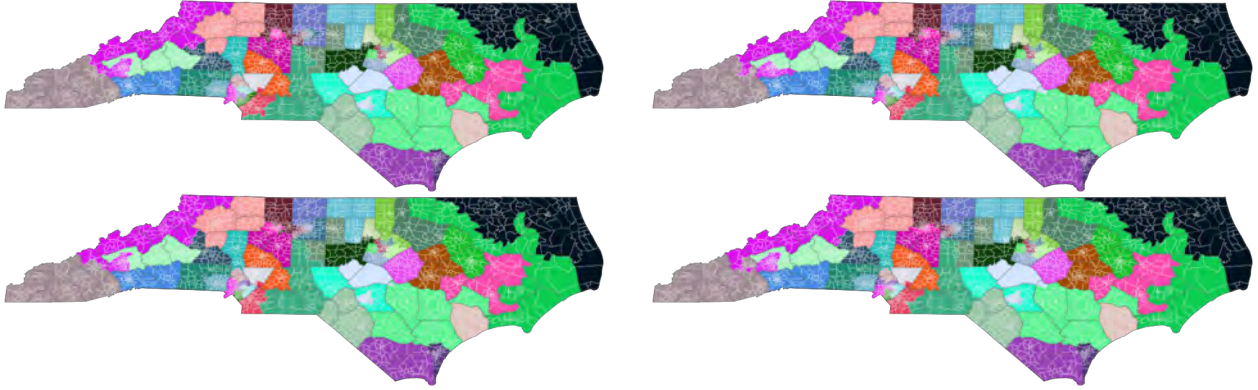
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.99999985%	9	99.99999957%	17	99.9999989%	25	99.9999989%
2	99.99999942%	10	99.99999904%	18	99.99999966%	26	99.9999918%
3	99.99999997%	11	99.99999984%	19	99.99999982%	27	99.99999984%
4	99.9999969%	12	99.9999986%	20	99.9999986%	28	99.9999988%
5	99.9999975%	13	99.99999989%	21	99.9999935%	29	99.99999987%
6	99.999999959%	14	99.99999996%	22	99.999999967%	30	99.99999908%
7	99.99999985%	15	99.9999984%	23	99.9999975%	31	99.9999966%
8	99.99999951%	16	99.99999954%	24	99.999999939%	32	99.999999939%



- **First level analysis:** In *every* run, the districting was in the most partisan 0.0000081% of districtings (in other words, 99.9999918% were less partisan, in *every* run).
- **Second level analysis:** My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.000024% of all alternative districtings of North Carolina satisfying my districting criteria (in other words, 99.999975% are less optimized-for-partisanship), measured by their ε -fragility for $\varepsilon = 0.0000081\%$.

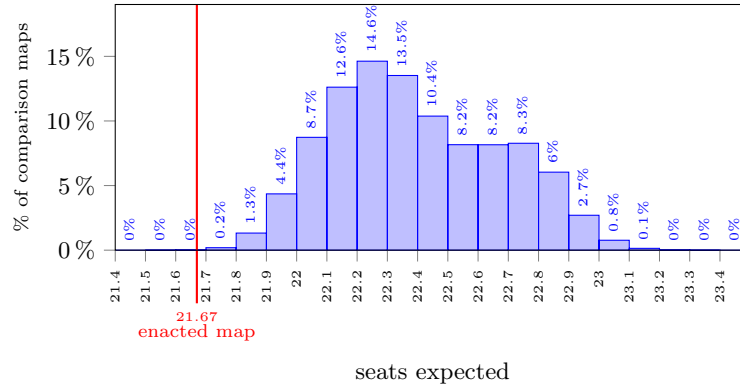
6.3 Senate districting

6.3.1 Comparison map examples



6.3.2 Results

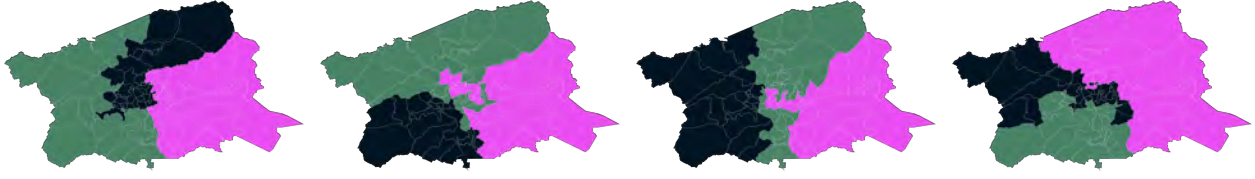
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.988%	9	99.9974%	17	99.9977%	25	99.998%
2	99.9988%	10	99.9958%	18	99.9987%	26	99.9948%
3	99.9938%	11	99.9985%	19	99.9988%	27	99.987%
4	99.9981%	12	99.9957%	20	99.978%	28	99.9988%
5	99.9929%	13	99.988%	21	99.9982%	29	99.9979%
6	99.9916%	14	99.989%	22	99.9978%	30	99.9981%
7	99.9957%	15	99.9974%	23	99.9976%	31	99.99914%
8	99.9973%	16	99.997%	24	99.9975%	32	99.9978%



- **First level analysis:** In *every* run, the districting was in the most partisan 0.021% of districtings (in other words, 99.978% were less partisan, in *every* run).
- **Second level analysis:** My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.065% of all alternative districtings of North Carolina satisfying my districting criteria (in other words, 99.934% are less optimized-for-partisanship), measured by their ε -fragility for $\varepsilon = 0.021\%$.

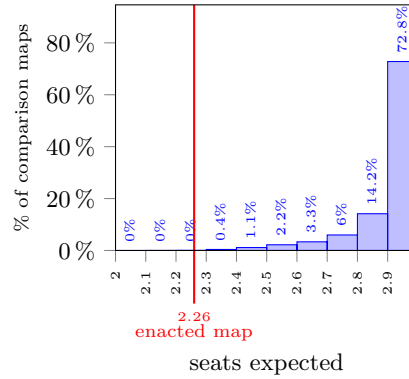
6.4 House Cluster: Buncombe

6.4.1 Comparison map examples



6.4.2 Results

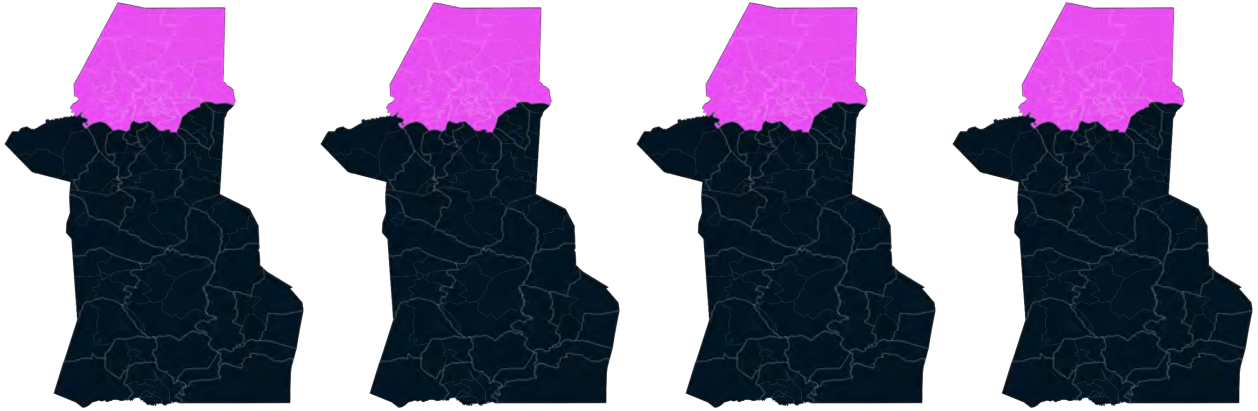
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.979%	9	99.979%	17	99.979%	25	99.98%
2	99.98%	10	99.98%	18	99.979%	26	99.979%
3	99.98%	11	99.98%	19	99.98%	27	99.979%
4	99.98%	12	99.98%	20	99.98%	28	99.98%
5	99.98%	13	99.98%	21	99.98%	29	99.98%
6	99.979%	14	99.98%	22	99.98%	30	99.98%
7	99.98%	15	99.98%	23	99.98%	31	99.979%
8	99.979%	16	99.98%	24	99.98%	32	99.979%



- **First level analysis:** In *every* run, the districting was in the most partisan 0.020% of districtings (in other words, 99.979% were less partisan, in *every* run).
- **Second level analysis:** My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.061% of all alternative districtings satisfying my districting criteria (in other words, 99.938% are less optimized-for-partisanship), measured by their ε -fragility for $\varepsilon = 0.020\%$.

6.5 House Cluster:Duplin/Wayne

6.5.1 Comparison map examples

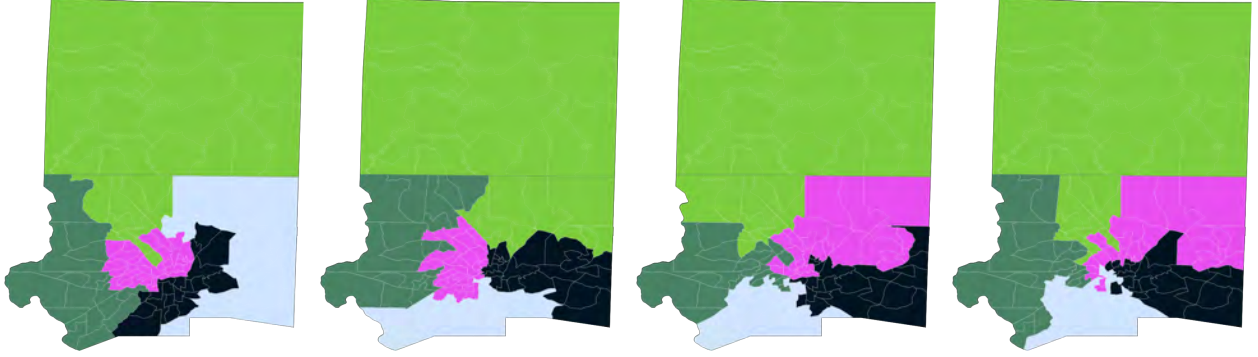


6.5.2 Results

- For this cluster, my conservative approach (as discussed in Section 4.3.2) does not allow my algorithm to generate any comparison maps other than the map itself.

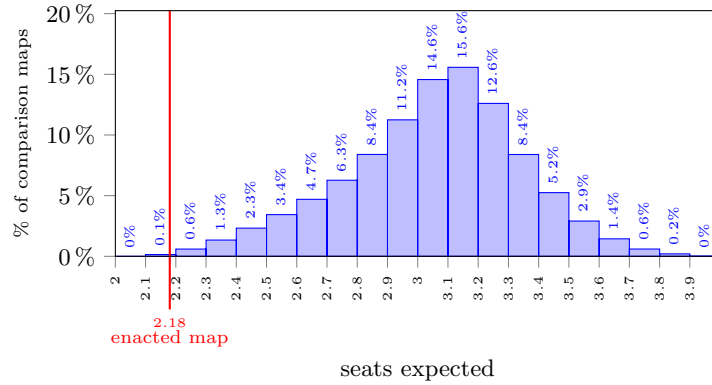
6.6 House Cluster: Forsyth-Stokes

6.6.1 Comparison map examples



6.6.2 Results

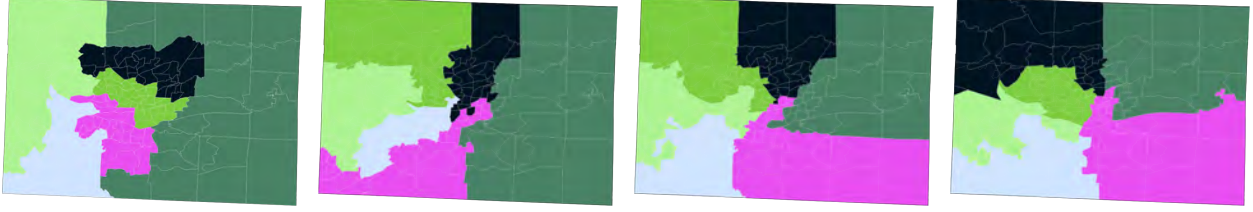
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.913%	9	99.912%	17	99.915%	25	99.914%
2	99.914%	10	99.914%	18	99.914%	26	99.913%
3	99.917%	11	99.912%	19	99.916%	27	99.914%
4	99.916%	12	99.912%	20	99.914%	28	99.912%
5	99.913%	13	99.914%	21	99.913%	29	99.915%
6	99.913%	14	99.914%	22	99.914%	30	99.914%
7	99.913%	15	99.912%	23	99.914%	31	99.917%
8	99.913%	16	99.916%	24	99.915%	32	99.915%



- **First level analysis:** In *every* run, the districting was in the most partisan 0.087% of districtings (in other words, 99.912% were less partisan, in *every* run).
- **Second level analysis:** My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.26% of all alternative districtings satisfying my districting criteria (in other words, 99.73% are less optimized-for-partisanship), measured by their ε -fragility for $\varepsilon = 0.087\%$.

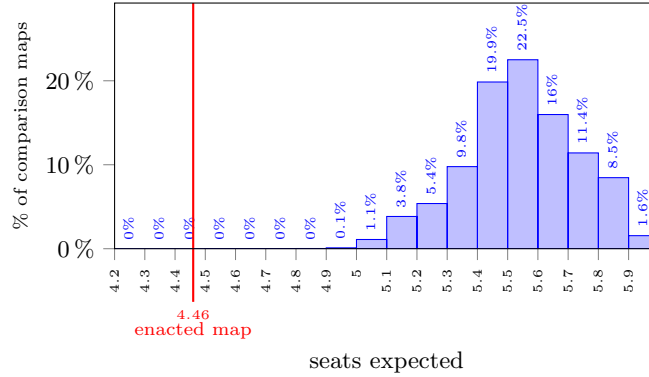
6.7 House Cluster: Guilford

6.7.1 Comparison map examples



6.7.2 Results

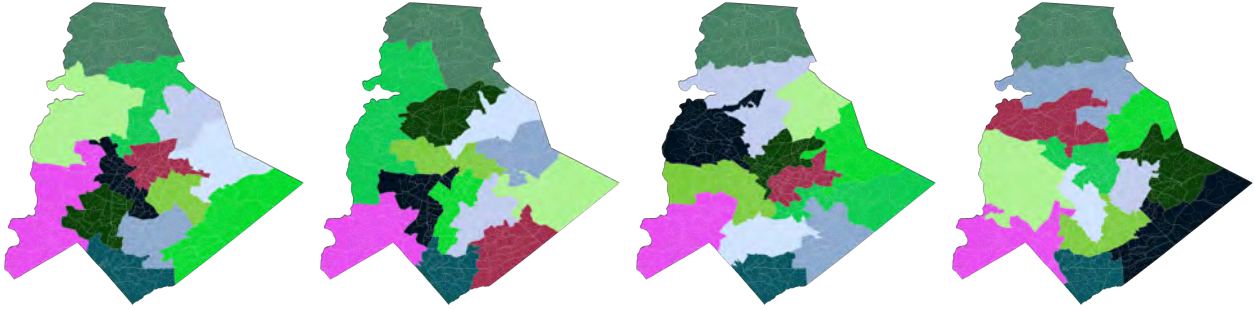
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.999989%	9	99.999982%	17	99.999979%	25	99.999972%
2	99.999982%	10	99.999979%	18	99.999978%	26	99.999979%
3	99.999972%	11	99.999978%	19	99.999981%	27	99.999978%
4	99.999986%	12	99.999981%	20	99.999984%	28	99.999979%
5	99.999975%	13	99.999986%	21	99.999983%	29	99.999982%
6	99.999982%	14	99.99998%	22	99.999979%	30	99.999982%
7	99.999981%	15	99.99997%	23	99.999983%	31	99.999982%
8	99.999982%	16	99.999976%	24	99.999981%	32	99.999984%



- **First level analysis:** In *every* run, the districting was in the most partisan 0.000029% of districtings (in other words, 99.99997% were less partisan, in *every* run).
- **Second level analysis:** My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.000089% of all alternative districtings satisfying my districting criteria (in other words, 99.99991% are less optimized-for-partisanship), measured by their ε -fragility for $\varepsilon = 0.000029\%$.

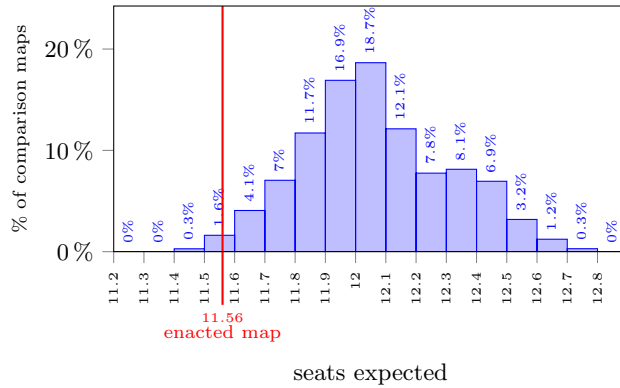
6.8 House Cluster: Mecklenburg

6.8.1 Comparison map examples



6.8.2 Results

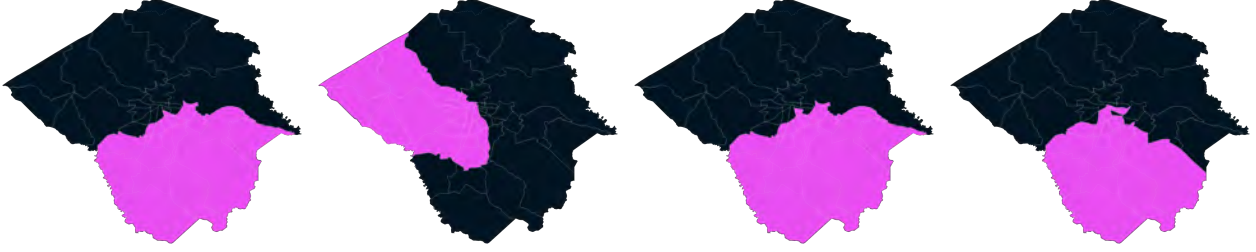
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	98.7%	9	98.6%	17	98.4%	25	98.9%
2	99.36%	10	99.15%	18	99.%	26	98.3%
3	98.7%	11	98.7%	19	98.4%	27	98.8%
4	99.14%	12	99.17%	20	99.17%	28	98.5%
5	98.4%	13	99.05%	21	98.8%	29	99.08%
6	99.33%	14	99.02%	22	98.9%	30	98.9%
7	98.5%	15	99.%	23	98.9%	31	99.12%
8	98.9%	16	99.17%	24	98.9%	32	99.2%



- **First level analysis:** In *every* run, the districting was in the most partisan 1.7% of districtings (in other words, 98.3% were less partisan, in *every* run).
- **Second level analysis:** My theorems imply that the enacted districting is among the most optimized-for-partisanship 5.0% of all alternative districtings satisfying my districting criteria (in other words, 95.0% are less optimized-for-partisanship), measured by their ε -fragility for $\varepsilon = 1.7\%$.

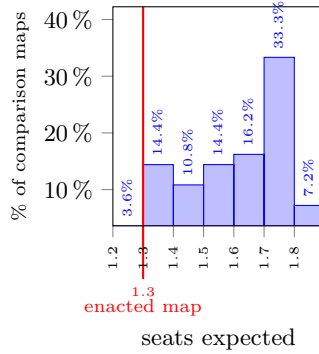
6.9 House Cluster: Pitt

6.9.1 Comparison map examples



6.9.2 Results

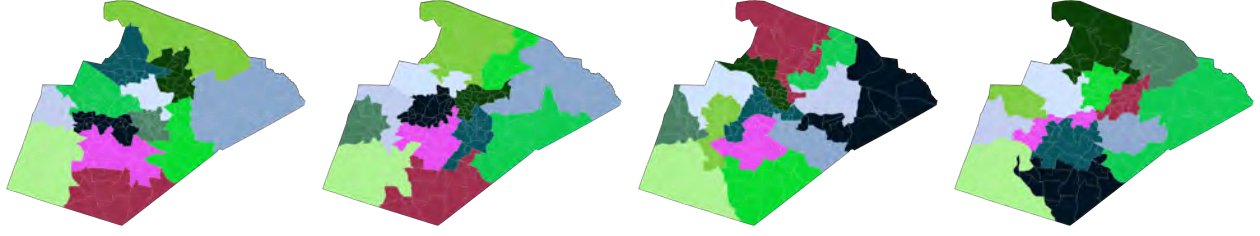
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	96.3%	9	96.4%	17	96.3%	25	96.4%
2	96.3%	10	96.3%	18	96.3%	26	96.3%
3	96.4%	11	96.4%	19	96.3%	27	96.4%
4	96.4%	12	96.4%	20	96.3%	28	96.3%
5	96.4%	13	96.4%	21	96.3%	29	96.4%
6	96.3%	14	96.3%	22	96.4%	30	96.3%
7	96.3%	15	96.3%	23	96.4%	31	96.4%
8	96.3%	16	96.4%	24	96.4%	32	96.4%



- **First level analysis:** In *every* run, the districting was in the most partisan 3.6% of districtings (in other words, 96.3% were less partisan, in *every* run).
- **Second level analysis:** My theorems imply that the enacted districting is among the most optimized-for-partisanship 11% of all alternative districtings satisfying my districting criteria (in other words, 89.1% are less optimized-for-partisanship), measured by their ε -fragility for $\varepsilon = 3.6\%$.

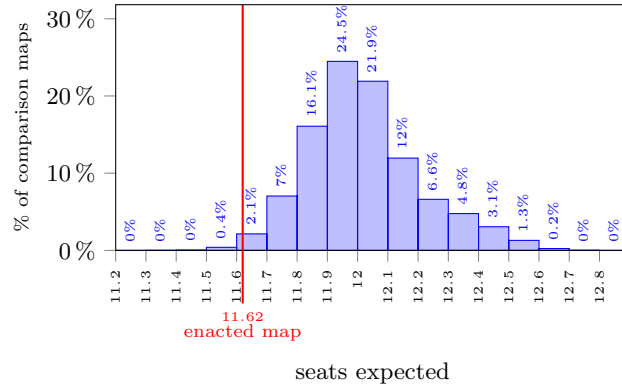
6.10 House Cluster: Wake

6.10.1 Comparison map examples



6.10.2 Results

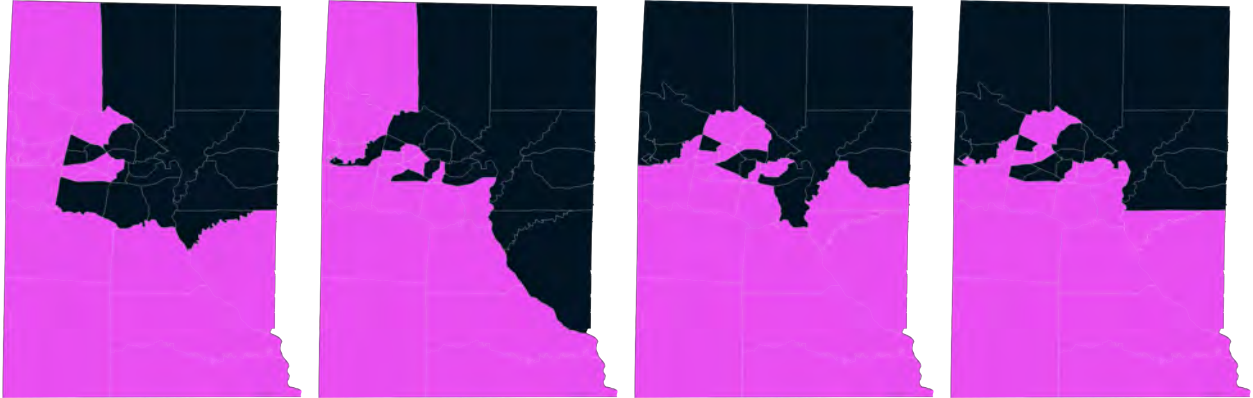
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.38%	9	99.34%	17	99.37%	25	99.35%
2	99.33%	10	99.35%	18	99.36%	26	99.36%
3	99.34%	11	99.33%	19	99.33%	27	99.34%
4	99.32%	12	99.34%	20	99.35%	28	99.33%
5	99.35%	13	99.34%	21	99.33%	29	99.35%
6	99.33%	14	99.27%	22	99.31%	30	99.36%
7	99.34%	15	99.34%	23	99.32%	31	99.36%
8	99.34%	16	99.36%	24	99.35%	32	99.35%



- **First level analysis:** In *every* run, the districting was in the most partisan 0.72% of districtings (in other words, 99.27% were less partisan, in *every* run).
- **Second level analysis:** My theorems imply that the enacted districting is among the most optimized-for-partisanship 2.2% of all alternative districtings satisfying my districting criteria (in other words, 97.8% are less optimized-for-partisanship), measured by their ε -fragility for $\varepsilon = 0.72\%$.

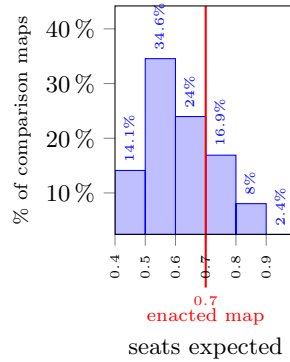
6.11 House Cluster: Alamance

6.11.1 Comparison map examples



6.11.2 Results

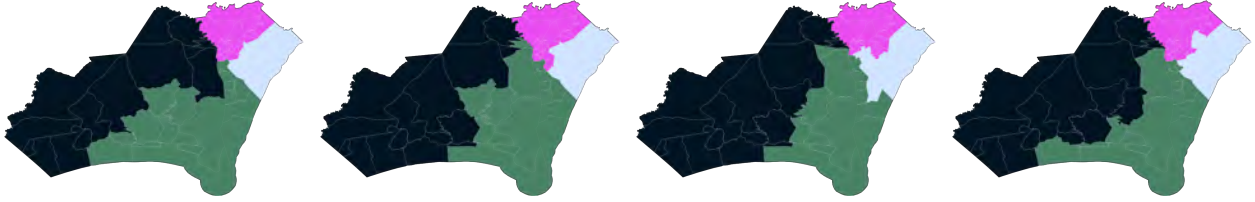
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	26.3%	9	26.4%	17	26.3%	25	26.4%
2	26.3%	10	26.3%	18	26.4%	26	26.3%
3	26.3%	11	26.3%	19	26.3%	27	26.3%
4	26.4%	12	26.3%	20	26.3%	28	26.3%
5	26.4%	13	26.4%	21	26.4%	29	26.3%
6	26.3%	14	26.3%	22	26.4%	30	26.4%
7	26.4%	15	26.3%	23	26.3%	31	26.3%
8	26.4%	16	26.4%	24	26.4%	32	26.4%



- **First level analysis:** In *every* run, the districting was in the most partisan 74% of districtings (in other words, 26.3% were less partisan, in *every* run).
- **Second level analysis:** The enacted map is not unusual enough in the first-level analysis to enable a statistically significant second-level analysis of this cluster.

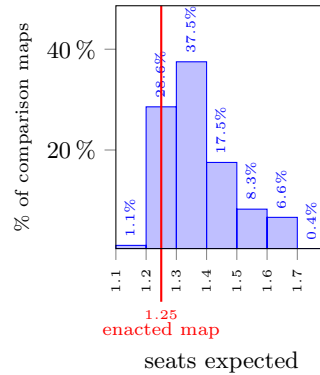
6.12 House Cluster: Brunswick/New Hanover

6.12.1 Comparison map examples



6.12.2 Results

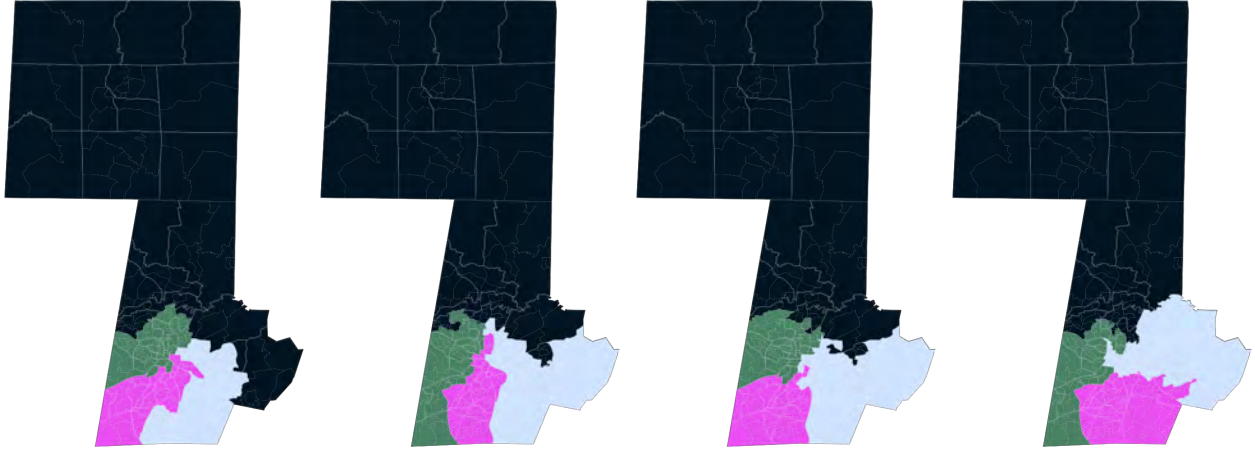
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	89.4%	9	89.5%	17	89.5%	25	89.5%
2	89.4%	10	89.5%	18	89.4%	26	89.5%
3	89.5%	11	89.5%	19	89.5%	27	89.4%
4	89.4%	12	89.4%	20	89.4%	28	89.5%
5	89.4%	13	89.5%	21	89.5%	29	89.5%
6	89.5%	14	89.6%	22	89.5%	30	89.4%
7	89.4%	15	89.5%	23	89.5%	31	89.5%
8	89.5%	16	89.4%	24	89.4%	32	89.5%



- **First level analysis:** In *every* run, the districting was in the most partisan 11% of districtings (in other words, 89.4% were less partisan, in *every* run).
- **Second level analysis:** The enacted map is not unusual enough in the first-level analysis to enable a statistically significant second-level analysis of this cluster.

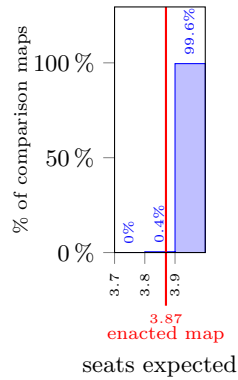
6.13 House Cluster: Durham/Person

6.13.1 Comparison map examples



6.13.2 Results

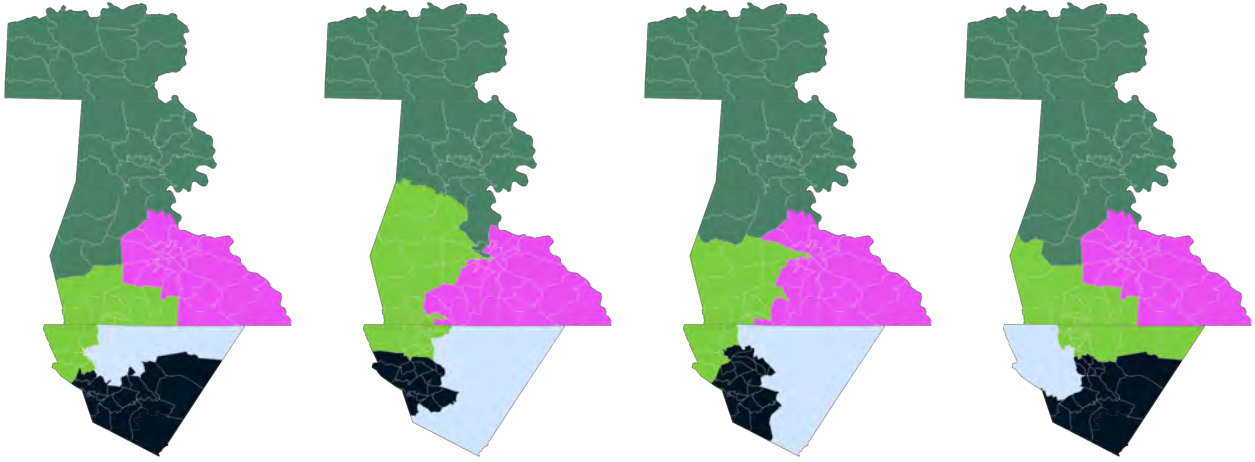
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.936%	9	99.935%	17	99.938%	25	99.935%
2	99.933%	10	99.937%	18	99.937%	26	99.933%
3	99.937%	11	99.94%	19	99.934%	27	99.939%
4	99.932%	12	99.933%	20	99.934%	28	99.936%
5	99.933%	13	99.936%	21	99.936%	29	99.937%
6	99.936%	14	99.935%	22	99.938%	30	99.933%
7	99.937%	15	99.933%	23	99.937%	31	99.94%
8	99.936%	16	99.936%	24	99.934%	32	99.934%



- **First level analysis:** In *every* run, the districting was in the most partisan 0.067% of districtings (in other words, 99.932% were less partisan, in *every* run).
- **Second level analysis:** My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.20% of all alternative districtings satisfying my districting criteria (in other words, 99.79% are less optimized-for-partisanship), measured by their ε -fragility for $\varepsilon = 0.067\%$.

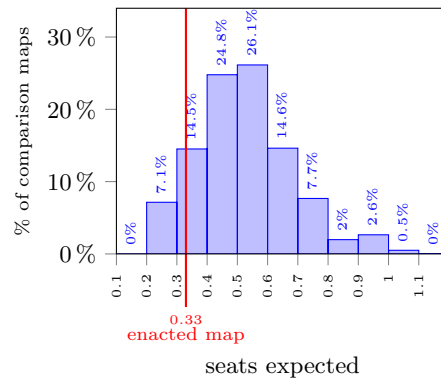
6.14 House Cluster: Cabarrus/Davie/Rowan/Yadkin

6.14.1 Comparison map examples



6.14.2 Results

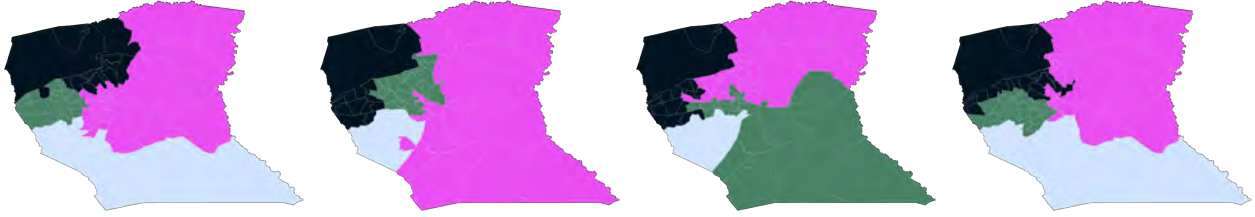
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	89.0%	9	90.0%	17	88.5%	25	89.9%
2	90.0%	10	88.9%	18	89.0%	26	88.6%
3	90.1%	11	88.7%	19	89.4%	27	89.9%
4	88.4%	12	89.8%	20	89.3%	28	88.9%
5	89.7%	13	89.4%	21	92.8%	29	89.5%
6	88.6%	14	89.2%	22	89.1%	30	87.7%
7	89.5%	15	88.8%	23	89.1%	31	90.2%
8	90.0%	16	90.0%	24	88.7%	32	90.4%



- **First level analysis:** In *every* run, the districting was in the most partisan 12% of districtings (in other words, 87.7% were less partisan, in *every* run).
- **Second level analysis:** The enacted map is not unusual enough in the first-level analysis to enable a statistically significant second-level analysis of this cluster.

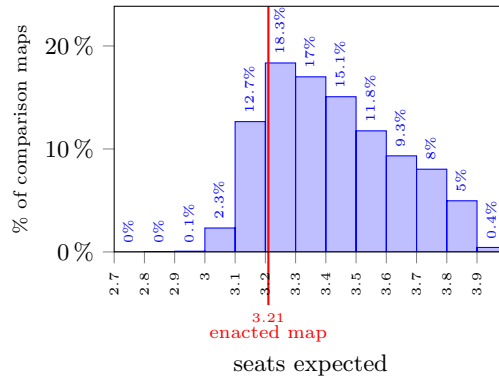
6.15 House Cluster: Cumberland

6.15.1 Comparison map examples



6.15.2 Results

Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	83.6%	9	83.8%	17	83.8%	25	84.0%
2	83.7%	10	83.9%	18	83.6%	26	83.5%
3	83.8%	11	83.8%	19	83.7%	27	83.8%
4	83.7%	12	83.6%	20	83.7%	28	83.8%
5	83.6%	13	83.7%	21	84.0%	29	83.7%
6	83.7%	14	83.6%	22	83.9%	30	83.6%
7	83.5%	15	83.8%	23	83.7%	31	83.9%
8	83.7%	16	83.8%	24	83.6%	32	83.9%



- **First level analysis:** In *every* run, the districting was in the most partisan 16% of districtings (in other words, 83.5% were less partisan, in *every* run).
- **Second level analysis:** The enacted map is not unusual enough in the first-level analysis to enable a statistically significant second-level analysis of this cluster.

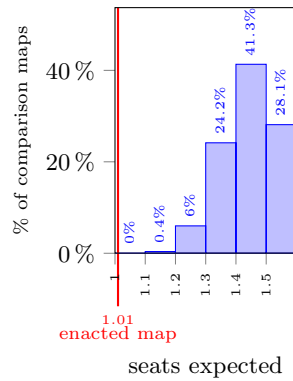
6.16 Senate Cluster: Cumberland Moore

6.16.1 Comparison map examples



6.16.2 Results

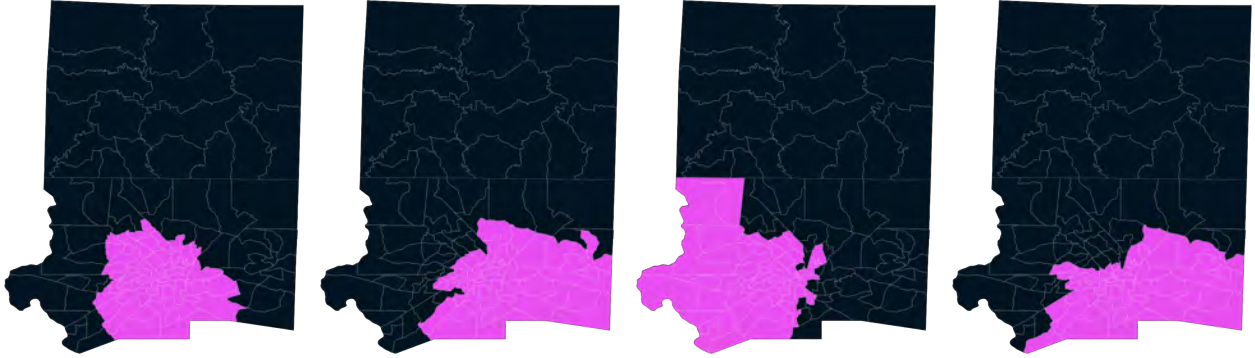
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9999968%	9	99.9999962%	17	99.9999963%	25	99.9999954%
2	99.9999961%	10	99.9999965%	18	99.9999969%	26	99.9999955%
3	99.999998%	11	99.9999954%	19	99.9999967%	27	99.999997%
4	99.9999953%	12	99.9999961%	20	99.9999969%	28	99.9999952%
5	99.9999969%	13	99.9999957%	21	99.9999971%	29	99.9999959%
6	99.9999969%	14	99.9999949%	22	99.9999961%	30	99.9999956%
7	99.9999966%	15	99.9999964%	23	99.9999961%	31	99.9999961%
8	99.9999966%	16	99.9999959%	24	99.9999977%	32	99.9999965%



- **First level analysis:** In *every* run, the districting was in the most partisan 0.0000050% of districtings (in other words, 99.9999949% were less partisan, in *every* run).
- **Second level analysis:** My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.000015% of all alternative districtings satisfying my districting criteria (in other words, 99.999984% are less optimized-for-partisanship), measured by their ε -fragility for $\varepsilon = 0.0000050\%$.

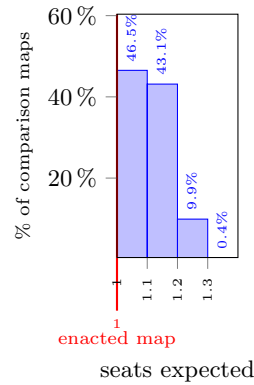
6.17 Senate Cluster: Forsyth-Stokes

6.17.1 Comparison map examples



6.17.2 Results

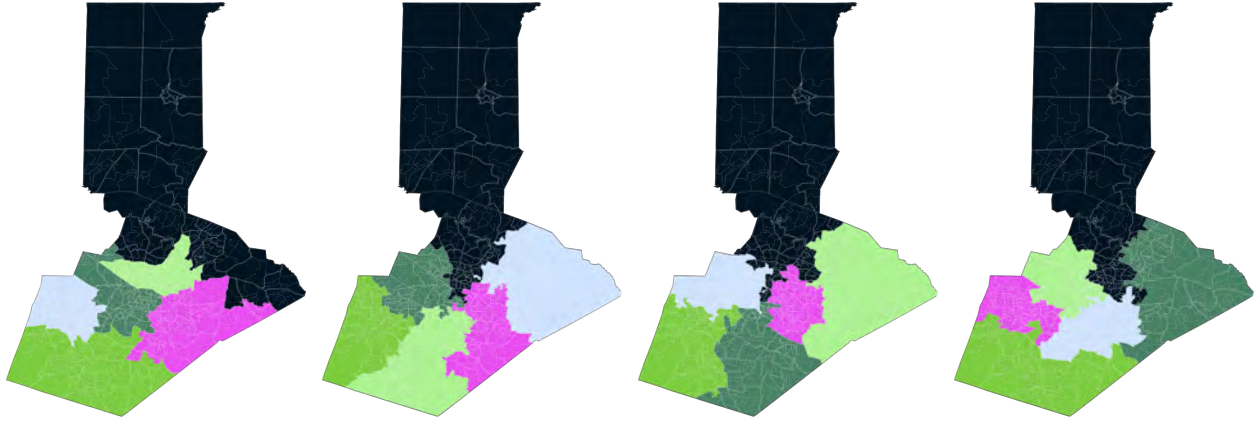
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9983%	9	99.9983%	17	99.9983%	25	99.9983%
2	99.9984%	10	99.9984%	18	99.9984%	26	99.9983%
3	99.9982%	11	99.9983%	19	99.9984%	27	99.9983%
4	99.9982%	12	99.9984%	20	99.9983%	28	99.9984%
5	99.9983%	13	99.9983%	21	99.9983%	29	99.9983%
6	99.9984%	14	99.9983%	22	99.9983%	30	99.9984%
7	99.9984%	15	99.9983%	23	99.9983%	31	99.9984%
8	99.9984%	16	99.9984%	24	99.9984%	32	99.9983%



- **First level analysis:** In *every* run, the districting was in the most partisan 0.0016% of districtings (in other words, 99.9983% were less partisan, in *every* run).
- **Second level analysis:** My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.0051% of all alternative districtings satisfying my districting criteria (in other words, 99.9947% are less optimized-for-partisanship), measured by their ε -fragility for $\varepsilon = 0.0016\%$.

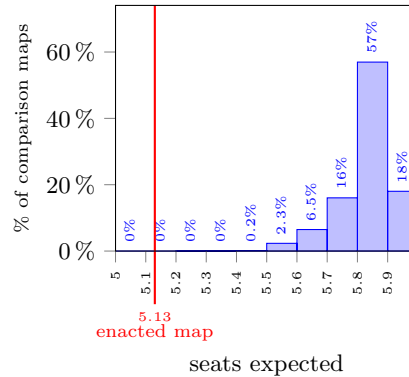
6.18 Senate Cluster: Granville-Wake

6.18.1 Comparison map examples



6.18.2 Results

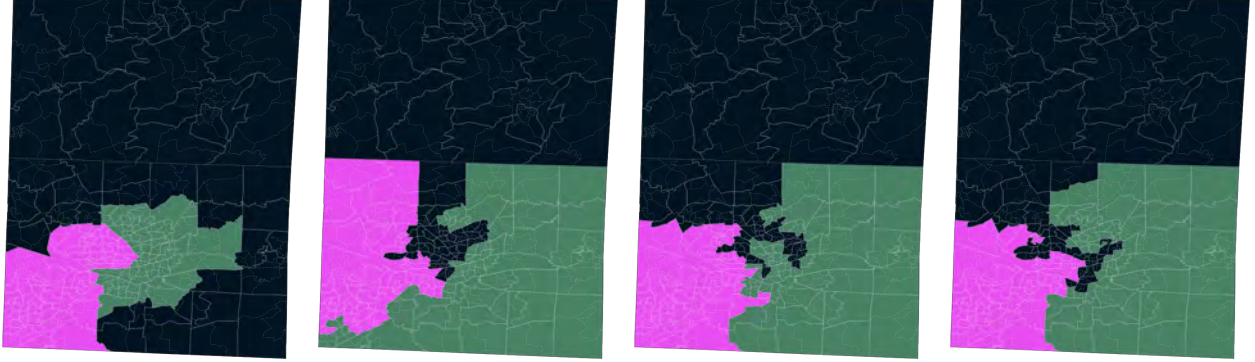
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.99999934%	9	99.99999921%	17	99.9999999936%	25	99.9999971%
2	99.9999984%	10	99.9999999936%	18	99.99999913%	26	99.9999975%
3	99.99999917%	11	99.99999966%	19	99.9999967%	27	99.9999909%
4	99.9999999945%	12	99.9999979%	20	99.9999963%	28	99.999989%
5	99.9999974%	13	99.9999989%	21	99.999999984%	29	99.999999954%
6	99.99999939%	14	99.9999976%	22	99.9999948%	30	99.9999968%
7	99.999999982%	15	99.9999947%	23	99.9999984%	31	99.999999945%
8	99.9999995%	16	99.9999969%	24	99.9999967%	32	99.9999971%



- **First level analysis:** In *every* run, the districting was in the most partisan 0.000010% of districtings (in other words, 99.999989% were less partisan, in *every* run).
- **Second level analysis:** My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.000030% of all alternative districtings satisfying my districting criteria (in other words, 99.999969% are less optimized-for-partisanship), measured by their ε -fragility for $\varepsilon = 0.000010\%$.

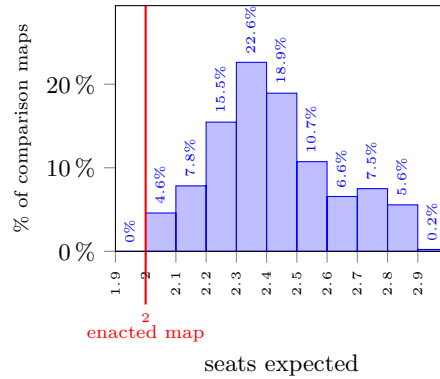
6.19 Senate Cluster: Guilford-Rockingham

6.19.1 Comparison map examples



6.19.2 Results

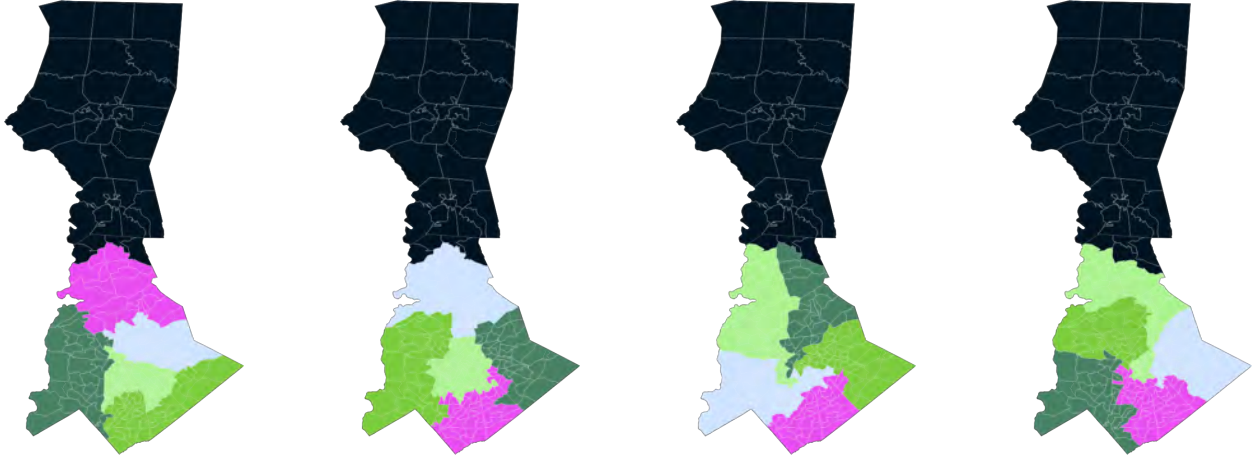
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9999979%	9	99.9999971%	17	99.999989%	25	99.999984%
2	99.999975%	10	99.99999976%	18	99.9999929%	26	99.9999949%
3	99.9999991%	11	99.9999944%	19	99.999988%	27	99.999967%
4	99.999984%	12	99.99998%	20	99.99998%	28	99.999995%
5	99.999976%	13	99.9999978%	21	99.99996%	29	99.999957%
6	99.9999922%	14	99.999978%	22	99.999979%	30	99.999999957%
7	99.9999997%	15	99.999986%	23	99.9999964%	31	99.9999935%
8	99.999967%	16	99.9999939%	24	99.999983%	32	99.9999984%



- **First level analysis:** In *every* run, the districting was in the most partisan 0.000042% of districtings (in other words, 99.999957% were less partisan, in *every* run).
- **Second level analysis:** My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.00012% of all alternative districtings satisfying my districting criteria (in other words, 99.99987% are less optimized-for-partisanship), measured by their ε -fragility for $\varepsilon = 0.000042\%$.

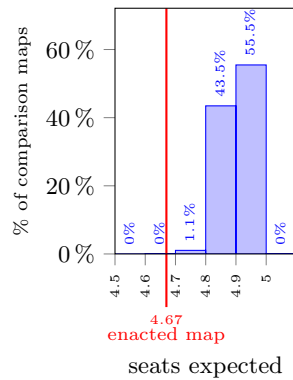
6.20 Senate Cluster: Iredell-Mecklenburg

6.20.1 Comparison map examples



6.20.2 Results

Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9981%	9	99.9983%	17	99.9982%	25	99.9982%
2	99.9982%	10	99.9983%	18	99.9982%	26	99.9983%
3	99.9982%	11	99.9981%	19	99.9981%	27	99.9981%
4	99.9982%	12	99.9982%	20	99.9982%	28	99.9982%
5	99.9981%	13	99.9982%	21	99.9982%	29	99.9982%
6	99.9983%	14	99.9982%	22	99.9982%	30	99.9982%
7	99.9982%	15	99.9982%	23	99.9982%	31	99.9982%
8	99.9982%	16	99.9982%	24	99.9982%	32	99.9981%



- **First level analysis:** In *every* run, the districting was in the most partisan 0.0019% of districtings (in other words, 99.998% were less partisan, in *every* run).
- **Second level analysis:** My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.0057% of all alternative districtings satisfying my districting criteria (in other words, 99.9943% are less optimized-for-partisanship), measured by their ε -fragility for $\varepsilon = 0.0019\%$.

7 Seat preservation analyses

In this section I present analyses of clusters for which my main analysis does not achieve high confidence of gerrymandering with respect to the seats-expected metric. These are the districtings in the following House clusters:

- Alamance
- Brunswick/New Hanover
- Cabarrus/Davie/Rowan/Yadkin
- Cumberland

Note that the motivation for the seat-expected metric is to detect partisan gerrymandering aimed at maximizing the expected total number of seats belonging to one party in a representative body (Congress, the North Carolina house, or the North Carolina senate). But there may be other conceivable partisan goals, such as facilitating the re-election of particular representatives in particular districts, which may be orthogonal to or (at least not perfectly correlated with) the goal of maximizing expected representation from one party, and thus which would not be detected by the seats-expected metric.

The metric I use in this section to re-analyze these districtings is the *wave threshold* for a particular seat count. In particular, for a given number of seats x , the wave threshold for x is the smallest uniform swing which can be applied to election data (here, the 2020 Attorney General race) which would result in $x + 1$ Democratic seats. Put differently, this is the threshold such that for any smaller uniform swing, the Democrats will win at most x seats. Referring back to Figure 1, we see that for the enacted Congressional districting of North Carolina, the wave thresholds for $x = 3, 4, 5$, and 6 are -3.56% , 1.68% , 3.05% , and 5.82% , respectively. In particular, even in an election in which voter patterns mirror the 2020 Attorney General race **with all Democratic vote shares increased by an additional 5.81 percentage points**, the enacted Congressional districting would still produce only 6 Democrat representatives.

The wave threshold metric can capture partisan goals which may be washed out in the seats-expected metric. For example, if a 5-district cluster is proposed to be districted to optimize the chance that three Republican incumbents all can save their seats, this may or may not result in an increase in the seats-expected metric (for example, if the alternative was to have 4 lean-Republican competitive districts, the extent of the lean would determine how the proposed and alternative districtings would compare under the seats expected metric). But such a plan would be expected to stand out as being highly unusual with respect to the wave threshold for 2 Democratic seats, as it would be an extreme outlier with respect to how difficult it would be for Democrats to capture more than 2 seats in the cluster.

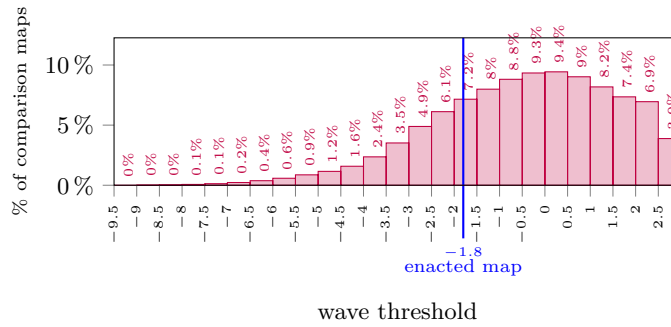
All wave-threshold histograms are shown with red bars, to visually distinguish them from the seats-expected histograms shown elsewhere in the report. Note that unlike for the seats-expected histograms, a Republican bias in the enacted map with respect to a particular wave threshold is indicated by the enacted map showing as an outlier on the righthand side of the plot.

[Report continues on next page for formatting reasons]

7.1 Alamance

The comparison maps generated by my algorithm were similar to the enacted map with respect to their wave threshold for both possible seat values (results here shown for the wave threshold for 0 seats):

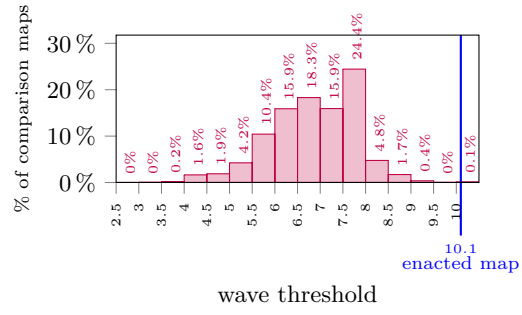
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	25.2%	9	25.2%	17	25.1%	25	25.2%
2	25.2%	10	25.0%	18	25.1%	26	25.2%
3	25.2%	11	25.1%	19	25.1%	27	25.2%
4	25.2%	12	25.2%	20	25.1%	28	25.2%
5	25.3%	13	25.2%	21	25.3%	29	25.3%
6	25.2%	14	25.2%	22	25.2%	30	25.2%
7	25.2%	15	25.1%	23	25.3%	31	25.3%
8	25.2%	16	25.2%	24	25.2%	32	25.2%



7.2 Brunswick/New Hanover

Despite the fact that my algorithm did not detect large differences between the enacted districting and comparison districtings of this cluster, the enacted map is an extreme outlier among the comparison maps generated by my algorithm with respect to the wave threshold for two seats. In particular, for the enacted map in this cluster, Democratic performance could increase by 10.1 percentage points in every district without Democrats capturing more than two seats. In every run of my algorithm, 99.72% of comparison maps would allow Democrats to capture a third seat with a smaller wave.

Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.987%	9	99.94%	17	99.9956%	25	99.83%
2	99.99%	10	99.907%	18	99.9957%	26	99.79%
3	99.929%	11	99.85%	19	99.8%	27	99.975%
4	99.88%	12	99.9912%	20	99.922%	28	99.85%
5	99.86%	13	99.77%	21	99.961%	29	99.83%
6	99.934%	14	99.89%	22	99.952%	30	99.92%
7	99.73%	15	99.87%	23	99.97%	31	99.946%
8	99.96%	16	99.72%	24	99.911%	32	99.961%

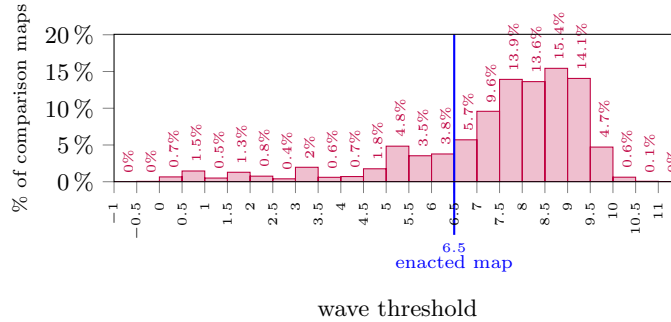


[Report continues on next page for formatting reasons]

7.3 Cabarrus/Davie/Rowan/Yadkin

The comparison maps generated by my algorithm were similar to the enacted map with respect to their wave threshold for all seat values (results here shown for the wave threshold for 1 seat):

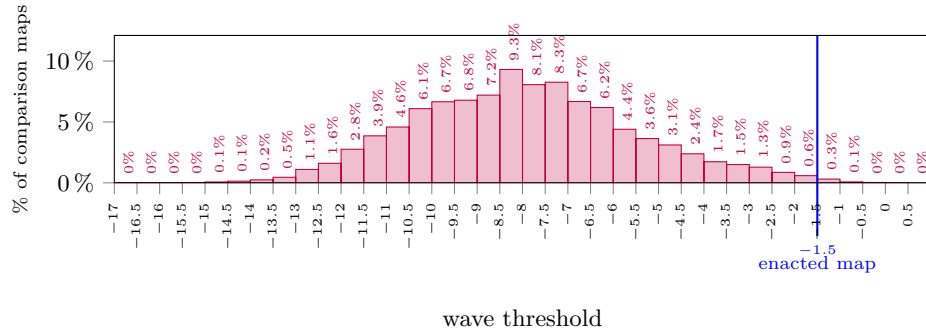
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	26.3%	9	20.7%	17	22.0%	25	22.3%
2	22.6%	10	23.1%	18	21.4%	26	20.8%
3	19.4%	11	27.6%	19	23.3%	27	20.2%
4	20.7%	12	21.2%	20	25.7%	28	22.0%
5	18.8%	13	23.4%	21	21.8%	29	22.1%
6	21.9%	14	25.4%	22	20.8%	30	22.3%
7	24.3%	15	20.0%	23	22.9%	31	22.4%
8	20.4%	16	19.9%	24	23.1%	32	23.8%



7.4 Cumberland

Despite the fact that my algorithm did not detect large differences between the enacted districting and comparison districtings of this cluster, the enacted map is an extreme outlier among the comparison maps generated by my algorithm with respect to the wave threshold for two seats.

Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.61%	9	99.62%	17	99.62%	25	99.64%
2	99.64%	10	99.64%	18	99.62%	26	99.63%
3	99.61%	11	99.61%	19	99.61%	27	99.63%
4	99.62%	12	99.62%	20	99.63%	28	99.6%
5	99.59%	13	99.62%	21	99.64%	29	99.63%
6	99.61%	14	99.59%	22	99.63%	30	99.62%
7	99.61%	15	99.62%	23	99.62%	31	99.6%
8	99.61%	16	99.63%	24	99.62%	32	99.62%



Appendix A Multimoves / Precinct splits

As discussed in Section 5 my algorithm can be set to allow multiple changes to a map to occur in one step, when this is necessary to produce a sufficiently rich set of comparison maps.

Here I describe details of this technique so that technical experts can understand how precisely our method works. These details are not necessary to understand the basic mechanics of the method, which are simply that:

- Multiple changes may be made to a map in a single step,
- The result of the changes must always be a valid comparison map, in the sense that it complies with the districting criteria we consider in our report, and
- Our implementation of multiple moves does not bias the algorithm to any map or family of maps.

For technical experts: these multiple moves can be implemented with a Metropolis-Hastings approach. In particular, a score function based on the deviation of an invalid map from the compactness and population thresholds can be defined. *The score function is set to be equal for all maps satisfying the districting criteria.* With this choice, a uniform stationary distribution can be constructed on the space of maps satisfying the districting criteria. The Metropolis-Hastings chain will occasionally leave the feasible region of the map-space for some number of steps before returning to the feasible region. The collection of steps made outside the feasible region can be performed in a single step, to give a single multi-move which transforms one valid map into another valid map.

A related implementation detail concerns precinct splits. When operating at the geounit level but preserving the maximum number of precinct splits, I can allow the chain at intermediate points to have one more split than is allowed, while discarding these intermediate, invalid comparison maps. For example, in a map which currently splits two specific precincts, the chain is allowed to produce a valid comparison map by changing the district membership of another precinct. Note that this does not change the number of precinct splits, but viewed in terms of single geounit moves, it passes through a set of maps with a greater number of precinct splits. As in the case of multimoves discussed above, these intermediate maps are not part of the comparison set, and we can view the precinct swap as a single multimove of geounit swaps.

Finally, I note that when operating below the precinct level in House clusters with split precincts, my algorithm imposes an additional compactness-like constraint on any precinct splits, which is simply that the length of the precinct split is not large relative to the perimeter of the precinct itself. (The enacted plan satisfies this constraint in all cases.)

Appendix B Theorems

The second level analyses in my report are calculated using the theorems from [CFMP]; in particular, Theorem 1.5 from that manuscript suffices for all of my second-level findings here.

In plain language, that theorem says that if I conduct m runs, and observe that in every run the enacted plan is in the bottom ε fraction of comparison maps, then I can conclude that the enacted plan is among the most carefully crafted α fraction of *all* maps satisfying the districting criteria (not just those encountered by the algorithm), measured by their ε -fragility, at a statistical significance calculated with the formula

$$p = \left(\frac{2\varepsilon}{\alpha} \right)^{m/2}.$$

In this report, I frequently have $m = 32$ runs and choose α to simply be 3 times as big as ε . In this case, we see that we can conclude that the enacted plan is among the most carefully crafted 3ε of all maps, at a statistical significance of

$$p = \left(\frac{2}{3} \right)^{16} \approx .0015 < .002.$$

Note that, for example, if we used instead a threshold of $\alpha = 4\varepsilon$, this would give significance of

$$p = \left(\frac{2}{4} \right)^{16} \approx .000015,$$

and taking a threshold of $\alpha = 6\varepsilon$ would give

$$p = \left(\frac{2}{6}\right)^{16} \approx .00000002,$$

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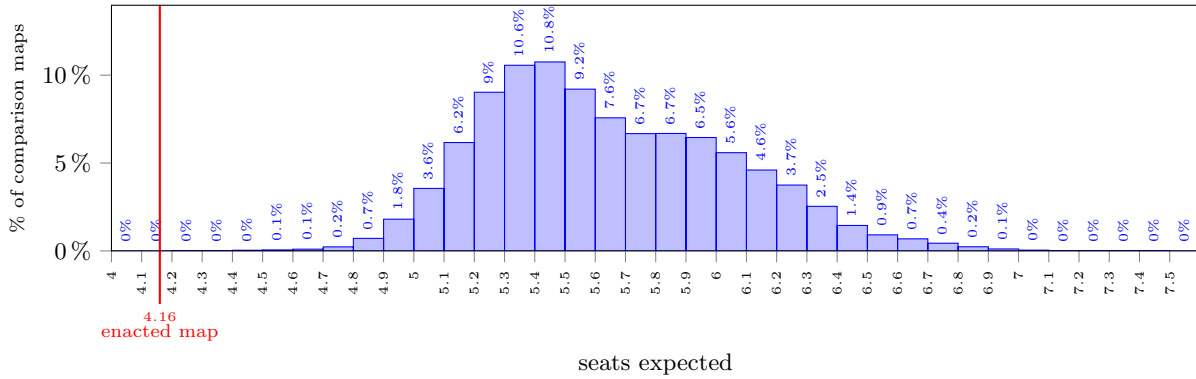
Appendix C Robustness Checks, Congressional districting

C.1 Robustness to election data

Here I show results when my analysis of the Congressional map is repeated with other elections in place of the 2020 Attorney General election as my proxy for partisan voting patterns.

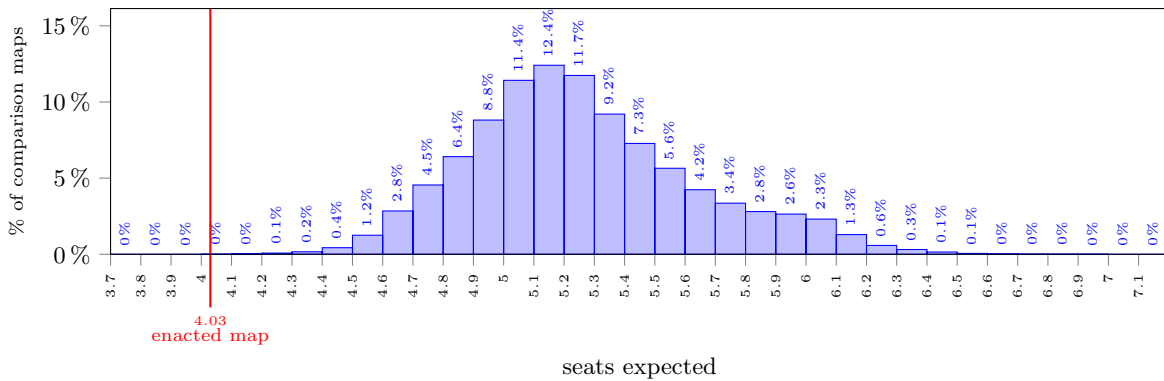
C.1.1 Results with 2020 Presidential election

Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.999925%	5	99.999986%	9	99.9999908%	13	99.9999926%
2	99.999921%	6	99.99999968%	10	99.9999932%	14	99.999988%
3	99.999955%	7	99.999984%	11	99.9999979%	15	99.999989%
4	99.999933%	8	99.99995%	12	99.999999981%	16	99.999978%



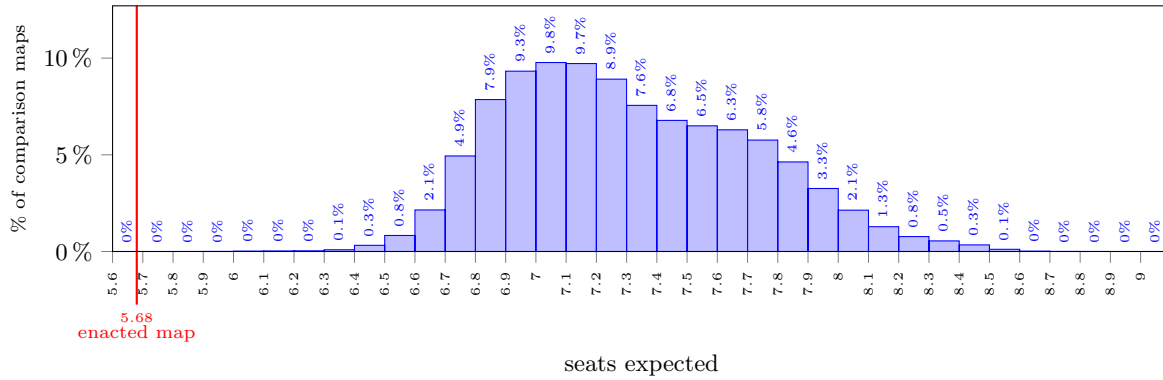
C.1.2 Results with 2020 Lieutenant Governor election

Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.999973%	5	99.999937%	9	99.999942%	13	99.999982%
2	99.99985%	6	99.9999964%	10	99.99901%	14	99.999978%
3	99.999905%	7	99.99954%	11	99.9999928%	15	99.999934%
4	99.999964%	8	99.99975%	12	99.9995%	16	99.9998%



C.1.3 Results with 2020 Governor election

Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9999989%	5	99.9999979%	9	99.9999975%	13	99.9999923%
2	99.9999914%	6	99.999999922%	10	99.9999974%	14	99.9999968%
3	99.9999996%	7	99.999999934%	11	99.99999994%	15	99.99999982%
4	99.99999966%	8	99.9999982%	12	99.999999981%	16	99.99999961%

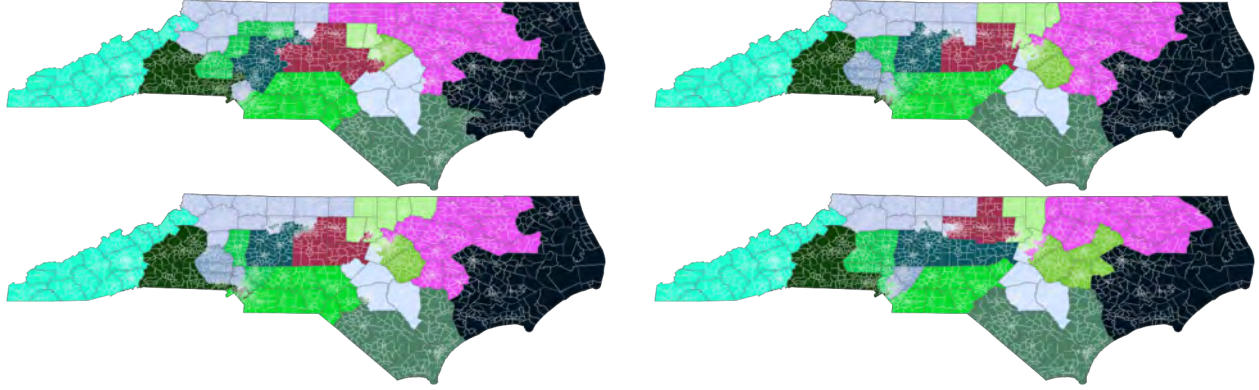


[Report continues on next page for formatting reasons]

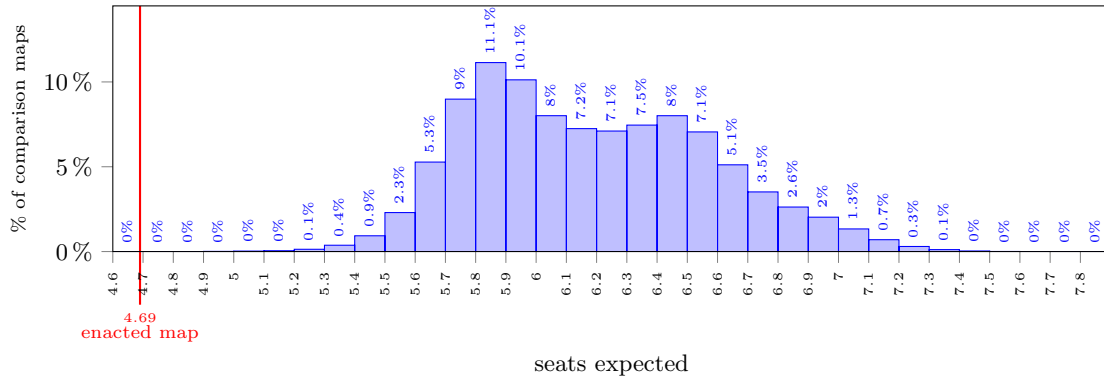
C.2 Robustness to incumbency protection

Here I show results when my analysis of the Congressional map is repeated without ensuring the protection of incumbents.

C.2.1 Comparison map examples



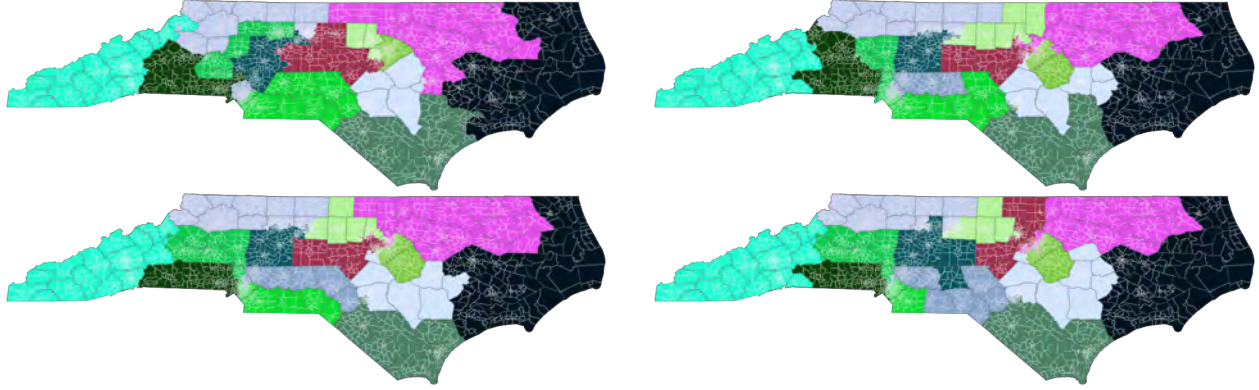
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.999998%	5	99.99999918%	9	99.9999976%	13	99.999982%
2	99.99999901%	6	99.9999978%	10	99.999989%	14	99.9999901%
3	99.9999986%	7	99.99999961%	11	99.9999967%	15	99.9999977%
4	99.9999967%	8	99.9999954%	12	99.999999981%	16	99.9999986%



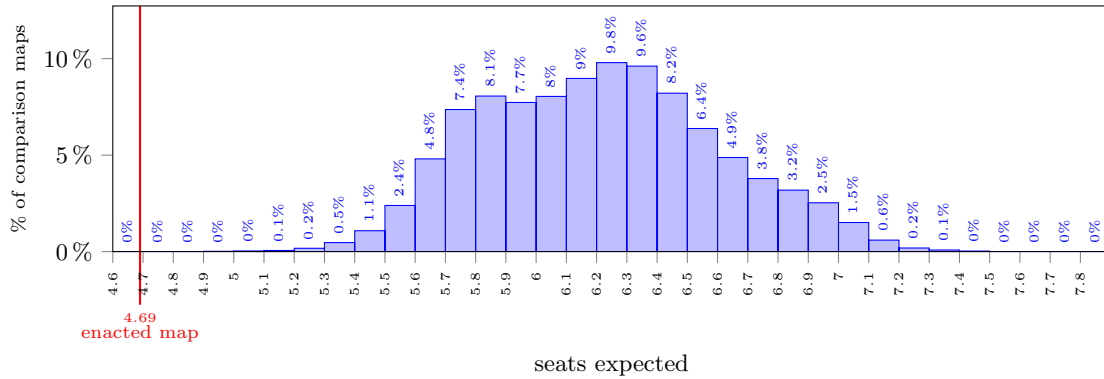
C.3 Robustness to compactness: 0% Polsby-Popper threshold

Here I show results when my analysis of the Congressional map is repeated with a 0% threshold for compactness in place of the 5% error I allow in my primary analysis.

C.3.1 Comparison map examples



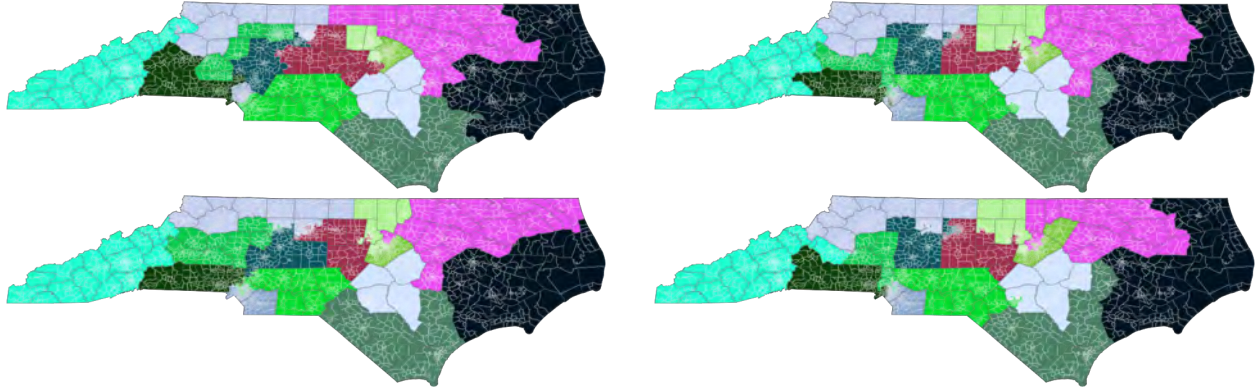
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.99999989%	5	99.9999997%	9	99.9999975%	13	99.999979%
2	99.9999984%	6	99.99999983%	10	99.9999968%	14	99.9999968%
3	99.9999933%	7	99.9999962%	11	99.9999968%	15	99.9999983%
4	99.999986%	8	99.9999983%	12	99.9999954%	16	99.9999984%



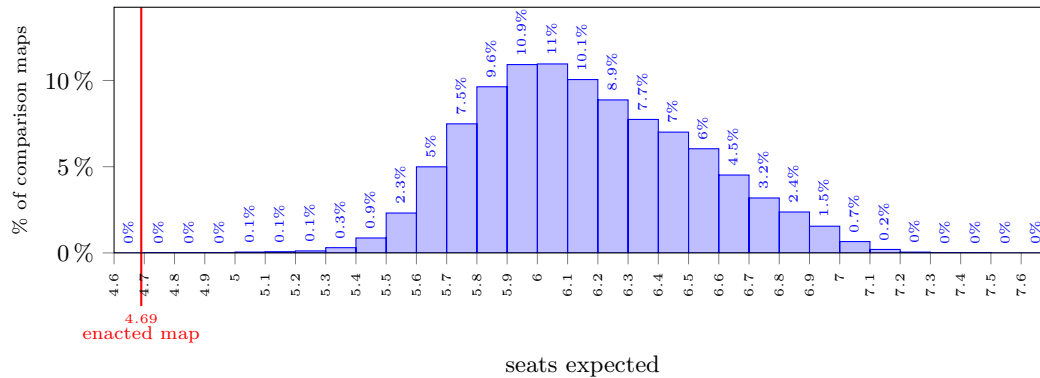
C.4 Robustness to compactness: 10% Polsby-Popper threshold

Here I show results when my analysis of the Congressional map is repeated with a 10% threshold for compactness in place of the 5% error I allow in my primary analysis.

C.4.1 Comparison map examples



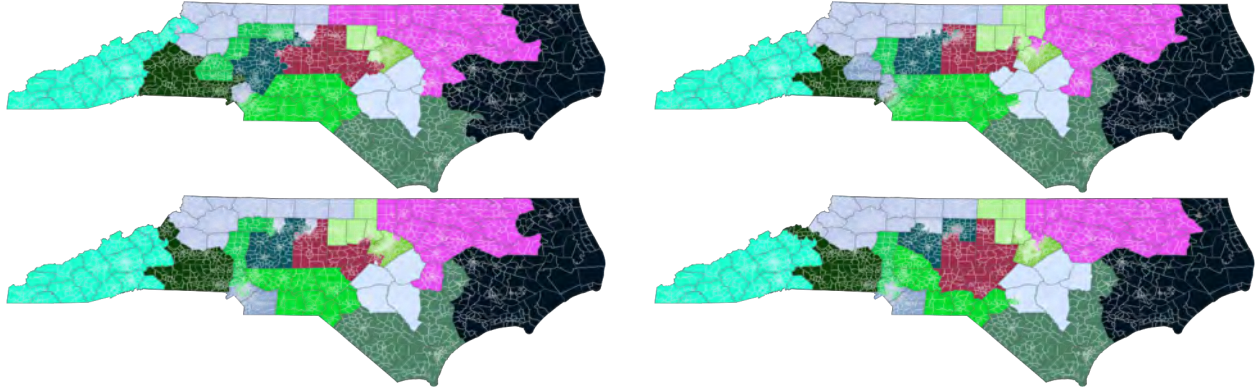
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9999988%	5	99.9999974%	9	99.999982%	13	99.9999976%
2	99.9999989%	6	99.9999989%	10	99.9999954%	14	99.9999985%
3	99.9999961%	7	99.99999946%	11	99.9999965%	15	99.9999983%
4	99.9999981%	8	99.9999973%	12	99.999999981%	16	99.9999985%



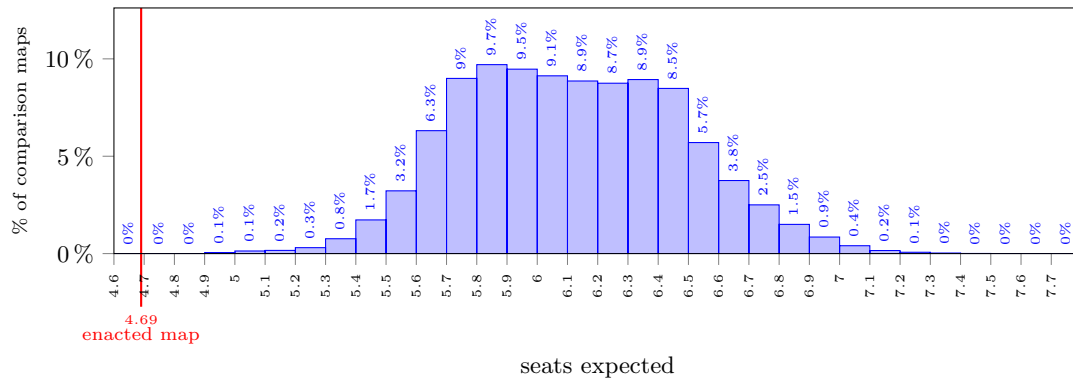
C.5 Robustness to compactness 5% Perimeter compactness

Here I show results when my analysis of the Congressional map is repeated with a completely different compactness score, based just on the total perimeter of all districts in the districting.

C.5.1 Comparison map examples



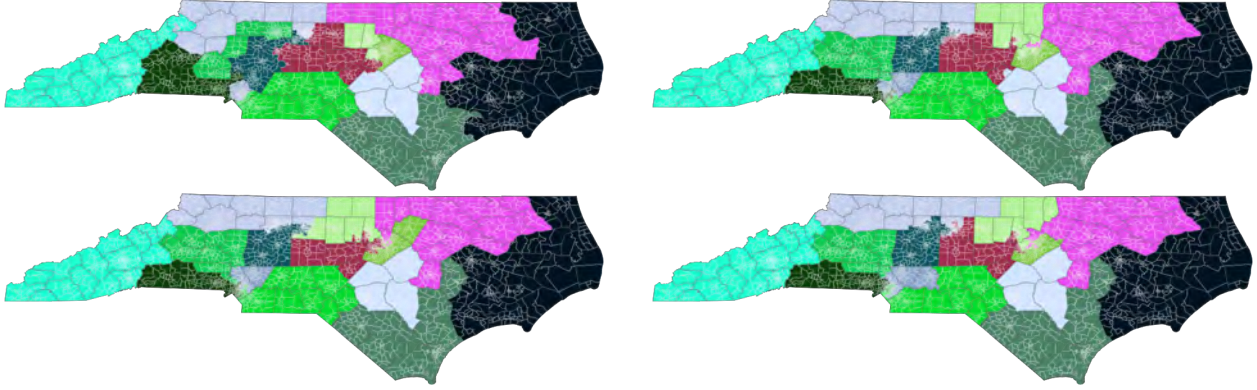
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9999988%	5	99.9999968%	9	99.999998%	13	99.9999976%
2	99.9999948%	6	99.9999949%	10	99.9999978%	14	99.9999986%
3	99.9999941%	7	99.999999976%	11	99.999982%	15	99.9999983%
4	99.9999981%	8	99.9999906%	12	99.999999981%	16	99.9999963%



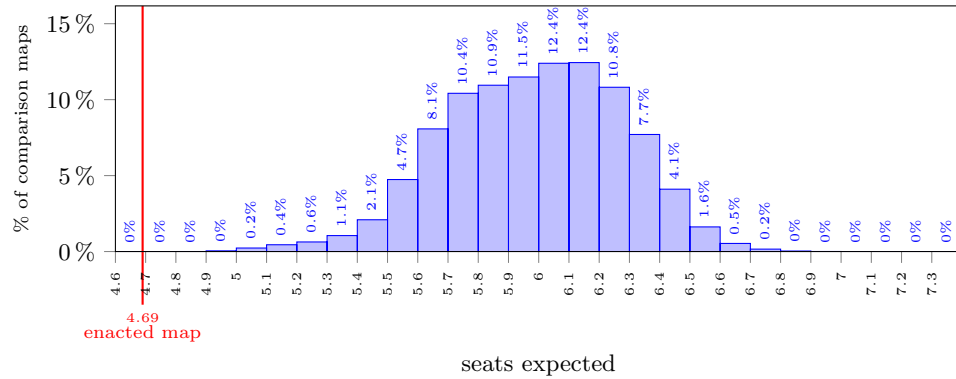
C.6 Robustness to 1% population deviation

Here I show results when my analysis of the Congressional map is repeated with a 1% population deviation constraint instead of a 2% population deviation constraint.

C.6.1 Comparison map examples



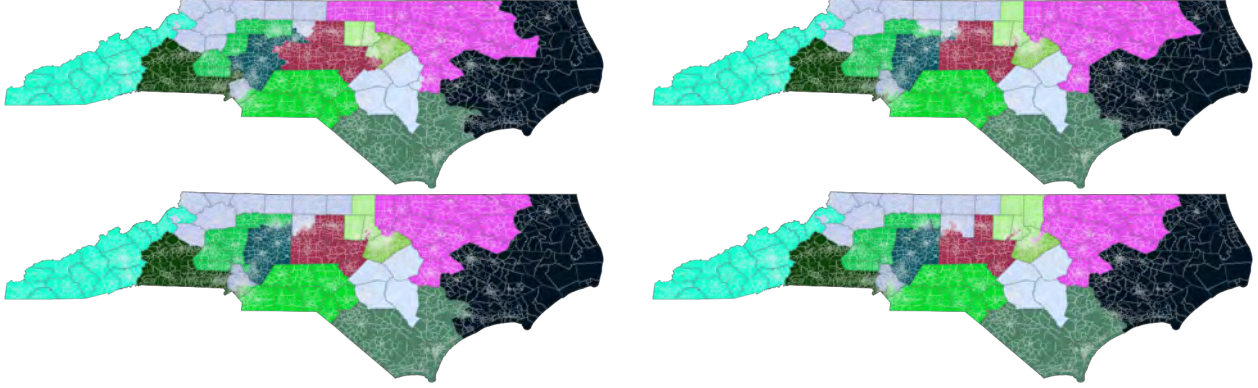
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9999911%	5	99.999999907%	9	99.9999983%	13	99.999914%
2	99.9999966%	6	99.9999999945%	10	99.99978%	14	99.9999988%
3	99.999949%	7	99.9999986%	11	99.999989%	15	99.999971%
4	99.9999935%	8	99.999951%	12	99.999934%	16	99.999997%



C.7 Geounit analysis

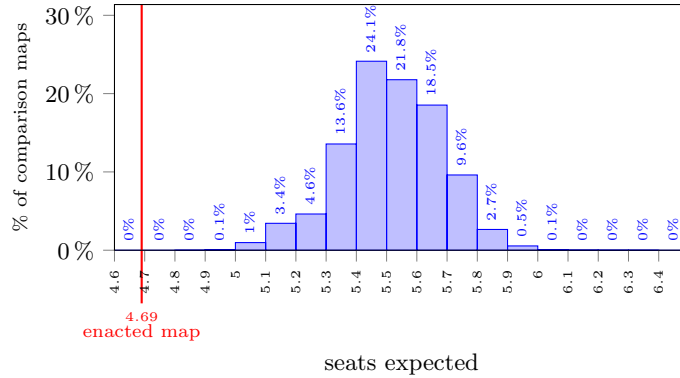
Here I show results when my analysis of the Congressional map is repeated at the geounit level, with a 0.5% population deviation constraint.

C.7.1 Comparison map examples



C.7.2 Results

Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.999952%	5	99.999987%	9	99.999962%	13	99.999952%
2	99.999989%	6	99.999986%	10	99.999964%	14	99.999962%
3	99.999967%	7	99.9999924%	11	99.999974%	15	99.999926%
4	99.999964%	8	99.999996%	12	99.999977%	16	99.999935%

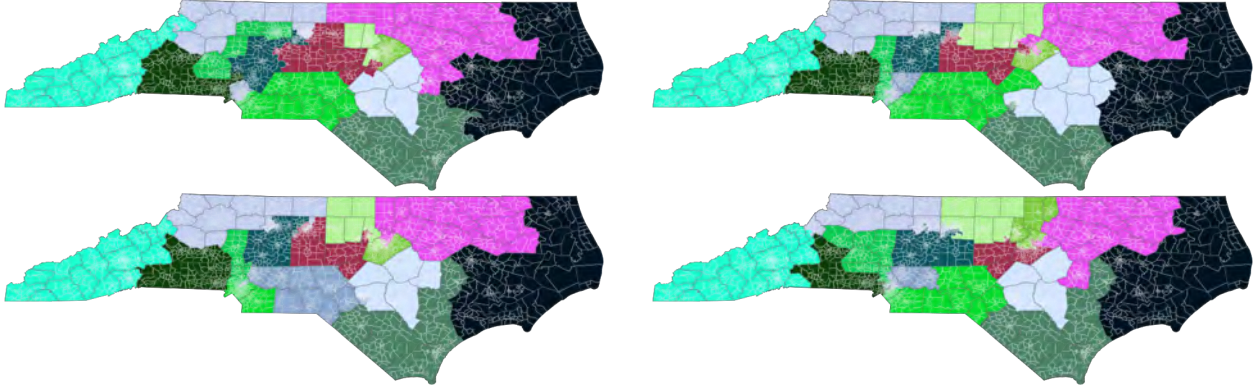


- **First level analysis:** In *every* run, the districting was in the most partisan 0.000073% of districtings (in other words, 99.999926% were less partisan, in *every* run).
- **Second level analysis:** My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.00022% of all alternative districtings of North Carolina satisfying my districting criteria (in other words, 99.99977% are less optimized-for-partisanship), measured by their ε -fragility for $\varepsilon = 0.000073\%$.

C.8 Analysis of VTD-level blueprint

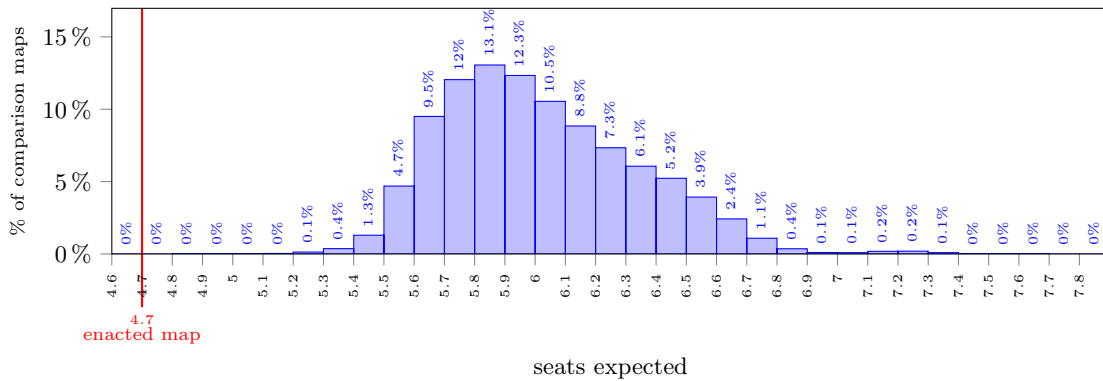
Here I show results when my analysis of the Congressional map is performed not on the precise enacted map, but a whole-VTD-level blueprint for the enacted map obtained by assigning each split VTD to the district it has the greatest intersection with.

C.8.1 Comparison map examples



C.8.2 Results

Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9999982%	9	99.9999969%	17	99.9999991%	25	99.9999986%
2	99.9999947%	10	99.9999952%	18	99.9999944%	26	99.9999998%
3	99.9999957%	11	99.999986%	19	99.999978%	27	99.9999977%
4	99.9999907%	12	99.999979%	20	99.9999959%	28	99.9999976%
5	99.9999981%	13	99.9999986%	21	99.9999946%	29	99.9999958%
6	99.9999954%	14	99.999984%	22	99.9999971%	30	99.9999986%
7	99.9999917%	15	99.9999977%	23	99.9999974%	31	99.9999969%
8	99.9999917%	16	99.9999961%	24	99.9999942%	32	99.9999958%



- **First level analysis:** In *every* run, the districting was in the most partisan 0.000021% of districtings (in other words, 99.999978% were less partisan, in *every* run).
- **Second level analysis:** My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.000064% of all alternative districtings of North Carolina satisfying my districting criteria (in other words, 99.999935% are less optimized-for-partisanship), measured by their ε -fragility for $\varepsilon = 0.000021\%$.

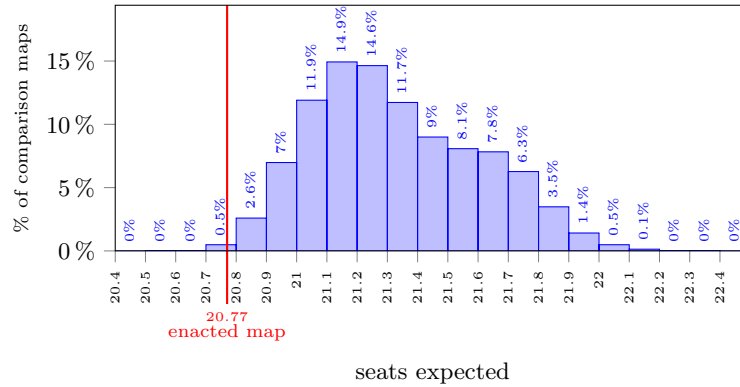
Appendix D Robustness Checks, Senate districting

D.1 Robustness to election data

Here I show results when my analysis of the Senate map is repeated with other elections in place of the 2020 Attorney General election as my proxy for partisan voting patterns.

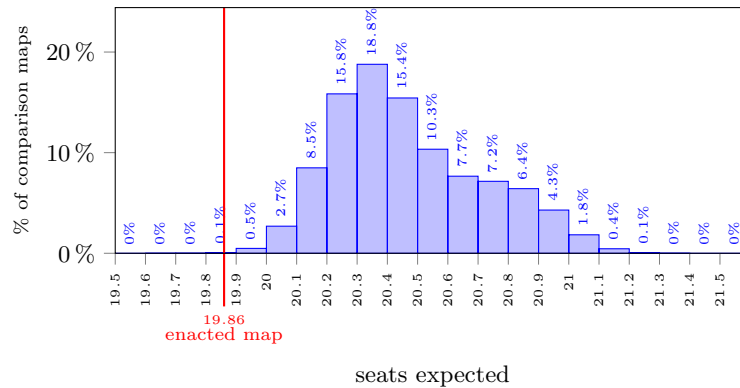
D.1.1 Results with 2020 Presidential election

Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.65%	5	99.78%	9	99.79%	13	99.8%
2	99.81%	6	99.79%	10	99.82%	14	99.73%
3	99.75%	7	99.79%	11	99.81%	15	99.66%
4	99.8%	8	99.75%	12	99.75%	16	99.81%



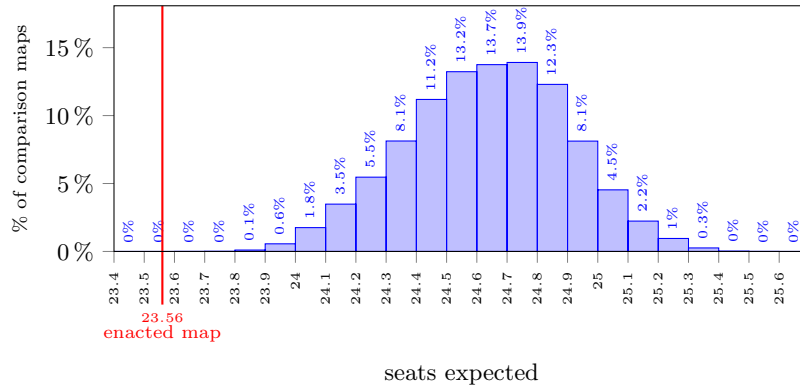
D.1.2 Results with 2020 Lieutenant Governor election

Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.943%	5	99.987%	9	99.9912%	13	99.9911%
2	99.996%	6	99.982%	10	99.9955%	14	99.977%
3	99.973%	7	99.994%	11	99.9958%	15	99.944%
4	99.9927%	8	99.983%	12	99.89%	16	99.995%



D.1.3 Results with 2020 Governor election

Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.99999936%	5	99.99999996%	9	99.9999998%	13	99.99999973%
2	99.99999949%	6	99.9999974%	10	99.9999987%	14	99.9999985%
3	99.9999978%	7	99.999999929%	11	99.9999998%	15	99.99999961%
4	99.9999989%	8	99.999999969%	12	99.99999973%	16	99.9999985%

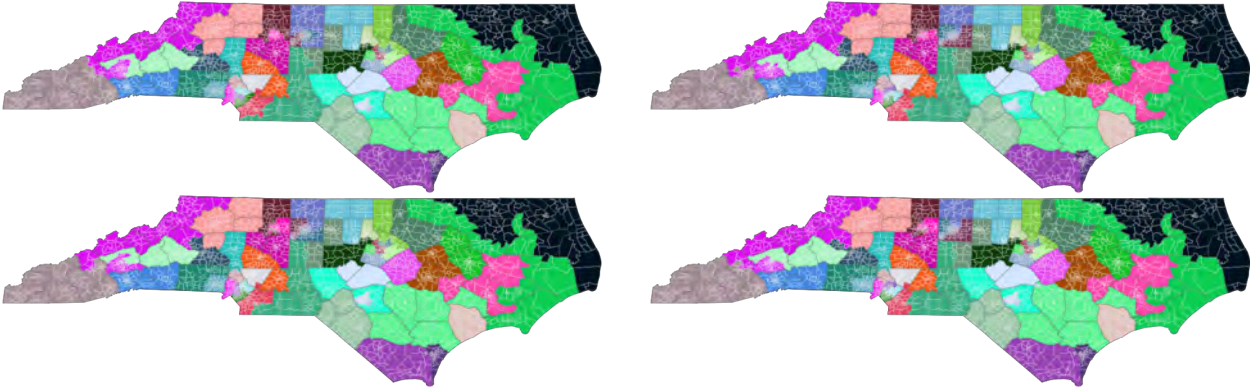


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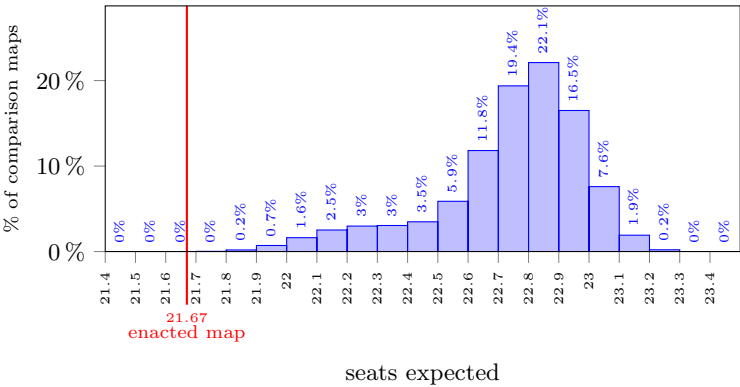
D.2 Robustness to incumbency protection

Here I show results when my analysis of the Senate map is repeated without ensuring the protection of incumbents.

D.2.1 Comparison map examples



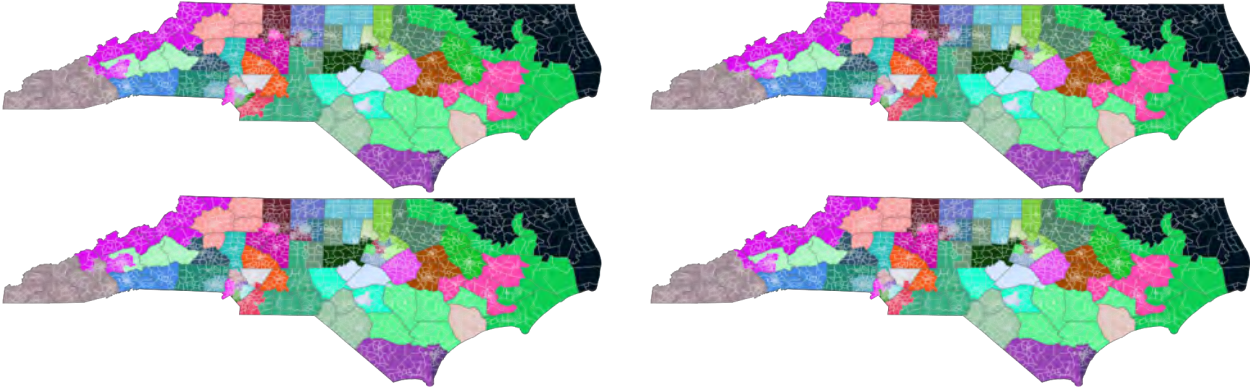
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9998%	5	99.9993%	9	99.99989%	13	99.99906%
2	99.99988%	6	99.99985%	10	99.99968%	14	99.9987%
3	99.99971%	7	99.99907%	11	99.9998%	15	99.99928%
4	99.99922%	8	99.9985%	12	99.99976%	16	99.9943%



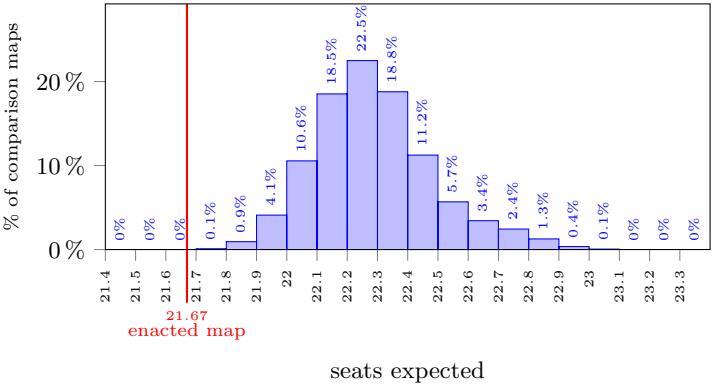
D.3 Compactness: 0% Polsby-Popper threshold

Here I show results when my analysis of the Senate map is repeated with a 0% threshold for compactness in place of the 5% error I allow in my primary analysis.

D.3.1 Comparison map examples



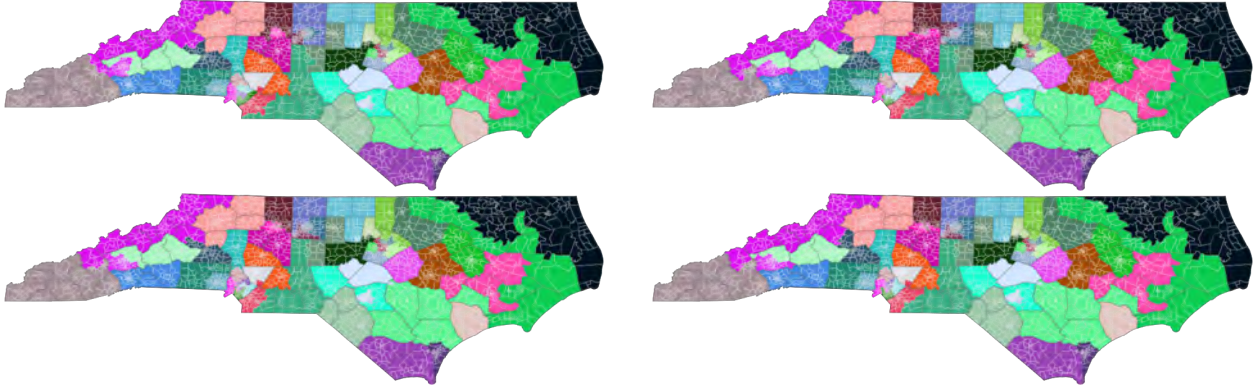
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9979%	5	99.9978%	9	99.995%	13	99.9986%
2	99.99909%	6	99.9968%	10	99.9982%	14	99.9989%
3	99.9968%	7	99.99933%	11	99.9987%	15	99.9973%
4	99.99927%	8	99.9979%	12	99.99923%	16	99.9976%



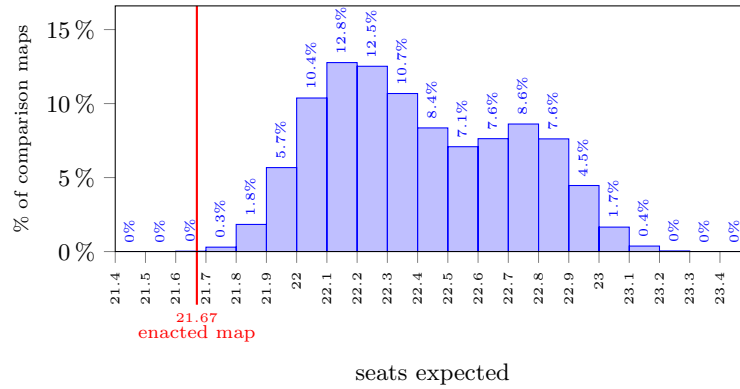
D.4 Compactness: 10% Polsby-Popper threshold

Here I show results when my analysis of the Senate map is repeated with a 10% threshold for compactness in place of the 5% error I allow in my primary analysis.

D.4.1 Comparison map examples



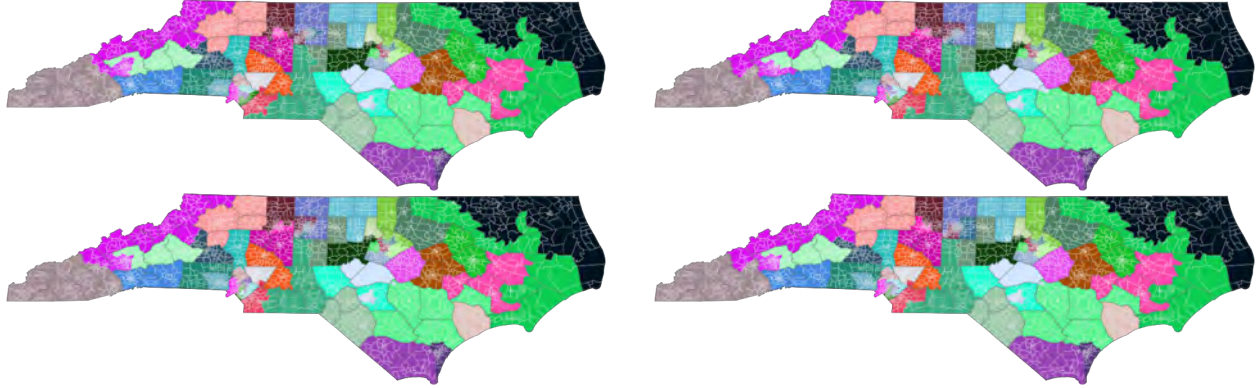
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9963%	5	99.992%	9	99.971%	13	99.98%
2	99.9928%	6	99.986%	10	99.985%	14	99.9917%
3	99.988%	7	99.993%	11	99.9924%	15	99.978%
4	99.987%	8	99.9957%	12	99.9908%	16	99.9969%



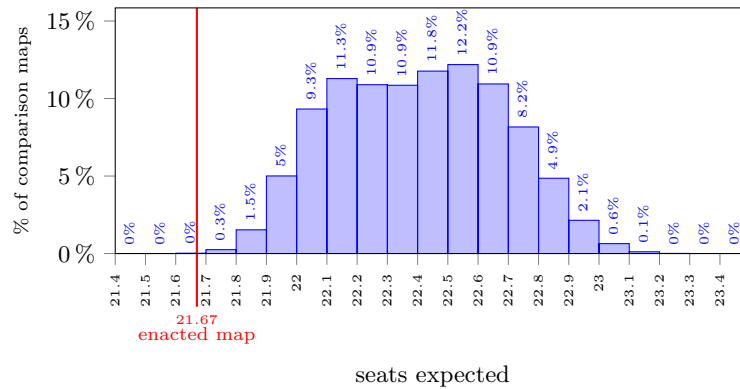
D.5 Compactness 5% Perimeter compactness

Here I show results when my analysis of the Senate map is repeated with a completely different compactness score, based just on the total perimeter of all districts in the districting.

D.5.1 Comparison map examples



Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9913%	5	99.985%	9	99.988%	13	99.9907%
2	99.9907%	6	99.989%	10	99.988%	14	99.982%
3	99.9949%	7	99.9929%	11	99.986%	15	99.981%
4	99.989%	8	99.989%	12	99.987%	16	99.9919%



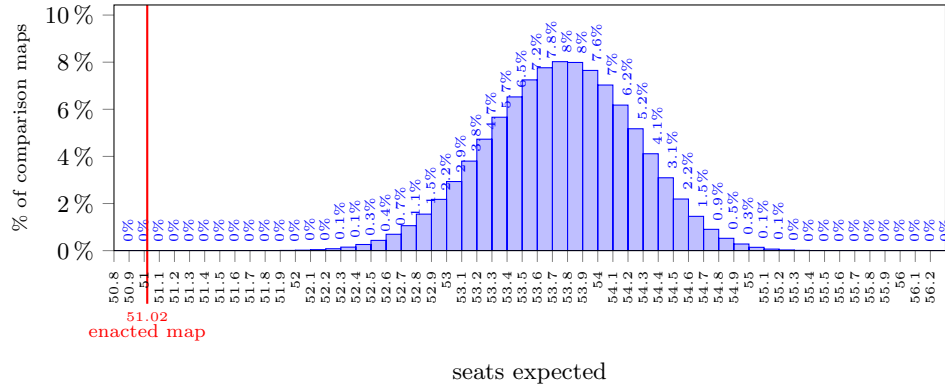
Appendix E Robustness Checks, House districting

E.1 Robustness to election data

Here I show results when my analysis of the House map is repeated with other elections in place of the 2020 Attorney General election as my proxy for partisan voting patterns.

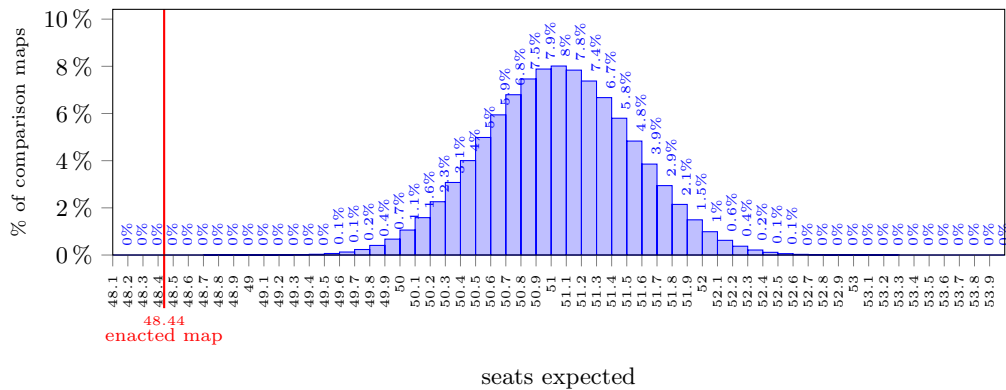
E.1.1 Results with 2020 Presidential election

Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.99999985%	5	99.99999945%	9	99.9999986%	13	99.9999986%
2	99.99999981%	6	99.99999948%	10	99.99999912%	14	99.99999976%
3	99.99999997%	7	99.99999963%	11	99.99999986%	15	99.99999984%
4	99.9999969%	8	99.9999981%	12	99.9999985%	16	99.9999989%



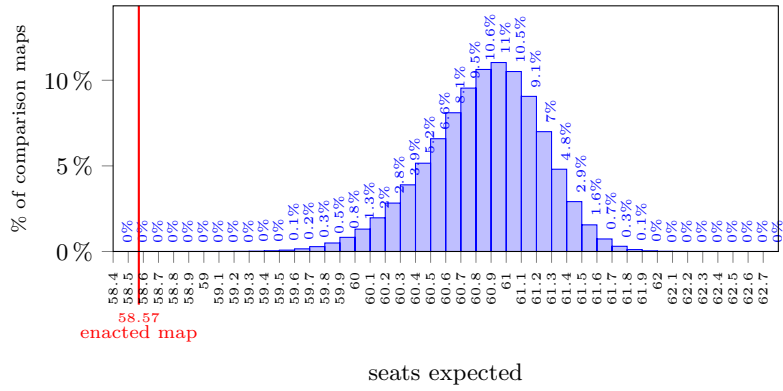
E.1.2 Results with 2020 Lieutenant Governor election

Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9999988%	5	99.9999983%	9	99.999997%	13	99.9999957%
2	99.999981%	6	99.9999926%	10	99.9999979%	14	99.9999905%
3	99.9999907%	7	99.9999927%	11	99.9999974%	15	99.99999914%
4	99.9999969%	8	99.999993%	12	99.9999981%	16	99.99999924%



E.1.3 Results with 2020 Governor election

Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9999985%	5	99.999999931%	9	99.999999975%	13	99.99999986%
2	99.999999984%	6	99.99999994%	10	99.99999986%	14	99.99999988%
3	99.99999997%	7	99.999999986%	11	99.9999998%	15	99.99999948%
4	99.9999985%	8	99.99999985%	12	99.99999914%	16	99.99999989%

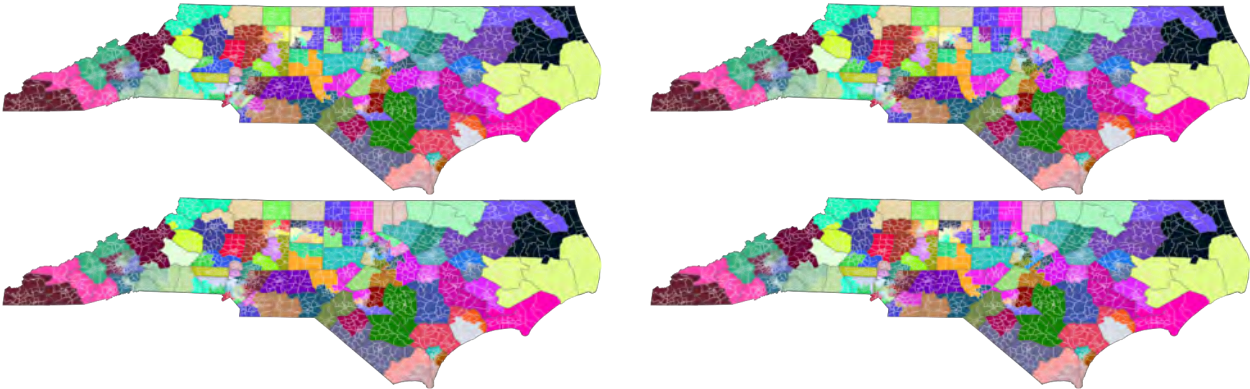


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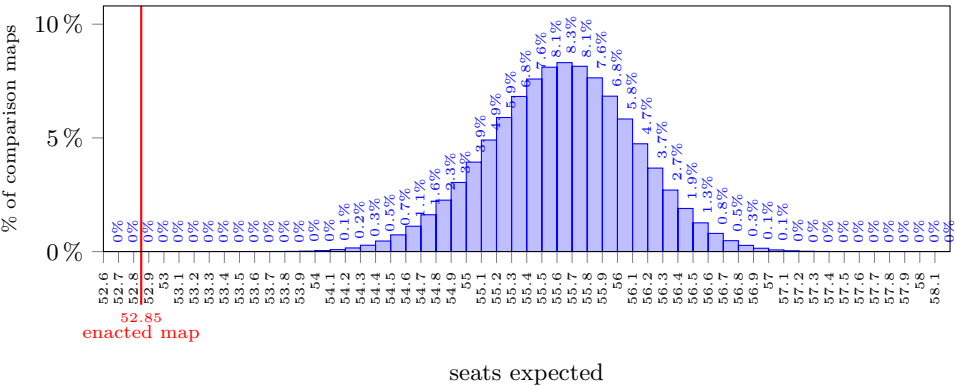
E.2 Robustness to incumbency protection

Here I show results when my analysis of the House map is repeated without ensuring the protection of incumbents.

E.2.1 Comparison map examples



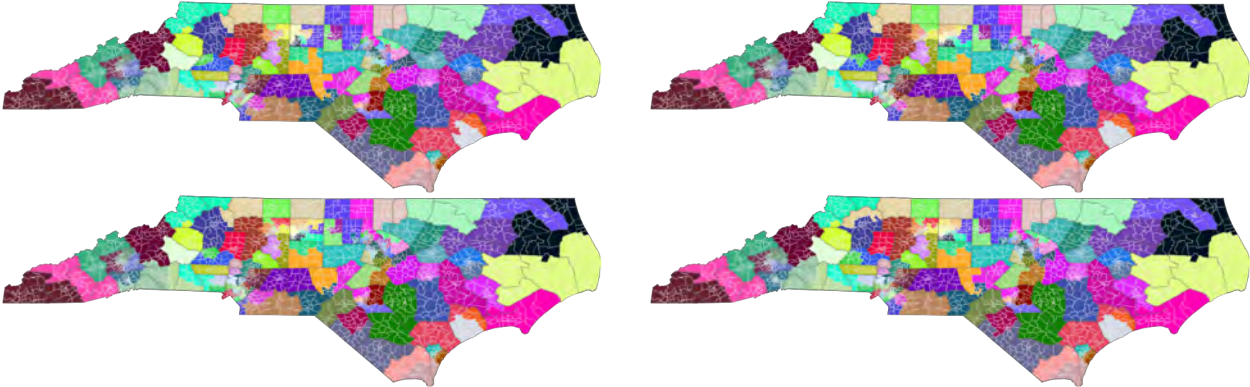
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.99999987%	5	99.99999933%	9	99.99999967%	13	99.99999989%
2	99.99999981%	6	99.9999962%	10	99.99999944%	14	99.99999981%
3	99.99999997%	7	99.9999968%	11	99.9999944%	15	99.99999%
4	99.99999908%	8	99.99999961%	12	99.999999963%	16	99.99999947%



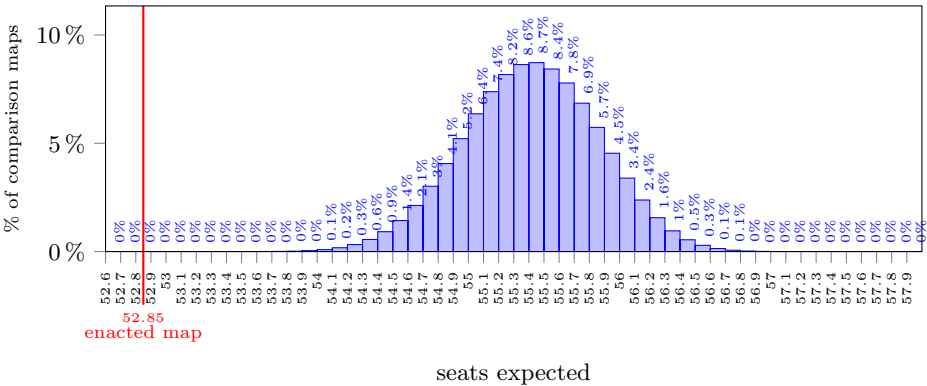
E.3 Compactness: 0% Polsby-Popper threshold

Here I show results when my analysis of the House map is repeated with a 0% threshold for compactness in place of the 5% error I allow in my primary analysis.

E.3.1 Comparison map examples



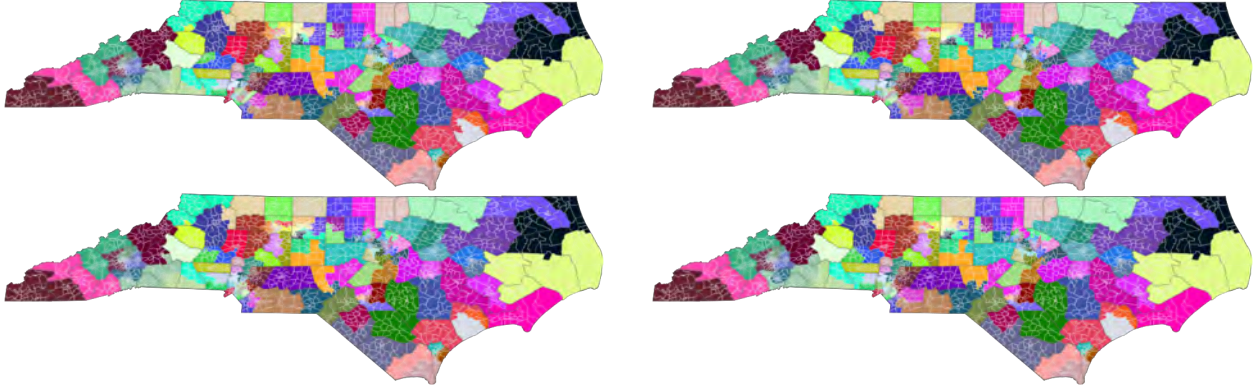
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9999996%	5	99.99999927%	9	99.9999987%	13	99.9999978%
2	99.9999982%	6	99.99999941%	10	99.9999966%	14	99.9999986%
3	99.999987%	7	99.9999971%	11	99.9999963%	15	99.9999975%
4	99.9999912%	8	99.9999988%	12	99.99999928%	16	99.9999968%



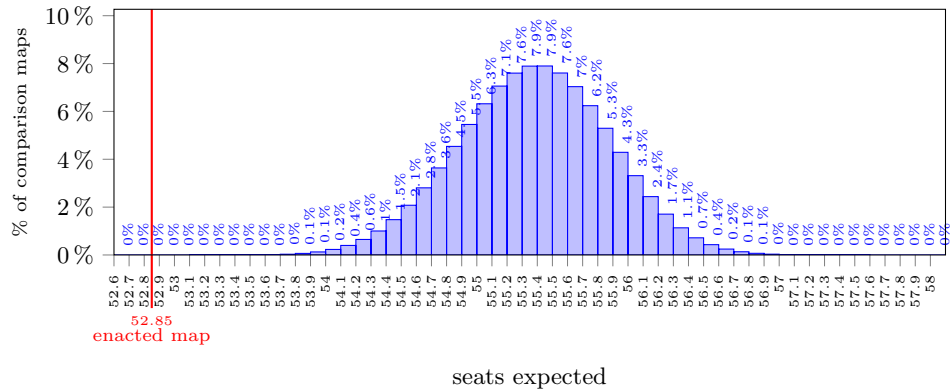
E.4 Compactness: 10% Polsby-Popper threshold

Here I show results when my analysis of the House map is repeated with a 10% threshold for compactness in place of the 5% error I allow in my primary analysis.

E.4.1 Comparison map examples



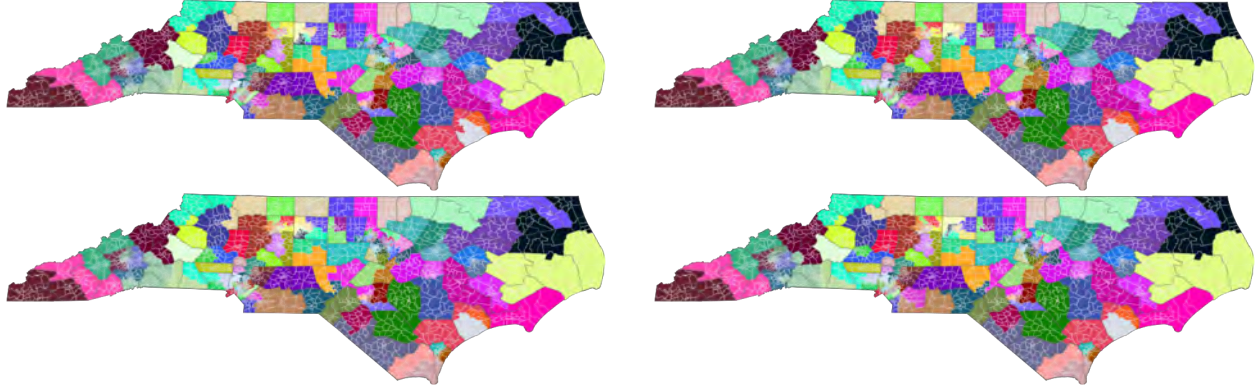
Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.9999904%	5	99.9999989%	9	99.99999917%	13	99.9999983%
2	99.99999957%	6	99.9999971%	10	99.9999983%	14	99.9999989%
3	99.9999948%	7	99.999999916%	11	99.999988%	15	99.9999962%
4	99.9999987%	8	99.9999955%	12	99.9999922%	16	99.9999974%



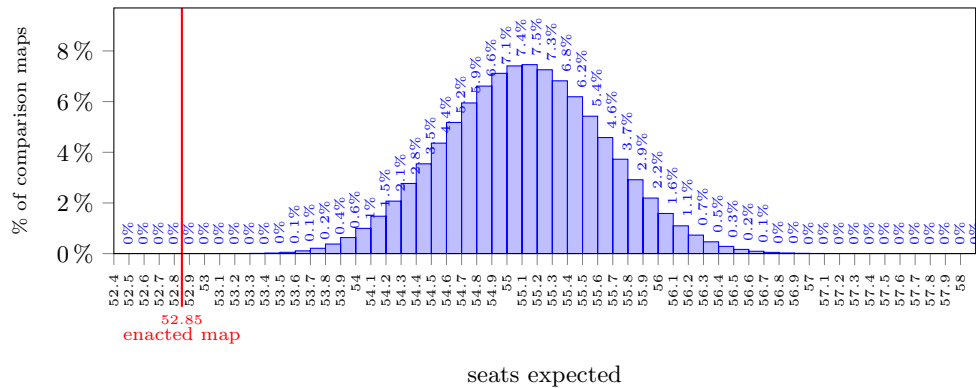
E.5 Compactness 5% Perimeter compactness

Here I show results when my analysis of the House map is repeated with a completely different compactness score, based just on the total perimeter of all districts in the districting.

E.5.1 Comparison map examples



Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan	Run	Percentage of comparison maps less partisan than enacted plan
1	99.99985%	5	99.999957%	9	99.999988%	13	99.999953%
2	99.999977%	6	99.999976%	10	99.999978%	14	99.99991%
3	99.99988%	7	99.9999904%	11	99.999968%	15	99.999981%
4	99.999978%	8	99.999951%	12	99.999925%	16	99.99995%



I hereby certify that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Wesley Pegden
12/23/2021

Rebuttal to report of Michael Barber

Wesley Pegden

December 28, 2021

1 Introduction

In his report, Michael Barber presents the results of simulated district plans as part of an analysis which purports to elicit whether the enacted House and Senate maps of North Carolina are “partisan outliers”. Barber makes choices in his analysis that reduce its ability to detect gerrymandering North Carolina clusters; for example, he discusses the partisan bias of the enacted House and Senate maps through the lens of the whole number of “Democratic-lean” districts in one hypothetical election, a lens through which even the effects of extreme gerrymandering in NC county clusters—each with a small number of districts—are made to appear less dramatic.

Nevertheless, his primary analyses (Tables 2 and 32) still find the whole-state House and Senate plans to be partisan outliers compared to his simulated maps, according to the definition he lays out in his report; in particular, he reports the middle-50% of simulated maps to have 46-51 total “Democratic-lean” districts across the House clusters he analyzes, and reports that the enacted map contains 45 such districts. For the Senate he reports a middle-50% range of 19-19 total Democratic-lean districts in his simulations, and that the enacted map contains 16 such districts.

In fact, Barber incorrectly calculated the distribution of Democrat-leaning seats for the whole-state outcomes of his simulation analysis, incorrectly reporting the sums of lower- and upper-quartile seat counts in individual clusters as the lower- and upper-quartile for total statewide seats. When the distribution of “lean Democrat district” counts at the whole-state level are calculated correctly for Barber’s simulations (still using the partisan index he defines), one finds that the middle-50% range for Barber’s simulated maps in the House is actually 48-50 Democratic-lean districts, not 46-51 as Barber shows, and that **the enacted North Carolina House map lies in the most Republican-biased 00.18% of whole state maps composed of Barber’s simulations, and the enacted North Carolina Senate map lies in the most Republican-based 00.39% of whole state maps composed of Barber’s simulations.** This computation can be carried out entirely with the figures provided in Barber’s report, and uses Barber’s simulated maps and Barber’s metric of partisan bias (number of lean-Democrat districts), calculated with Barber’s own partisan voting index.

Finally, when re-analyzing Barber’s simulated maps (as provided in his backup data) to compare their expected performance over a range of electoral outcomes rather than comparing the crude number of “lean Democratic districts” for a fixed election average, the differences between the enacted map and Barber’s ensemble of simulated comparison maps becomes more dramatic at the cluster level as well. Through this lens, every cluster which my original analysis found to be optimized for partisanship would qualify as a partisan outlier according to Barber’s “middle 50%” criterion, and many are extreme outliers, among the most Republican biased 10%, 1%, or 0.1% of maps, even in clusters where Barber reported that the enacted map was not be a partisan outlier.

2 Barber finds the enacted House and Senate maps to be outliers according to his own definition

On page 29 of his report, in the section on House clusters, Barber writes that he considers a districting plan of North Carolina to be a partisan outlier if it lies outside of the “middle 50%” of simulation results; in Barber’s report, the middle 50% are the maps that lie between the 25th and 75th percentiles according to

the number of lean-Democrat districts, as measured with the partisan index Barber obtains by averaging election results. He calls this a “conservative definition” of an outlier, noting that “in the social sciences, medicine, and other disciplines it is traditional to consider something an outlier if it falls outside the middle 95% or 90% of the comparison distribution.”

In both of his whole-state analysis tables (Table 2 and 32), Barber’s own findings report the whole map as falling outside the middle 50% of simulated outcomes for the House and Senate. For example, in the last row, labeled “Total”, of Table 2 on page 31, he reports that in the 26 clusters he analyzed, the enacted map contained 45 statewide “lean-Democrat” districts according to his partisan index, while the middle 50% range of the simulated maps for the total number of seats was 46 – 51. Similarly, in Table 32 for the Senate, he reports the enacted map scored as having a total of 16 lean-Democrat seats in the 12 clusters used by the enacted map he analyzed, while the middle 50% range for his middle 50% range for the total number of seats in his simulated maps was 19-19. By the definition he chose to offer of a partisan outlier, Barber finds the enacted House and Senate plans are partisan outliers.

3 Barber reports incorrect quartiles for totals across clusters

Recall that in his Table 2, in the last column, Barber reports the range of the “middle 50%” for the number of lean-Democratic districts for his simulations in each cluster, and, at the bottom of the column, for the total across clusters (he reports the range for this total as 46-51). Recall that the bottom of the middle-50% range is the lower quartile of the data, and the top of the range is the upper quartile.

For example, in the House:

- for the Buncombe cluster in the House map, Barber reports in Figure 45 that 28% of his simulated maps contained 2 lean-Democrat districts, while 72% contained 3.
- for the Cumberland cluster in the House map, Barber reports in Figure 55 that 82% of his simulated maps contained 3 districts, while 18% contained 4.

I summarize this information in my Table 1, below:

Cluster	0	1	2	3	4
Buncombe			28%	72%	
Cumberland				82%	18%

Table 1: Fraction of maps with various lean-Democrat-district counts, as reported by Barber for Buncombe and Cumberland county districtings.

In his Table 2, Barber correctly summarizes the middle 50% ranges for the data in each of these clusters as 2-3 and 3-3, respectively; in each case, the lower end of the range is the smallest value below which 25% of his simulated maps lie, and the upper end is the smallest value below which 75% lie.

Suppose though, just as an example, that we wished to calculate the distribution of the total number of lean-Democrat districts across just these two clusters according the Barber’s simulations; this will also enable us to calculate the middle-50% of outcomes for the total lean-Democrat districts across these two clusters.

Note that for maps of these two clusters composed of maps from Barber’s simulations, a total of 5, 6, or 7 lean-Democrat districts are possible. For example, 5 lean-Democrat districts can arise only by having 2 such districts in Buncombe and 3 in Cumberland, and fewer are not possible.

According to Barber’s simulations, as summarized in Table 1, 28% of the maps of these two clusters would have 2 lean-Democrat districts in Buncombe, while 82% would have 3 lean-Democrat districts in Cumberland. As the districtings in each cluster can be chosen independently of each other, a total of

$$28\% \times 82\% = 22.96\%$$

of districtings of these two counties would have a total of 5 lean-Democrat districts. (Note that having fewer than 5 lean-Democrat seats happens 0% of the time, according to Barber’s simulations.)

6 lean-Democrat districts can arise from having 2 lean-Democrat districts in Buncombe and 4 in Cumberland, or having 3 lean-Democrat districts in Buncombe and 3 in Cumberland. Thus according to Barber’s simulation results the frequency of this outcome would be

$$28\% \times 18\% + 72\% \times 82\% = 64.08\%.$$

Finally, the likelihood of 7 lean-Democrat seats, which arise just when there are 3 lean-Democrat districts in Buncombe and 4 lean-Democrat districts in Cumberland, would be

$$72\% \times 18\% = 12.96\%,$$

(Note that altogether, $22.96\% + 64.08\% + 12.96\% = 100\%$.)

Evidently, the middle-50% range for the total of lean-Democrat seats across these two counties would be 6-6; the 6-lean-Democrat-district maps include the middle-50% of simulated maps. (6 is both the 25th percentile and the 75th percentile of the number of Democratic-lean seats in the simulated maps.)

Under Barber’s incorrect approach, he would have simply added the bottom and top of the middle-50% ranges for Buncombe and Cumberland (2-3 and 3-3, respectively) to arrive at a middle-50% range for the total number of lean-Democrat-districts across these two counties; that procedure would produce a range of 5-6, which is wider than the true middle-50% range of the total number of districts across the two counties (namely 6-6), as correctly calculated above.

In general, the magnitude of this error grows larger and larger the more independent cluster-specific results are aggregated by incorrectly summing the lower and upper quartiles as a substitute for a correct calculation of the distribution of total statewide lean-Democrat districts. In Barber’s report, he aggregates across 26 clusters in this way. As we will see in the next section, this has the effect of inflating the true middle-50% range of 48-50 to an incorrectly reported range of 46-51.

Technical Remark. Probability generating functions can be used to allow larger calculations of the same type as the one above to be performed using publicly web-based computer algebra systems instead of by programming or using statistical software. Note that precisely the same three calculations above would have been performed if expanding the algebraic expression

$$\begin{aligned} (.28x^2 + .72x^3)(.82x^3 + .18x^4) &= (.28 \times .82)x^5 + (.28 \times .18 + .72 \times .82)x^6 + (.72 \times .18)x^7 \\ &= .2296x^5 + .6408x^6 + .1296x^7. \end{aligned}$$

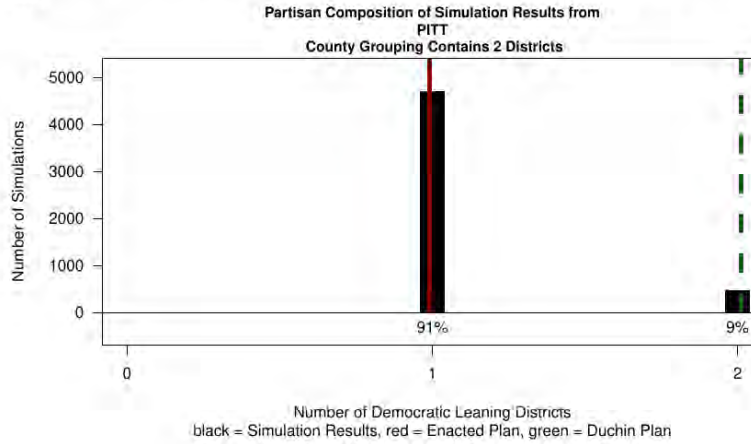
Observe that the polynomial $.28x^2 + .72x^3$ here can be seen as representing the fact that two seats occur in 28% of the maps for Buncombe, while 3 seats occur in 72% of the maps. (Similarly, then, for Cumberland and the polynomial $.82x^3 + .18x^4$.) The same answers that we found above for the fraction of simulated plans with a total of 5, 6, and 7 lean-Democrat districts, respectively, can be read off as the coefficients of x^5 , x^6 , and x^7 , in the resulting expansion.

In the technical remark in the next section, I will point out a similar polynomial expansion which can verify the next section’s calculations using public web applications, making the main findings of this rebuttal report easy to independently verify.

4 Correcting Barber’s calculations

In my Table 2 on page 13 of this rebuttal report, I report the results of Barber’s Figures 11, 14, 17, 20, 25, 28, 31, 34, 37, 45, 48, 51, 55, 58, 61, 64, 67, 70, 73, 76, 79, 82, 85, and 88. Each of these figures reports, for one of the clusters Barber analyzes, the fraction of his simulated maps which achieve different numbers of “lean Democrat” districts according to the partisan index he uses. For example, in Figure 14 on page 44, Barber reports that 91% of his simulated maps had one lean-Democrat district, while the remaining 9% had 2, as seen in this reproduction below:

Figure 14: Distribution of Partisan Districts from Simulations in Pitt House County Cluster



This information is then reproduced in my Table 2 on page 13, as the following row:

Cluster	0	1	2	3	4	5	6	7	8	9	10	11	12
Pitt		91%	9%										

In particular, everything in my Table 2 (and the corresponding Table 3 for the Senate) is taken directly from Barber’s report itself.

The data in Table 2 can then be used to calculate the distribution of the total number of lean-Democrat seats based on Barber’s simulations across the 26 clusters, exactly in the same way as we did above for just 2 clusters from the data in Table 1. The result of the same calculation is the histogram shown in Figure 1. In particular, according to Barber’s own simulated map set, and using his own measure of the number of lean-Democrat districts under his own partisan index, **the enacted House map exhibits more Republican bias than 99.82% of maps** composed of Barber’s simulations, over the clusters Barber analyzes.

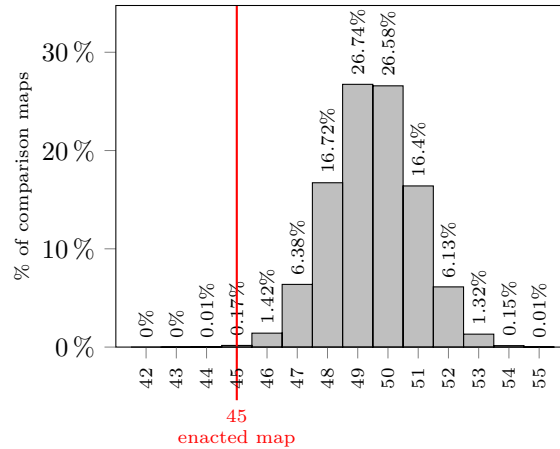


Figure 1: **Total lean-Democrat districts across Barber’s House simulations.** This histogram shows the performance of Barber’s simulated map set across the total set of House clusters Barber analyzes. It uses Barber’s set of simulated maps, Barber’s chosen metric (number of lean Democratic seats), calculated using the partisan metric Barber himself calculates in his report. The range 49-50 contains 50% of the simulated maps, the range 48-51 contains 86% of the simulated maps, and the range 47-52 contains more than 98% of the simulated maps. With 45 lean-Democratic districts across these clusters, the enacted map is in the most Republican-biased 0.18% of Barber’s simulated maps.

In Table 3 I show Barber’s Senate data analogous to the House data I show in Table 2. And in Figure 2, I plot the histogram showing the total of Barber’s metric of Democratic-leaning districts across Barber’s

simulated map set, produced in the same way as I produce Figure 1 for the House. In particular, according to Barber’s own simulated map set, and using his own measure of the number of lean-Democrat districts under his own partisan index, **the enacted Senate map exhibits more Republican bias than 99.61% of maps** over the clusters Barber analyzes.

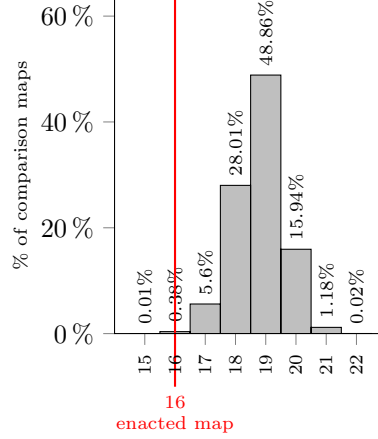


Figure 2: **Total lean-Democrat districts across Barber’s Senate simulations.** This histogram shows the performance of Barber’s simulated map set across the total set of Senate clusters Barber analyzes. It uses Barber’s set of simulated maps, Barber’s chosen metric (number of lean Democratic seats), calculated using the partisan metric Barber himself calculates in his report. The range 18-20 contains 93% of the simulated maps, and the range 17-21 contains more than 99% of the simulated maps. With 16 lean-Democrat districts, the enacted map is among the most Republican 0.39% of maps.

Technical Remark. As noted in the earlier Technical Remark, calculating the results of a histogram like Figure 1 is equivalent to expanding a certain polynomial expression. Based on the data in Table 2, (rows with only zero seats possible can be ignored), the polynomial to be expanded is

$$(.91x + .09x^2)(.44 + .56x)(x^2)(x^2)(x)(.28x^2 + .72x^3)(.82x^3 + .18x^4)(x^4)(x)(.33x^2 + .5x^3 + .17x^4)(.99 + .01x^1) \dots (.18 + .82x)(.01x^4 + .79x^5 + .21x^6)(.01x^{10} + .56x^{11} + .44x^{12})(.02x^{10} + .32x^{11} + .66x^{12})$$

and publicly available tools such as wolframalpha.com can be used to verify that this polynomial expands to

$$5.55283 \times 10^{-7}x^{56} + 0.0000685893x^{55} + 0.00147488x^{54} + 0.0131615x^{53} + 0.0612515x^{52} + 0.163979x^{51} + 0.265839x^{50} + 0.267369x^{49} + 0.167218x^{48} + 0.0637935x^{47} + 0.0141775x^{46} + 0.00167669x^{45} + 0.000089375x^{44} + 1.74341 \times 10^{-6}x^{43} + 1.08123 \times 10^{-8}x^{42}$$

The histogram in Figure 1 can be read off the coefficients in this polynomial. For example, the fact that the coefficient of x^{49} is .267369 corresponds to the fact that Figure 1 reports the fraction of simulated maps with a total of 49 Democrat-leaning districts across the clusters Barber analyzes as 26.74% (rounded to two decimal places).

For the senate, from Table 3, the probability generating function is

$$(.77x + .23x^2)(x^2)(.23 + .77x)(.93x^2 + .06x^3)(.01x^4 + .24x^5 + .75x^6)(.05x^4 + .95x^5)x(.97x + .03x^2),$$

which expands to

$$0.000227131x^{22} + 0.0118152x^{21} + 0.159415x^{20} + 0.488577x^{19} + 0.280141x^{18} + 0.0559707x^{17} + 0.00377389x^{16} + 0.0000807399x^{15} \quad (1)$$

giving the results shown in Figure 2.

5 A more sensitive cluster-by-cluster analysis of Barber’s maps

In the previous section, I showed that even against Barber’s simulated maps, using the partisan index Barber calculates, and using Barber’s preferred metric for partisan bias (the number of lean-Democrat districts using that partisan index), both the enacted House and Senate plans are extreme partisan outliers.

This is true despite the fact that using the number of whole lean-Democrat districts with only a single proxy for partisanship is unlikely to capture the effects even of extreme gerrymandering in North Carolina county clusters, where a small number of seats are at stake in each, and the effects of extreme gerrymandering can be to put one or two seats into play (or take them out of contention), even in cases where districts do not change columns in a single hypothetical election.

In other words, I take Barber’s single partisan index (which has a two-party statewide Democratic vote-share of 49%), and analyze what would happen under his simulations, on average, if you swung the election results so that Democrats did better or worse by a normally-distributed swing matched to past statewide North Carolina elections. This is the same metric I used in my initial report.

In this section, I re-analyze Barber’s results, still using his simulated maps, and still using his partisan index, but comparing maps in each cluster using the seats-expected metric (calculated with respect to that index), which evaluates how a map would be expected to perform under a range of conditions rather than one fixed hypothetical election.

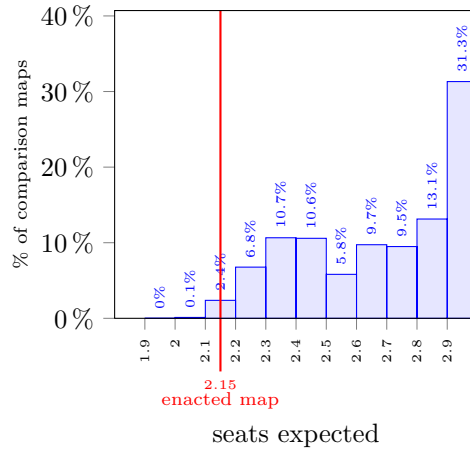
Below, I conduct this analysis for every county cluster I analyzed in my original expert report. In every cluster for which my analysis found the enacted map to be among the most optimized-for-partisanship possible maps (the first six House analyzed in the subsections below, and every Senate cluster analyzed below), Barber finds the map to be a partisan outlier according to the “middle-50%” definition he uses in his report. I summarize the outlier status of these 6+5 House and Senate clusters according to Barber’s simulations in the following table:

Cluster	Enacted map among most Republican-biased...
House: Buncombe	00.797%
House: Forsyth-Stokes	00.0805%
House: Guilford	00.00646%
House: Mecklenburg	04.43%
House: Wake	05.78%
House: Pitt	24.2%
Senate: Cumberland-Moore	00.0024%
Senate: Forsyth-Stokes	00.01%
Senate: Granville-Wake	00.035%
Senate: Guilford-Rockingham	00.25%
Senate: Iredell-Mecklenburg	00.1%
... against Barber’s simulations.	

Among the four remaining clusters in my report, there are two where the enacted maps are nevertheless extreme outliers against Barber’s simulation sets. I summarize the results for these four clusters in the following table:

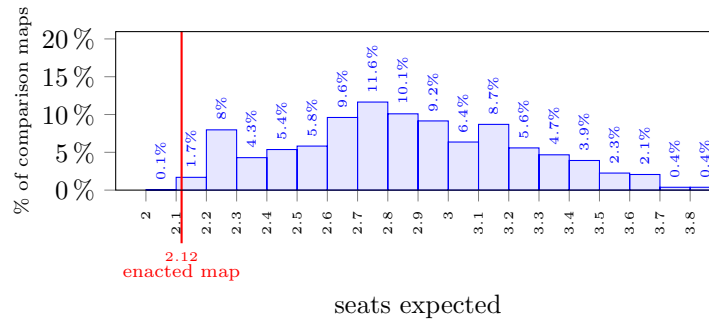
Cluster	Enacted map among most Republican-biased...
House: Alamance	39.4%
House: Brunswick-New Hanover	73.9%
House: Durham-Person	00.00265%
House: Cabarrus-Davie-Rowan-Yadkin	00.352%
... against Barber’s simulations.	

5.1 House: Buncombe



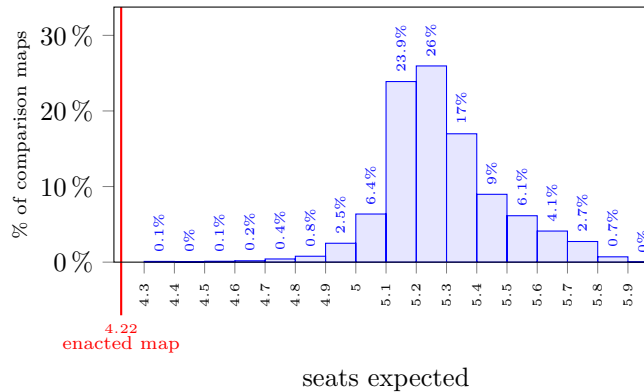
Against the comparison-set of Barber’s simulated maps for this cluster, the enacted map in this cluster is among the most Republican-biased 0.797% of maps.

5.2 House: Forsyth-Stokes



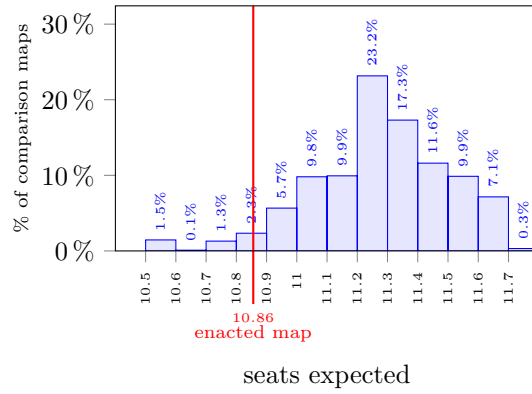
Against the comparison-set of Barber’s simulated maps for this cluster, the enacted map in this cluster is among the most Republican-biased 0.0805% of maps.

5.3 House: Guilford



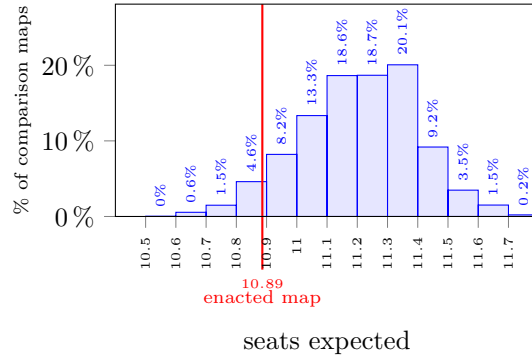
Against the comparison-set of Barber’s simulated maps for this cluster, the enacted map in this cluster is among the most Republican-biased 0.00646% of maps.

5.4 House: Mecklenburg



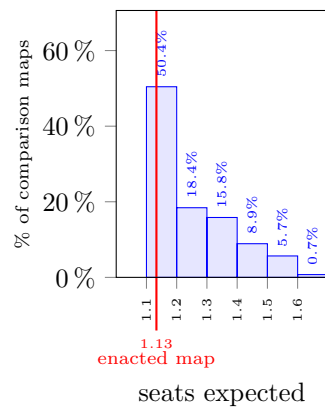
Against the comparison-set of Barber’s simulated maps for this cluster, the enacted map in this cluster is among the most Republican-biased 4.43% of maps.

5.5 House: Wake



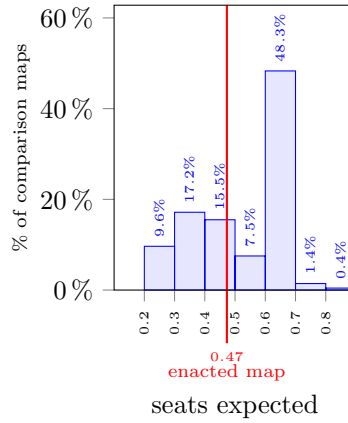
Against the comparison-set of Barber’s simulated maps for this cluster, the enacted map in this cluster is among the most Republican-biased 5.78% of maps.

5.6 House: Pitt



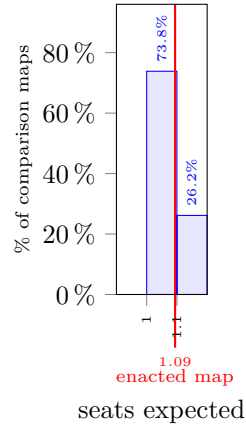
Against the comparison-set of Barber’s simulated maps for this cluster, the enacted map in this cluster is among the most Republican-biased 24.2% of maps.

5.7 House: Alamance



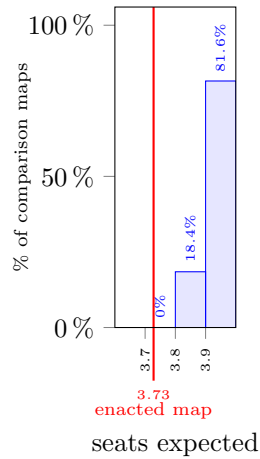
Against the comparison-set of Barber’s simulated maps for this cluster, the enacted map is not an outlier.

5.8 House: Brunswick-New Hanover



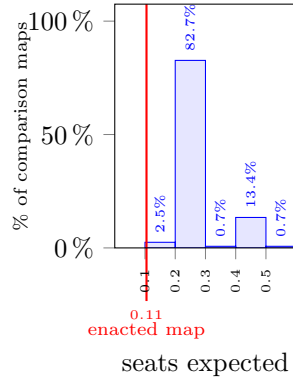
Against the comparison-set of Barber’s simulated maps for this cluster, the enacted map is not an outlier.

5.9 House: Durham-Person



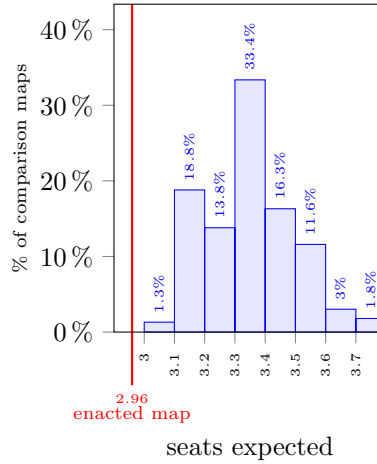
Against the comparison-set of Barber’s simulated maps for this cluster, the enacted map in this cluster is among the most Republican-biased 0.00265% of maps.

5.10 House: Cabarrus-Davie-Rowan-Yadkin



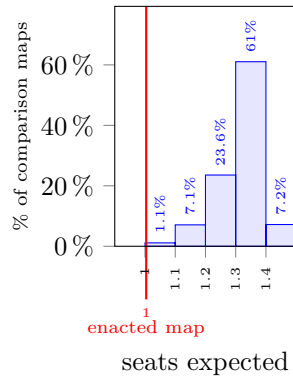
Against the comparison-set of Barber’s simulated maps for this cluster, the enacted map in this cluster is among the most Republican-biased 0.352% of maps.

5.11 House: Cumberland



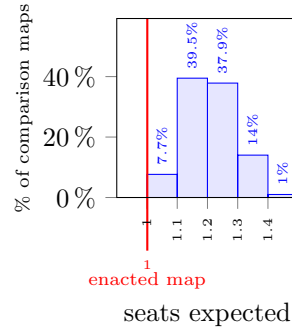
Against the comparison-set of Barber’s simulated maps for this cluster, the enacted map in this cluster is among the most Republican-biased 0.0095% of maps.

5.12 Senate: Cumberland-Moore



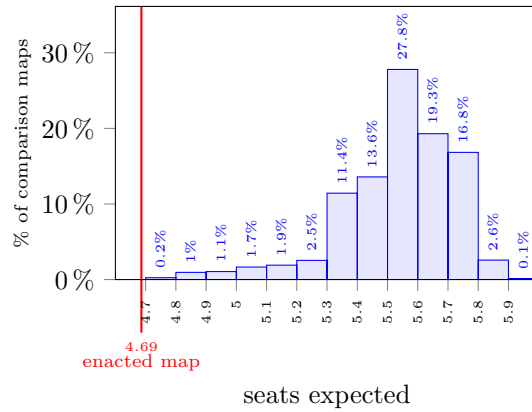
Against the comparison-set of Barber’s simulated maps for this cluster, the enacted map in this cluster is among the most Republican-biased 0.00235% of maps.

5.13 Senate: Forsyth-Stokes



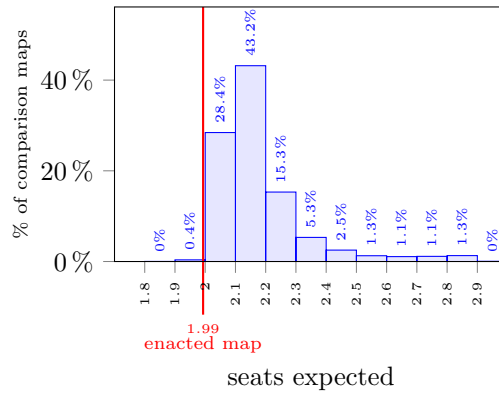
Against the comparison-set of Barber’s simulated maps for this cluster, the enacted map in this cluster is among the most Republican-biased 0.0104% of maps.

5.14 Senate: Granville-Wake



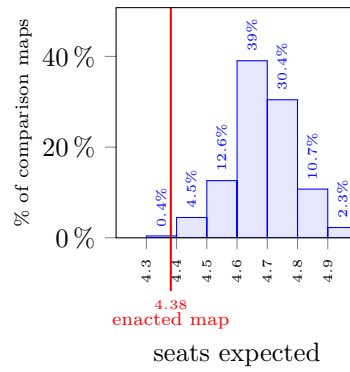
Against the comparison-set of Barber’s simulated maps for this cluster, the enacted map in this cluster is among the most Republican-biased 0.0353% of maps.

5.15 Senate: Guilford-Rockingham



Against the comparison-set of Barber’s simulated maps for this cluster, the enacted map in this cluster is among the most Republican-biased 0.251% of maps.

5.16 Senate: Iredell-Mecklenburg



Against the comparison-set of Barber’s simulated maps for this cluster, the enacted map in this cluster is among the most Republican-biased 0.104% of maps.

Cluster	0	1	2	3	4	5	6	7	8	9	10	11	12
Davidson	100%												
Pitt		91%	9%										
Alamance	44%	56%											
Columbus-Robeson	100%												
Carteret-Craven													
Duplin-Wayne	100%												
Nash-Wilson			100%										
Caswell-Orange			100%										
Alexander-Surry-Wilkes	100%												
Franklin-Granville-Vance		100%											
Alleghany- <i>etc</i>	100%												
Beaufort- <i>etc</i>	100%												
Buncombe			28%	72%									
Anson-Union	100%												
Onslow-Pender	100%												
Cumberland				82%	18%								
Harnett-Johnston	100%												
Catawba-Iredell	100%												
Durham-Person					100%								
Brunswick-New Hanover		100%											
Forsyth-Stokes			33%	50%	17%								
Cabarrus- <i>etc</i>	99%	1%											
Chatham- <i>etc</i>	18%	82%											
Guilford					1%	79%	21%						
Avery- <i>etc</i>	100%												
Mecklenburg											1%	56%	44%
Wake											2%	32%	66%

Table 2: This table collects in one place the fraction of maps in Barber’s House simulation sets realizing each number of lean-Democratic seats, as reported by Barber in his Figures 11, 14, 17, 20, 25, 28, 31, 34, 37, 45, 48, 51, 55, 58, 61, 64, 67, 70, 73, 76, 79, 82, 85, and 88. He does not present figures for the clusters in Alleghany-Ashe-Caldwell-Watauga and Beaufort-Chowan-Currituck-Dare-Hyde-Pamlico-Perquimans-Tyrrell-Washington clusters because his 0-Democratic-district results for those clusters are based on a very small number of maps. For Carteret-Craven his method does not produce any maps.

Cluster	0	1	2	3	4	5	6
Cumberland-Moore		77%	23%				
Chatham-Durham			100%				
Alleghany- <i>etc</i>	100%						
Brunswick-Columbus-New Hanover	23%	77%					
Bladen- <i>etc</i>	100%						
Guilford-Rockingham			94%	6%			
Alamance- <i>etc</i>	100%						
Granville-Wake					1%	24%	75%
Iredell-Mecklenburg					5%	95%	
Buncombe-Burke-McDowell		100%					
Cleveland-Gaston-Lincoln	100%						
Forsyth-Stokes		97%	3%				

Table 3: This table collects in one place the fraction of maps in Barber’s Senate simulation sets realizing each number of lean-Democratic seats, as reported by Barber in his Figures 95, 98, 103, 106, 110, 113, 117, 120, 123, 128. He does not present figures for the Bladen-Duplin-Harnett-Jones-Lee-Pender-Sampson and Cleveland-Gaston-Lincoln clusters because his 0-district results for these clusters are based on a small number of maps.

I hereby certify that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

A handwritten signature in black ink, appearing to read 'Wesley Pegden', written in a cursive style.

Wesley Pegden
12/28/2021

STATE OF NORTH CAROLINA

COUNTY OF WAKE

NORTH CAROLINA LEAGUE OF
CONSERVATION VOTERS, et al.,

REBECCA HARPER, et al.,

Plaintiffs,

vs.

REPRESENTATIVE DESTIN HALL, in his
official capacity as Chair of the House
Standing Committee on Redistricting, et al.,

Defendants.

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION

21 CVS 015426

Consolidated with
21 CVS 500085

AFFIDAVIT OF MICHAEL BARBER

Now comes affiant Michael Barber, having been first duly cautioned and sworn, deposes
and states as follows:

1. I am over the age of 18 and am competent to testify regarding the matters
discussed below.
2. For the purposes of this litigation, I have been asked by counsel for Legislative
Defendants to analyze relevant data and provide my expert opinions.
3. To that end, I have personally prepared the report attached to this affidavit as
Exhibit A, and swear to its authenticity and to the faithfulness of the opinions.

FURTHER THE AFFIANT SAYETH NAUGHT.

NCLCV v. Hall

21 CVS 15426

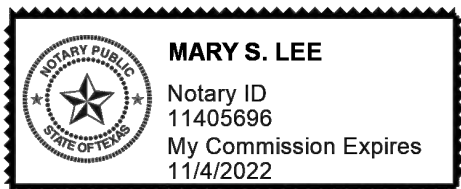
LDTX107

Executed on 22 December, 2021

DocuSigned by:
Michael Barber
82F8BEB03413425...

Michael Barber

Sworn or affirmed before me and subscribed in the presence the 22nd day of December, 2021, in
the State of Texas and County of Harris.



DocuSigned by:
Mary S. Lee
2FAD7787555D439...

Notary Public

Exhibit A:
Expert Report of Michael Barber, PhD

Dr. Michael Barber
Brigham Young University
724 Spencer W. Kimball Tower
Provo, UT 84604
barber@byu.edu

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1 Introduction and Qualifications

I have been asked by counsel for the Legislative Defendants to analyze North Carolina’s recently enacted redistricting plans for the General Assembly (the “Enacted Plans”) and the plans submitted by the North Carolina League of Conservation Voters (the “Duchin Plans”) in the context of the partisan gerrymandering claims brought against the Legislative Defendants.¹ To do this, I implement a publicly available and peer-reviewed redistricting simulation algorithm to generate 50,000 simulated district maps in each county grouping in which there are multiple districts in both the North Carolina House of Representatives and the North Carolina Senate. The redistricting algorithm generates a representative sample of districts by following neutral redistricting criteria without regard to racial or partisan data. In this way, the simulated districts establish a comparison set of plans that use purely non-partisan redistricting inputs. I then compare the simulated plans against the Enacted Plans and the Duchin Plans by reference to election results to assess whether the partisan effects of those plans are consistent with what one would expect to see in a redistricting plan composed without reference to any partisan considerations.

In the House, these simulations show that the Enacted Plans consistently score more often within the range of the non-partisan simulated maps than the Duchin Plans. In addition, the simulations show that the Enacted Plans contain one county grouping, the Guilford County grouping in the House of Representative, that is a partisan outlier. However, this grouping largely follows the boundaries of a 2019 court-approved district plan. In contrast, the Duchin Plans generate partisan outliers in four county groupings.

In the Senate analysis both the Enacted and Duchin plans generate partisan outliers when compared to the simulated district maps in two clusters each. Furthermore, neutral redistricting criteria such as following municipal lines support the decisions by the map drawers in the Enacted Plan in more districts, while in these same districts the Duchin Plan divides Democratic-leaning municipalities into more pieces in order to combine Democratic-

¹These plans were attached to the NCLCV complaint, filed on November 16, 2021.

leaning voters in cities with Republican voters in suburban and rural parts of North Carolina to create additional competitive or Democratic-leaning districts. Given these results, as well as the otherwise high degree of agreement between the Enacted and Duchin maps, it is my opinion that the Enacted Maps are not “extreme partisan gerrymanders” as plaintiffs allege.

I am an associate professor of political science at Brigham Young University and faculty fellow at the Center for the Study of Elections and Democracy in Provo, Utah. I received my PhD in political science from Princeton University in 2014 with emphases in American politics and quantitative methods/statistical analyses. My dissertation was awarded the 2014 Carl Albert Award for best dissertation in the area of American Politics by the American Political Science Association.

I teach a number of undergraduate courses in American politics and quantitative research methods.² These include classes about political representation, Congressional elections, statistical methods, and research design.

I have worked as an expert witness in a number of cases in which I have been asked to analyze and evaluate various political and elections-related data and statistical methods. Cases in which I have testified at trial or by deposition are listed in my CV, which is attached to the end of this report. I have previously provided expert reports in a number of cases related to voting, redistricting, and election-related issues: *Nancy Carola Jacobson, et al., Plaintiffs, vs. Laurel M. Lee, et al., Defendants. Case No. 4:18-cv-00262 MW-CAS (U.S. District Court for the Northern District of Florida); Common Cause, et al., Plaintiffs, vs. Lewis, et al., Defendants. Case No. 18-CVS-14001 (Wake County, North Carolina); Kelvin Jones, et al., Plaintiffs, v. Ron DeSantis, et al., Defendants, Consolidated Case No. 4:19-cv-300 (U.S. District Court for the Northern District of Florida); Community Success Initiative, et al., Plaintiffs, v. Timothy K. Moore, et al., Defendants, Case No. 19-cv-15941 (Wake County, North Carolina); Richard Rose et al., Plaintiffs, v. Brad Raffensperger, Defendant, Civil Action No. 1:20-cv-02921-SDG (U.S. District Court for the Northern Dis-*

²The political science department at Brigham Young University does not offer any graduate degrees.

trict of Georgia); *Georgia Coalition for the People’s Agenda, Inc., et. al., Plaintiffs, v. Brad Raffensberger, Defendant. Civil Action No. 1:18-cv-04727-ELR (U.S. District Court for the Northern District of Georgia)*; *Alabama, et al., Plaintiffs, v. United States Department of Commerce; Gina Raimondo, et al., Defendants. Case No. CASE NO. 3:21-cv-00211-RAH-ECM-KCN (U.S. District Court for the Middle District of Alabama Eastern Division)*; *League of Women Voters of Ohio, et al., Relators, v. Ohio Redistricting Commission, et al., Respondents. Case No. 2021-1193 (Supreme Court of Ohio)*.

In my position as a professor of political science, I have conducted research on a variety of election- and voting-related topics in American politics and public opinion. Much of my research uses advanced statistical methods for the analysis of quantitative data. I have worked on a number of research projects that use “big data” that include millions of observations, including a number of state voter files, campaign contribution lists, and data from the US Census. I have also used geographic information systems and other mapping techniques in my work with political data.

Much of this research has been published in peer-reviewed journals. I have published nearly 20 peer-reviewed articles, including in our discipline’s flagship journal, *The American Political Science Review* as well as the inter-disciplinary journal, *Science Advances*. My CV, which details my complete publication record, is attached to this report as Appendix A.

The analysis and opinions I provide in this report are consistent with my education, training in statistical analysis, and knowledge of the relevant academic literature. These skills are well-suited for this type of analysis in political science and quantitative analysis more generally. My conclusions stated herein are based upon my review of the information available to me at this time. I reserve the right to alter, amend, or supplement these conclusions based upon further study or based upon the availability of additional information. I am being compensated for my time in preparing this report at an hourly rate of \$400/hour. My compensation is in no way contingent on the conclusions reached as a result of my analysis. The opinions in this report are my own, and do not represent the view of Brigham Young

University.

2 Summary of Conclusions

Based on the evidence and analysis presented below, my opinions regarding the 2021 enacted redistricting plans in the North Carolina General Assembly can be summarized as follows:

- The contemporary political geography of North Carolina is such that Democratic majorities are often geographically clustered in the largest cities of the state while Republican voters often dominate the suburban and rural portions of the state.
- This is not the case in the rural northeastern region of the state, where there are also significant Democratic majorities.
- This geographic clustering in cities and in the rural northeast puts the Democratic Party at a natural disadvantage when single-member districts are drawn.
- This is further amplified by the ‘county grouping’ process that is unique to North Carolina’s redistricting process where districts are constrained to remain within county groups.
- This disadvantage partially arises from the difficulty, and in many cases impossibility, of drawing Democratic-leaning districts in many of the county groupings that comply with constitutional requirements, even though Democratic voters make up roughly 40% of voters in these parts of the state.
- Based on a comparison between the Enacted Plan, the Duchin Plan, and a set of 50,000 simulated maps, the Enacted Plan is less of a partisan outlier than the Duchin Plan in the State House. In 39 of the 40 clusters the Enacted Plan is not a partisan outlier in

comparison to the simulation results. In 36 of the 40 clusters the Duchin Plan is not a partisan outlier in comparison to the simulation results.

- In the Senate analysis both the Enacted and Duchin plans generate partisan outliers when compared to the simulated district maps in two clusters each.
- Areas of disagreement between proposed plans often arise because the Duchin plan divides Democratic leaning municipalities into more pieces in order to combine Democratic-leaning voters with Republican voters in suburban and rural parts of the state to create additional competitive or Democratic leaning districts.
- Given these results, as well as the otherwise high degree of agreement between the Enacted and Duchin maps, it is my opinion that the Enacted Maps are not “extreme partisan gerrymanders” as plaintiffs allege.

3 Political Geography of North Carolina

For the last several decades, North Carolina has been relatively competitive in statewide elections. Democratic and Republican candidates have won the state at the presidential, gubernatorial, congressional, and state level. Figure 1 below shows the results of the average of all statewide elections in North Carolina from 2000 through 2020. These races include: president, US Senate, governor, lieutenant governor, attorney general, secretary of state, state auditor, treasurer, superintendent, commissioner of agriculture, commissioner of labor, insurance commissioner, and partisan judicial elections in 2018.³ While not all races are up for election in each year, I create the index by averaging the two-party vote share of those races that occurred in each two-year cycle. State-level races in North Carolina occur in presidential election years while US senate races occur every six years. There were no statewide partisan races in 2006. As can be seen in the figure, the statewide Democratic margin in North Carolina peaked in 2008 at 55% of the two-party vote and reached its nadir in 2010 with 44% of the vote.

The relative stability of the statewide results over the last 10 years masks a dramatic variation in the spatial location of Democratic and Republican voters within the state. The following section details this and shows in a variety of different ways that Democratic voters are more likely to be spatially clustered in the state while Republican voters tend to live in more politically diverse areas.

Scholarship in political science has noted that the spatial distribution of voters throughout a state can have an impact on the partisan outcomes of elections when a state is, by necessity, divided into a number of legislative districts. This is largely the case because Democratic-leaning voters tend to cluster in dense, urban areas while Republican-leaning voters tend to be more equally distributed across the remainder of the state.⁴ One prominent

³To create the index I sum by party all votes cast for each candidate in each race by year. I then take the fraction of votes cast for candidates of the two major parties that were cast for Democratic candidates in that year. There are other possible measures and methods one could use, such as considering candidate percentages before averaging or including third party voters.

⁴See for example Stephanopoulos, N. O. and McGhee, E. M., Partisan Gerrymandering and the Efficiency

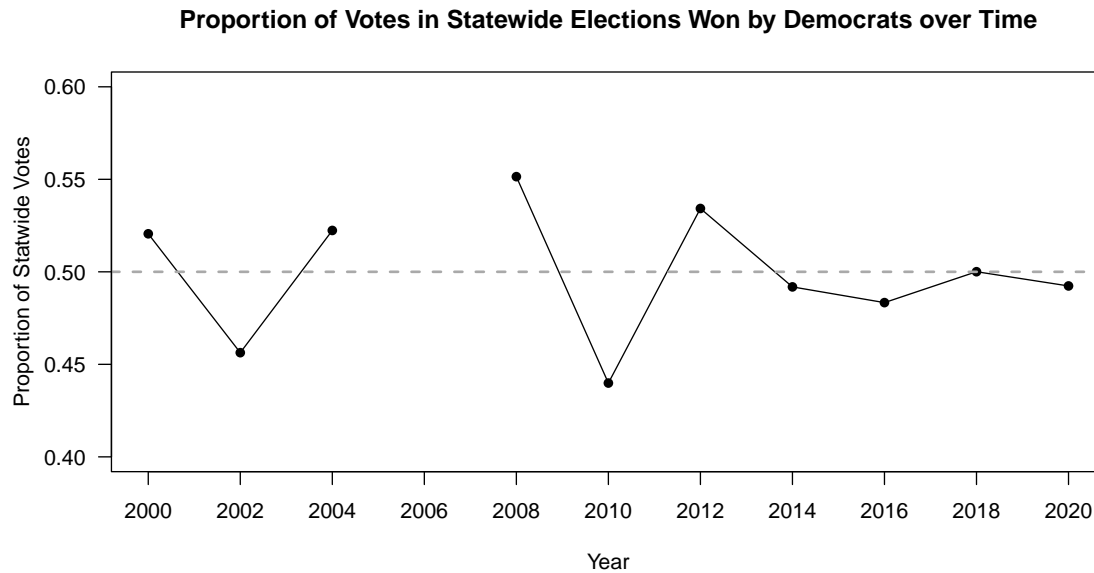


Figure 1: **Democratic Proportion of Statewide Election Contests, 2000-2020**

study of the topic (Chen and Rodden, 2013) finds that “Democrats are highly clustered in dense central city areas, while Republicans are scattered more evenly through the suburban, exurban, and rural periphery...Precincts in which Democrats typically form majorities tend to be more homogenous and extreme than Republican-leaning precincts. When these Democratic precincts are combined with neighboring precincts to form legislative districts, the nearest neighbors of extremely Democratic precincts are more likely to be similarly extreme than is true for Republican precincts. As a result, when districting plans are completed, Democrats tend to be inefficiently packed into homogenous districts.”⁵

The upshot of this pattern is that political parties stand at a disadvantage when their voters are not “efficiently” distributed across the state. To understand what I mean

Gap, *The University of Chicago Law Review* 82: 831-900, (2015); Chen, J. and Rodden, J., Unintentional Gerrymandering: Political Geography and Electoral Bias in Legislatures, *Quarterly Journal of Political Science* 8: 239-269, (2013); Nall, C., The Political Consequences of Spatial Policies: How Interstate Highways Facilitated Geographic Polarization, *Journal of Politics*, 77(2): 394-406, (2015); Gimple, J. and Hui, I., . Seeking politically compatible neighbors? The role of neighborhood partisan composition in residential sorting, *Political Geography* 48: 130-142 (2015); Bishop, B., *The Big Sort: Why the Clustering of Like-Minded America is Tearing Us Apart*, Houghton Mifflin Press (2008); and Jacobson, G. C., and Carson, J. L., *The Politics of Congressional Elections*, 9th ed. Lanham, MD: Rowman and Littlefield (2016).

⁵Chen, J. and Rodden, J., Unintentional Gerrymandering: Political Geography and Electoral Bias in Legislatures, *Quarterly Journal of Political Science* 8: 239-269, (2013)

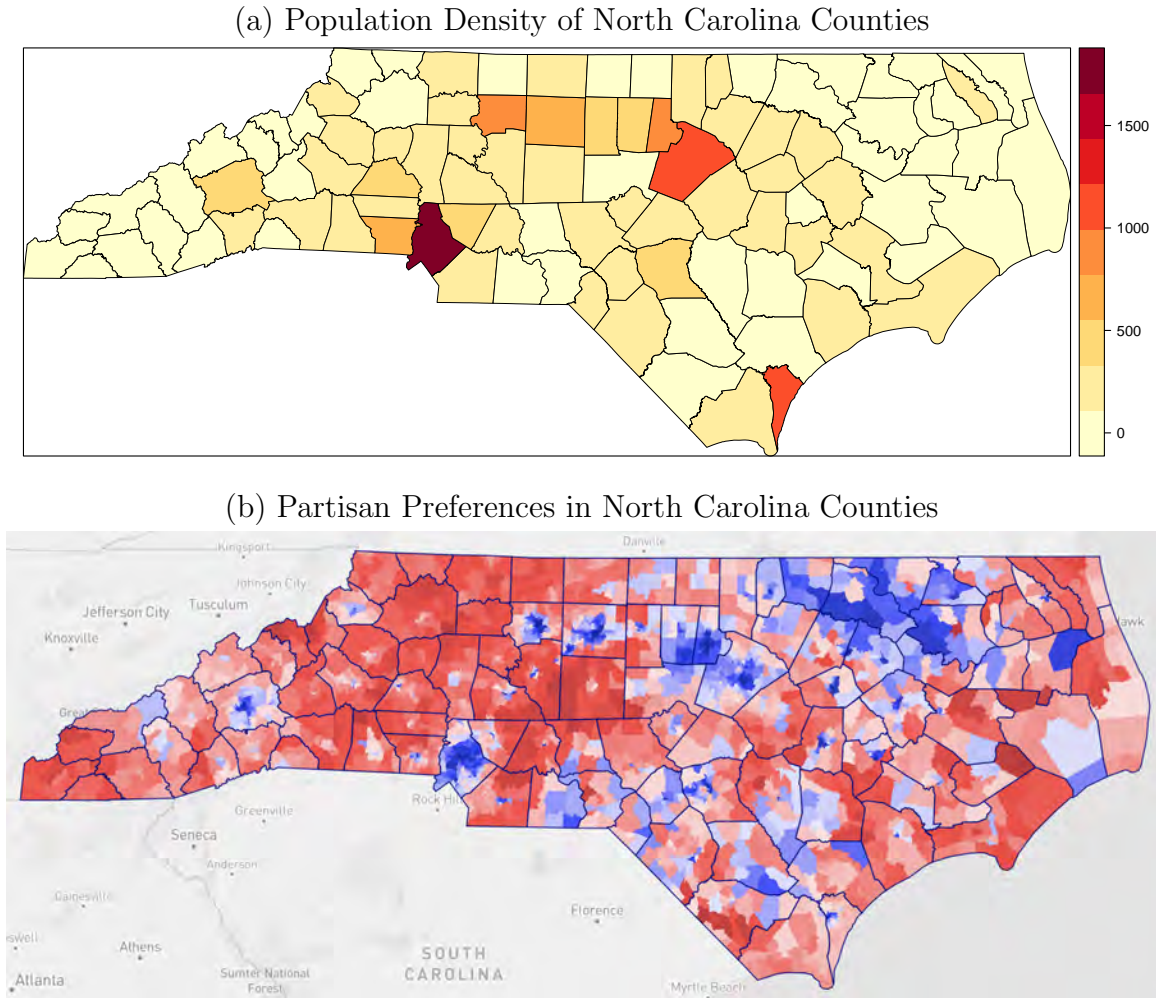
by efficient, imagine two different scenarios. First, imagine a party with a slim majority of voters statewide in which every precinct’s vote share perfectly reflected the overall state. In other words, the party has a slight majority in every precinct that adds up to a slight majority statewide. In this case, this party’s voters are extremely efficiently distributed in such a way that the party will win every single district despite only a slim majority statewide. Now imagine a different arrangement, a party who still holds a slim majority statewide, but whose voters are heavily concentrated in a few areas and sparsely populated throughout the rest of the state. In this case, despite holding a majority of votes statewide, the party will only win a few seats where their voters are heavily concentrated. The political geography of North Carolina more closely resembles the second scenario.

Figure 2 shows two maps of North Carolina. The top map shows the population density across counties. The bottom map shows the distribution of partisan preference across the state. Comparing the two shows that the most dense and urban counties (Wake, Mecklenburg, Durham, Guilford, Forsyth, New Hanover) in the state tend to also be where we see clusters of Blue on the bottom map.

North Carolina adds an additional wrinkle to this trend that also works to create heavily Democratic state legislative districts. Figure 2 shows that the rural counties of north eastern North Carolina are strongly Democratic.⁶ This further works to facilitate the creation of strongly Democratic state legislative districts because each of these rural counties, and sometimes in combination with other adjacent rural counties, can form a legislative district. This is because the state constitution again emphasizes that counties be kept together when drawing district boundaries, and when grouping counties to collect a sufficient number of people, the minimum grouping of contiguous counties should be used. Because these rural counties all share the common feature of being strongly Democratic, any grouping of these counties together will further generate legislative districts with large majorities in support of Democratic candidates.

⁶This would include Vance, Warren, Halifax, Northampton, Hertford, Bertie, and Edgecomb counties.

Figure 2: **Distribution of People and Partisan Preferences in North Carolina.**



Thus, the geographic concentration of a party's voters tends to harm that party when single-member districts are drawn by creating districts that favor that party by very large majorities, thus 'wasting' many votes in running up large majorities far beyond 50%+1.⁷ This occurs in North Carolina in the urban counties of the state as well as the northeastern counties of the state where there are also sizeable Democratic majorities. Importantly, the discussion is not about *where* Democratic voters are heavily clustered together, but simply that they are. It is less important if this clustering takes place in large urban cities or in

⁷McGhee, E. (2017). Measuring Efficiency in Redistricting. Election Law Journal: Rules, Politics, and Policy, 16(4), 417–442. doi:10.1089/elj.2017.0453

rural portions of the state. The overwhelming margins for the party are what drives ‘wasted votes,’ which, in turn translate to fewer seats than the statewide proportion of the vote would suggest.

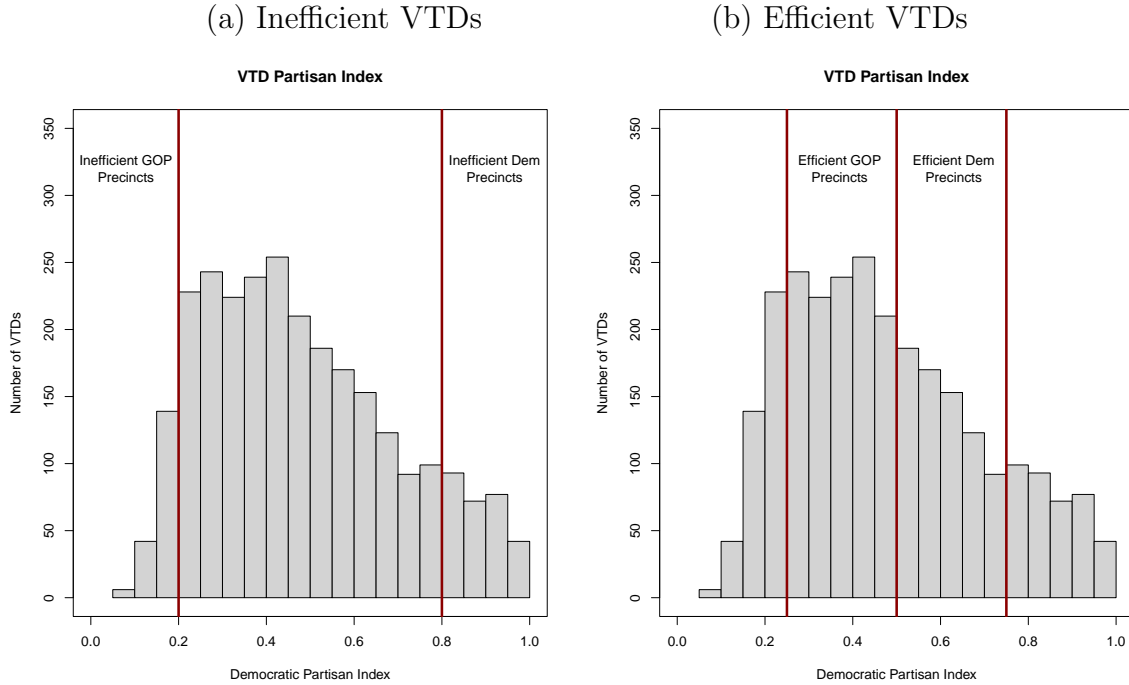
Another way to consider this is to look at a lower level of geography, the Voter Tabulation District (VTD), which is similar to a precinct. Figure 3 shows the distribution of partisan preferences for 11 statewide partisan elections for all VTDs in North Carolina.⁸ The left panel notes VTDs where there are strong majorities for either party and labels them as “inefficient” VTDs. They are inefficient based on the discussion above that a party wastes votes if it builds majorities far beyond the needed 50%+1. Note that the distribution is not symmetric and that there are more VTDs with very large democratic majorities than there are VTDs with equally large Democratic majorities. The right panel shows the same distribution by labels “efficient” VTDs — those where a party has a majority, but not an overwhelming majority. Note here that there are many more VTDs with efficient Republican majorities than there are VTDs with efficient Democratic majorities.

This inefficient distribution of votes would not be a problem for Democrats if districts were able to amble about the state so as to create districts that had less overwhelming Democratic support. Rodden (2019) notes this by saying: “Democrats would need a redistricting process that intentionally carved up large cities like pizza slices or spokes of a wheel, so as to combine some very Democratic urban neighborhoods with some republican exurbs in an effort to spread Democrats more efficiently across districts (pg. 155).⁹” Alternatively, as districts get larger in size (i.e. congressional districts) “Democratic communities can easily string together and overwhelm the surrounding rural Republicans (pg. 149).” However, the laws governing redistricting in North Carolina run counter to either of these strategies.

⁸I use these elections because they were the most comprehensive set of statewide elections I could obtain, given the tight time constraints, that were aggregated and matched to the level of the VTD. The elections are 2020: President, Senate, Governor, Lieutenant Governor, Attorney General; 2016: President, Senate, Governor, Lieutenant Governor, Attorney General; 2014: Senate.

⁹Rodden, Jonathan A. *Why cities lose: The deep roots of the urban-rural political divide*. Hachette UK, 2019.. While Rodden is specifically discussing Pennsylvania in this quote, the statement is true of any location with Democrats clustered in urban areas.

Figure 3: **Distribution of Votes Across VTDs in North Carolina.**



Note: Partisan Index based on the average of 11 statewide partisan races between 2014-2020.

North Carolina’s strict rules that require districts to remain within pre-determined county clusters prohibit the type of meandering districts that Rodden describes above. Furthermore, additional restrictions requiring geographic compactness and minimizing the splitting of municipalities further eliminates the possibility of taking the strategy described above. In the end, this means that Republicans begin the redistricting process with a natural advantage due to the combination of laws requiring where and how districts are drawn combined with the particular spatial distribution of their voters. Thus, as I will show below, the advantage we observe between the expected Republican seat share in the state legislature compared to the statewide Republican vote share in the recent past is more due to geography than partisan activity by Republican map drawers.¹⁰

¹⁰Rodden (2019) notes regarding North Carolina, “Due to the presence of a sprawling knowledge-economy corridor, a series of smaller automobile cities with relatively low partisan gradients, and the distribution of rural African Americans, Democrats are relatively efficiently distributed in North Carolina at the scale of congressional districts (pg. 173).” It is important to note that this statement is not true for state legislative districts, which contain much smaller populations than congressional districts (and thus often cannot span

To measure the expected seat share in the state House and Senate, I compute a partisan index of statewide elections for 11 statewide partisan elections between 2014-2020.¹¹

Figure 4 shows this for the 120 House seats. Districts are ordered from least Democratic at the bottom to most Democratic at the top. Districts with a partisan index less than 0.50 (i.e. Republican leaning) are shown as squares and districts with a partisan index greater than 0.50 (i.e. Democratic leaning) are displayed as triangles. In the House there are 71 districts with an index less than 0.50 (shown as squares) and 49 districts with an index greater than 0.50 (shown as triangles). A vertical dashed line is placed at 0.50 in each panel for reference. The grey lines around each point show the range of election outcomes for all of the 11 statewide elections used to generate the index. Districts in which the Republican candidate for statewide elections won the majority of the two-party vote share in all 11 races are colored red while districts where the Democratic candidate for statewide elections won the majority of the two-party vote share in all 11 races are colored blue. Districts where both parties have won a majority of the two-party vote share in these 11 races are colored green. Looking at the range across the index, there are 60 districts colored red (reliably Republican) in the House figure, 40 blue districts (reliable Democratic), and 20 green districts (competitive) in the House map. Using an alternative definition of competitiveness based on the closeness of the index to 0.50, there are 57 districts with an index less than 0.45, 24 districts between 0.45 and 0.55 (a commonly used range to define competitive seats), and 39 districts with an index of greater than 0.55.

Using the same method for the Senate, there are 30 squares (i.e. Republican leaning districts) and 20 triangles in the figure (i.e. Democratic leaning districts). Using the color scheme described above, there are 26 red districts (reliably Republican), 17 blue districts (reliable Democratic), and 7 green districts in the Senate map (competitive). Using an alternative definition of competitiveness based on the closeness of the index to 0.50, there

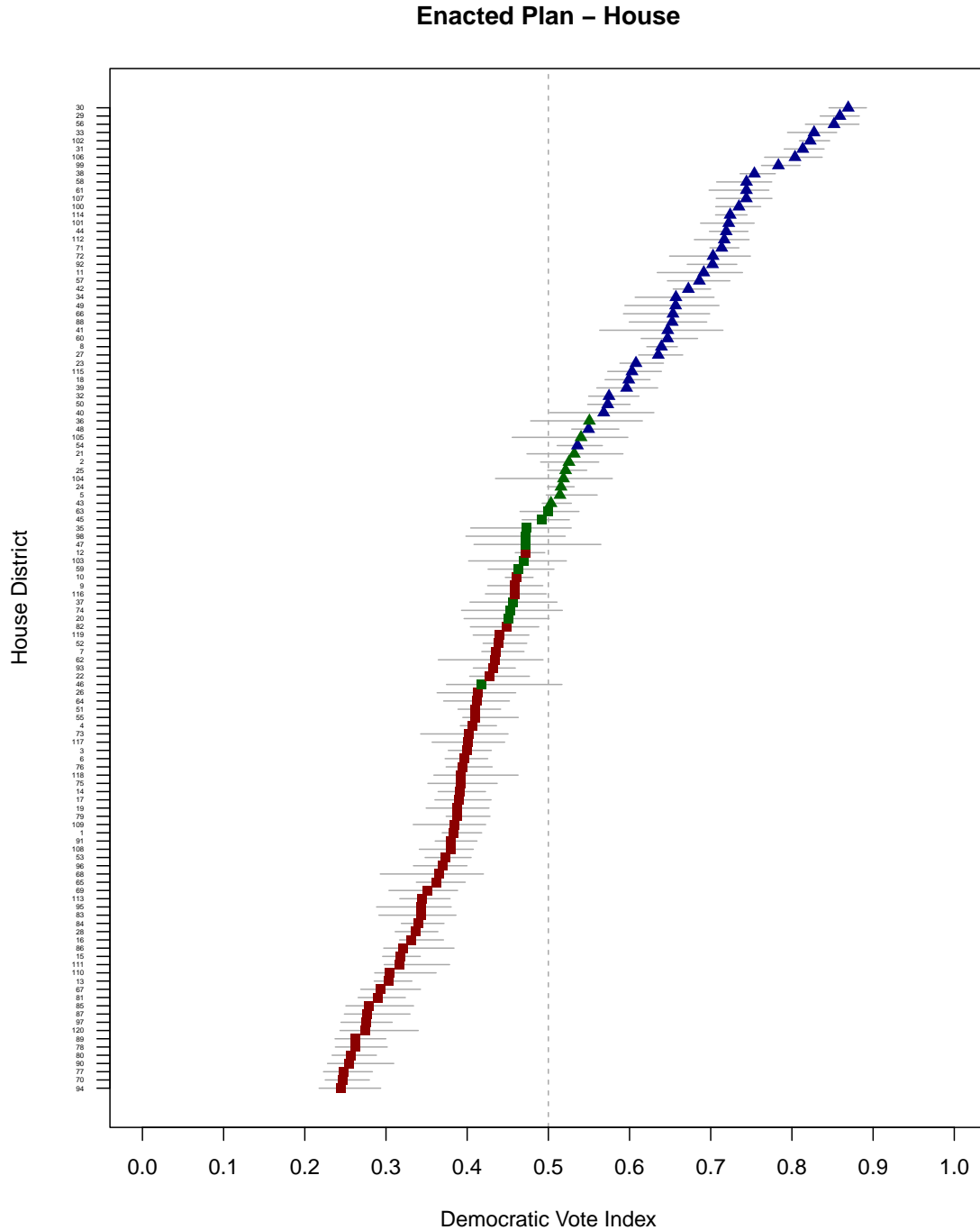
across multiple cities) and are much more constrained to remain within the county clusters, unlike the congressional district maps.

¹¹The elections are 2020: President, Senate, Governor, Lieutenant Governor, Attorney General; 2016: President, Senate, Governor, Lieutenant Governor, Attorney General; 2014: Senate

are 24 districts with an index less than 0.45, 17 districts between 0.45 and 0.55, and 9 districts with an index of greater than 0.55. Figure 5 shows this for the 50 Senate seats.

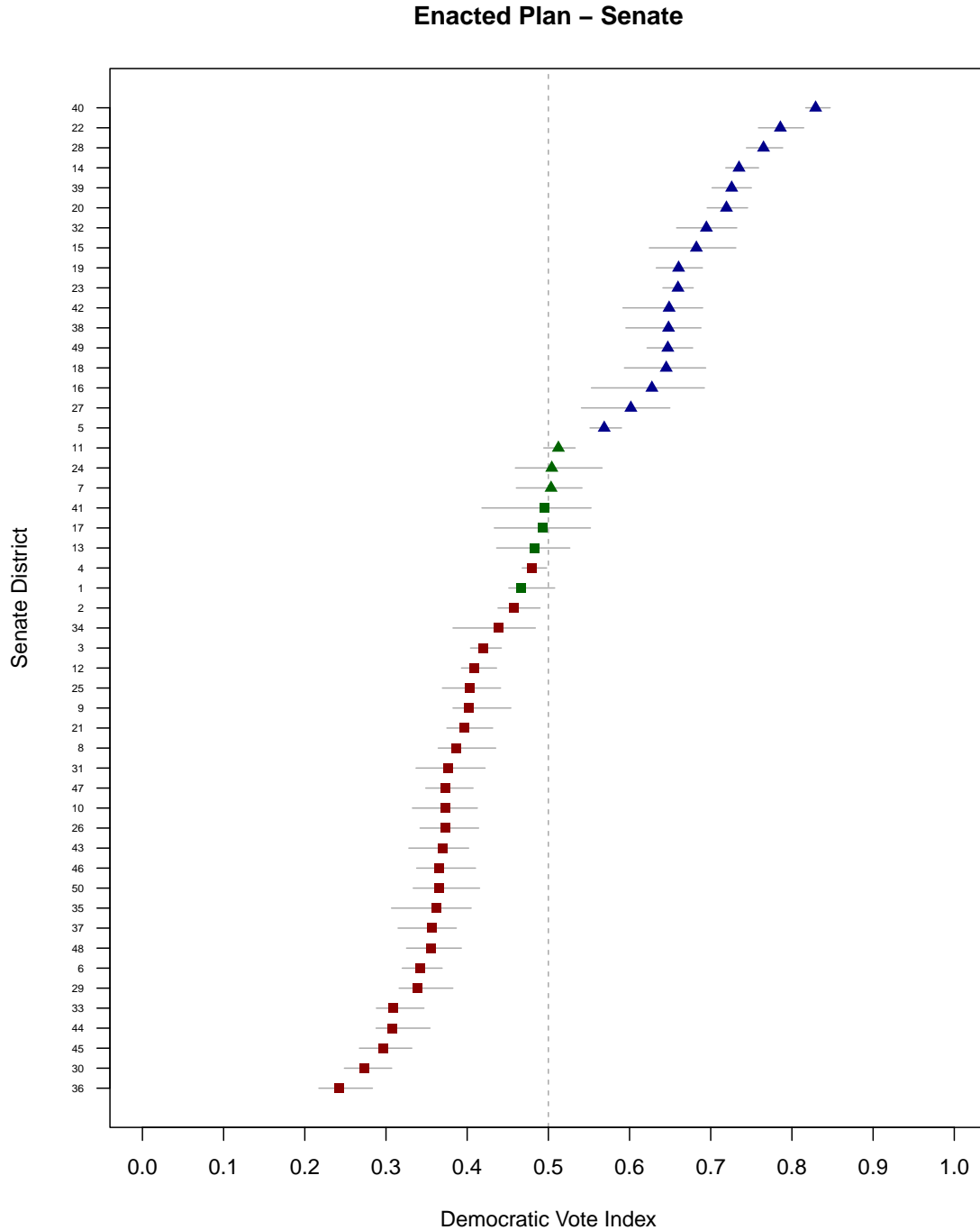
When looking at these figures, we cannot make any immediate determinations about why this distribution of seats, which has more Republican leaning districts than Democratic leaning districts, does not exactly reflect the statewide of average of votes in the state, which is much closer to parity between the parties. The reason for this is that, as discussed above, the distribution of voters who favor one party or the other is not even across the state. Furthermore, districts in North Carolina are restricted to remain within the pre-determined county clusters, further complicating the connection between district boundaries and statewide vote shares. This unique feature of North Carolina’s redistricting process significantly constrains any map maker and can furthermore exacerbate the geographic disparities that exist across the state.

Figure 4: **Partisan Index of Senate Districts in 2021 Enacted Plan**



Note: Partisan Index based on the average of 11 statewide partisan races between 2014-2020. Districts with a partisan index less than .50 (i.e. Republican leaning) are shown as squares and districts with a partisan index greater than .50 (i.e. Democratic leaning) are displayed as triangles. A vertical dashed line is placed at .50 in each panel for reference. The grey lines around each point show the range of election outcomes for all of the 11 statewide elections used to generate the index. Districts in which the Republican candidate for statewide elections won the majority of the two-party vote share in all 11 races are colored red while districts where the Democratic candidate for statewide elections won the majority of the two-party vote share in all 11 races are colored blue. Districts where both parties have won a majority of the two-party vote share in these 11 races are colored green.

Figure 5: **Partisan Index of Senate Districts in 2021 Enacted Plan**



Note: Partisan Index based on the average of 11 statewide partisan races between 2014-2020. Districts with a partisan index less than .50 (i.e. Republican leaning) are shown as squares and districts with a partisan index greater than .50 (i.e. Democratic leaning) are displayed as triangles. A vertical dashed line is placed at .50 in each panel for reference. The grey lines around each point show the range of election outcomes for all of the 11 statewide elections used to generate the index. Districts in which the Republican candidate for statewide elections won the majority of the two-party vote share in all 11 races are colored red while districts where the Democratic candidate for statewide elections won the majority of the two-party vote share in all 11 races are colored blue. Districts where both parties have won a majority of the two-party vote share in these 11 races are colored green.

4 Introduction to Simulations Analysis

To gauge the range of partisan outcomes in the North Carolina General Assembly, I conduct simulated districting analyses to allow me to produce a large number of districting plans that follow traditional districting criteria using small geographic units as building blocks for hypothetical legislative districts (voting tabulation districts, or VTDs). This simulation process ignores all partisan and racial considerations when drawing districts. Instead, the computer simulations are programmed to create districting plans that follow traditional districting goals without paying attention to partisanship, race, or the location of incumbent legislators.

The process of simulating districting plans has been recognized and used in a variety of redistricting cases, including in North Carolina.¹² While different people employ slightly different methods, the overall process is much the same. For my simulations, I use a program developed by Fifield et al. (2020).¹³

A significant advantage of the simulation-based approach in general is the ability to compare a proposed map to a set of maps that are drawn without consideration of criteria such as partisanship or race. If the proposed map is similar to the set of simulated maps, it is reasonable to assume that the proposed map was not drawn primarily with partisan intent. If the map differs from the simulations, it is important to recognize that a variety of factors could have played into the deviation, but the underlying idea is that a deviation from the simulations reflects a choice by the map-maker to prioritize some factor that was not

¹²See *League of Women Voters of Ohio v. Ohio Redistricting Commission* (2021); *Harper v. Hall* (2021); *Common Cause v. Lewis* (2019); *Harper v. Lewis* (2019); *League of Women Voters of Pennsylvania v. Commonwealth of Pennsylvania* (2018).

¹³Fifield, Benjamin, , Michael Higgins, Kosuke Imai, and Alexander Tarr. "Automated redistricting simulation using Markov chain Monte Carlo." *Journal of Computational and Graphical Statistics* 29, no. 4 (2020): 715-728.

Fifield, Benjamin, Kosuke Imai, Jun Kawahara, and Christopher T Kenny. 2020. "The essential role of empirical validation in legislative redistricting simulation." *Statistics and Public Policy* 7 (1): 52–68.

Kenny, Christopher T., Cory McCartan, Benjamin Fifield, and Kosuke Imai. 2020. *redist: Computational Algorithms for Redistricting Simulation*. <https://CRAN.R-project.org/package=redist>.

McCartan, Cory, and Kosuke Imai. 2020. "Sequential Monte Carlo for sampling balanced and compact redistricting plans." *arXiv preprint arXiv:2008.06131*.

made a priority in the simulations. This could include partisanship, but could also include incumbency protection, preservation of media markets, keeping particular counties, cities, or neighborhoods together that have historically been joined in districts, or some other factor that is important to a map maker or legislator involved in the process.

A major factor in the validity of the simulated maps is whether or not they constitute a representative sample of the trillions of possible maps that could be drawn.¹⁴ If the sample produced by the simulations is not representative, then we may be comparing a proposed map to a biased selection of alternative maps, which renders the value of the comparison meaningless.

A specific benefit of the particular algorithm I use here is that the authors show mathematically and in a small-scale validation study that their method produces a representative sample of maps. With regards to this issue, the authors state:

Yet, until recently, surprisingly few simulation algorithms have existed in the published scholarship. In fact, most of these existing studies use essentially the same Monte Carlo simulation algorithm where a geographical unit is randomly selected as a “seed” for each district and then neighboring units are added to contiguously grow this district until it reaches the pre-specified population threshold (e.g., Cirincione, Darling, and O’Rourke 2000; Chen and Rodden 2013). Unfortunately, no theoretical justification is given for these simulation algorithms, and hence they are unlikely to yield a representative sample of redistricting plans for a target population....Unlike the aforementioned standard simulation algorithms, the proposed algorithms are designed to yield a representative sample of redistricting plans under contiguity and equal population constraints.¹⁵

¹⁴Tam Cho, Wendy K., and Yan Y. Liu. “Toward a talismanic redistricting tool: A computational method for identifying extreme redistricting plans.” *Election Law Journal* 15, no. 4 (2016): 351-366. Cho, Wendy K. Tam, and Bruce E. Cain. “Human-centered redistricting automation in the age of AI.” *Science* 369, no. 6508 (2020): 1179-1181. McCartan, Cory, and Kosuke Imai. “Sequential Monte Carlo for sampling balanced and compact redistricting plans.” *arXiv preprint arXiv:2008.06131* (2020).

¹⁵Cirincione, C., Darling, T. A., and O’Rourke, T. G. (2000), “Assessing South Carolina’s 1990s Congressional Districting,” *Political Geography*, 19, 189–211. DOI: 10.1016/S0962-6298(99)00047-5. Chen, J., and

With a representative set of maps in hand, we can then analyze the difference between the proposed map and the simulated maps on a variety of metrics. As discussed above, it is well established that the party whose voters are more geographically compact stands at a natural disadvantage when single member districts are drawn. “The party that’s more spread out has a geographic advantage,” says applied mathematician Jonathan Mattingly of Duke University. “That’s our system.”¹⁶ The comparison between the simulated districts and the proposed map overcomes this hurdle and allows for an apples-to-apples comparison that accounts for the unique political geography of a state, such as the spatial distribution of voters or the location and number of administrative boundaries, such as counties. Simulation methods can also incorporate a state’s other unique redistricting rules. The simulation-based approach therefore permits us to compare a particular plan to a large number of representative districting plans in the North Carolina House and Senate using criteria specific to North Carolina. In the simulations I run, I instruct the model to generate plans that adhere to the restrictions included in the North Carolina Constitution as well as the *Stephenson* criteria of roughly equal population, adherence to county cluster boundaries, minimization of county traversals within clusters, and geographic compactness.

Specifically, the model is constrained to conduct 50,000 simulations separately in each county cluster by assembling VTDs into districts that meet the redistricting criteria of equal population, contiguity, compactness, and minimal county and municipal divisions.¹⁷ Within each cluster the model generates 50,000 maps with the number of districts equal to the number of districts allocated to that cluster that are of roughly equal population ($< 5\%$ deviation above or below the target population of 86,995 in the House and 208,788 in the Senate). The model is also instructed to generate districts that cross county boundaries as few times as possible. Of course, county populations do not always add up to round units

Rodden, J. (2013), “Unintentional Gerrymandering: Political Geography and Electoral Bias in Legislatures,” *Quarterly Journal of Political Science*, 8, 239–269. DOI: 10.1561/100.00012033.

¹⁶<https://www.sciencenews.org/article/gerrymandering-elections-next-gen-computer-generated-maps>

¹⁷The simulations are not allowed to split VTDs as this is the lowest level of geography for which I have election results.

of districts, and so of necessity some county boundaries will be split. The model is further instructed that when a county boundary needs to be crossed, it should avoid splitting the county more times than necessary. After the model is run, I discard any simulations that include more county traversals than the Enacted Plan.

I also instruct the model to generate districts that are geographically compact. After the model is run, I compute the average geographic compactness of the simulated districts in the county cluster and compare that to the average geographic compactness of the Enacted Plan. I use the Polsby-Popper measure of compactness, which is a common measure of geographic compactness.¹⁸ After the model is run, I also discard any simulations that are less compact, on average, than the Enacted Plan.

The final constraint is an instruction to avoid splitting municipal boundaries. This constraint is second order to the constraint to avoid county boundaries. In other words, the model prioritizes avoiding county splits over municipal splits. Once the county split constraint is accounted for, then the model places priority on avoidance of municipal splits. Because municipalities and VTDs do not perfectly overlap, it is difficult to calculate the exact number of municipal splits from the model. I make a simplifying assumption and assign each VTD to a municipality if any part of the VTD intersects that municipality. Furthermore, if a VTD overlaps multiple municipalities, I assign the VTD to the municipality in which the most area of the VTD is contained. In a few cases a city spans multiple counties. Here I consider each portion of the city as a separate municipality.

Once the simulated district plans are complete, I then compute the partisan lean of each district in each plan. For the partisan composition of each district I rely on the two-party election results from statewide elections disaggregated to the level of the VTD. I then reassemble these election results at the district level to compute the proportion of votes

¹⁸The Polsby-Popper measure is computed by taking is the ratio of the area of the district to the area of a circle whose circumference is equal to the perimeter of the district. A district’s Polsby-Popper score falls with the range of [0,1] and a score closer to 1 indicates a more compact district. Polsby, Daniel D., and Robert D. Popper. 1991. “The Third Criterion: Compactness as a procedural safeguard against partisan gerrymandering.” *Yale Law & Policy Review* 9 (2): 301–353.

in each statewide election that were won by the Democratic and Republican candidates in those districts. I compute the index of district partisanship using the two-party vote share in eleven elections from the past ten years.¹⁹ The index is an average of all eleven of these statewide races in North Carolina from 2012-2020. Averages of multiple elections have the benefit of “washing out” the impact of any particular election, since individual elections can vary due to particular candidate features and other idiosyncrasies and particular years can vary due to national electoral waves (i.e. 2020 was a good electoral year for Democrats while 2016 was a good year for Republicans nationwide). As such, my preferred metric is the partisan index. However, I also compute the two-party vote share for each of the 11 statewide elections individually and report these as well for completeness. Occasionally, seeing how a plan or set of simulations varies across individual elections can shed light on the variation and shifts in political preferences in a locality.

5 NC House Analysis

A unique feature of the redistricting process in North Carolina is the use of “county grouping (or clusters)” wherein redistricting takes place entirely inside of each cluster. In essence, this means that the process of redistricting the state House (or Senate) in North Carolina is not a single problem in which a map maker draws 120 (or 50 for the Senate) districts throughout the state. Instead, the map maker faces many distinct redistricting problems that are all self contained. Cooper et al. (2021, “The Duke Study”), have addressed this issue using the 2020 census data and reported on the optimal set of clusters in both the House and Senate. They state, “Determining the county clusters for the NC House and for the NC Senate is the first step in the redistricting process for the NC General Assembly. The county clusters are largely algorithmically determined through an optimization procedure

¹⁹The particular races are 2020: President, US Senate, Governor, Lieutenant Governor, and Attorney General; 2016: President, US Senate, Governor, Lieutenant Governor, and Attorney General; 2014: US Senate. There are other partisan statewide races in these years, but I was unable to locate election results disaggregated to the VTD level.

outlined by the NC Supreme Court in *Stephenson v. Bartlett*.²⁰ While there are a few choices that a map maker can make in choosing between different sets of clusters, the county cluster design significantly constrains any map maker as he or she is forced to work only within the counties contained in a given cluster. Because of this, any analysis of the Enacted Plan must consider each cluster separately, as they are independent of one another.

In the state House, there are 40 county clusters. 33 clusters containing 107 of the 120 districts are fixed based on the county cluster arrangement determined by Cooper et al. (2021, “Duke Study”). The remaining 7 clusters were selected by the General Assembly from three sets of choices between clusters.

5.1 House Groupings with only 1 District

Of the 40 county clusters, there are 13 of them composed of 31 counties in which the cluster contains only 1 House district. In these clusters there is no discretion for any map maker. The district is simply the boundaries of the county cluster. These counties collectively have a population of 1,128,328, or approximately 11% of the state’s total population and account for 13 of the 120 seats in the state House.

Figure 6 shows a map of the counties that constitute these single-district clusters. Table 1 below shows each cluster, the counties included in the cluster, and the corresponding districts in the House Enacted Plan. The final two columns of the table show the partisan lean of the cluster using the 11 statewide partisan elections index discussed above and whether or not, based on that index, the cluster leans Democratic (or Republican). I classify a district (in the Enacted Plan and in the simulations as well) as being Democratic leaning if the partisan index for that district is greater than 0.50. In other words, if more than fifty percent of the ballots cast for the two major parties were for Democratic candidates, that district is classified as a Democratic leaning district. Obviously, districts with index values much larger than (smaller than) 0.50 will be more likely to elect a Democrat (Republican)

²⁰<https://sites.duke.edu/quantifyinggerrymandering/files/2021/08/countyClusters2020.pdf>

than districts that are very close to 0.50.

The bottom row of the Table 1 shows the results for all 13 clusters together. Collectively these counties have a partisan index of 0.43, meaning roughly four in ten voters in these counties cast ballots for Democratic candidates in the 11 statewide races I consider here. However, the location of voters for the different parties is not uniformly distributed across these counties. Given this spatial distribution of voters across the counties, 4 of the 13 clusters lean Democratic, or roughly 30 percent. In this case, the proportion of Democratic leaning districts is lower than the proportion of voters in these counties who favor Democratic candidates. However, this is not due to any district boundaries. It is purely a function of the political geography of the state since all of these districts are entire county units and are, as such, fixed.

Figure 6: Map of Counties and County Clusters with only 1 House District

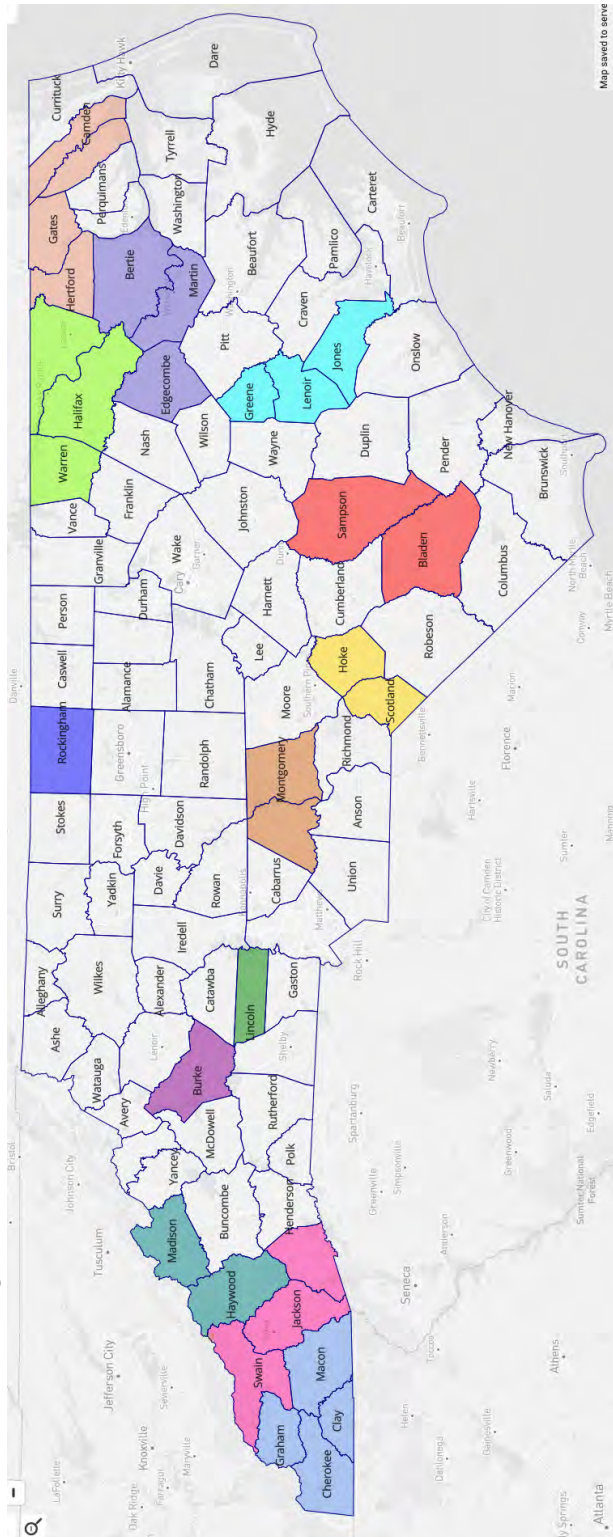


Table 1: County Grouping Containing 1 House District

County Cluster	# Counties	# Districts	District #	County Cluster Democratic Partisan Index	# of districts that are Democratic leaning
Rockingham	1	1	65	0.36	0
Lincoln	1	1	97	0.28	0
Burke	1	1	86	0.32	0
Bladen-Sampson	2	1	22	0.43	0
Hoke-Scotland	2	1	48	0.55	1
Haywood-Madison	2	1	118	0.40	0
Montgomery-Stanly	2	1	67	0.30	0
Bertie-Edgecomb- Martin	3	1	23	0.61	1
Greene-Jones- Lenoir	3	1	12	0.47	0
Jackson-Swain- Transylvania	3	1	119	0.44	0
Halifax- Northampton-Warren	3	1	27	0.64	1
Cherokee-Clay- Graham-Macon	4	1	120	0.28	0
Camden-Gates- Hertford-Pasquotank	4	1	5	0.52	1
Total:	31	13		0.43	4

6 House Groupings with More than 1 District:

There are 27 county clusters that contain multiple districts where a map drawer has some discretion to draw district boundaries. I consider each cluster separately in the simulations analysis because the districts are constrained to remain within each county cluster.

These clusters collectively account for 107 of the 120 districts in the North Carolina House of Representatives. In addition to calculating the number of Democratic leaning districts for the Enacted Plan, I also compute the same partisan index for the plaintiffs proposed map (hereafter, ‘Duchin Map’) and compare how the Enacted Map and the Duchin Map perform on this same metric.²¹ An overview of the results are as follows. In these 107 districts, the Enacted Plan creates 62 districts that lean Republican and 45 districts that lean Democratic according to the statewide partisan elections index. The Duchin Plan creates 52 districts that lean Republican and 52 districts that lean Democratic according to the statewide partisan elections index.

I then place both maps in relation to the distribution of partisan outcomes from the simulated districts. In each cluster I consider the number of Democratic districts generated by each plan in comparison to the distribution of results from the simulations. I consider a plan to be a partisan outlier if the number of Democratic districts generated by the plan falls outside the middle 50% of simulation results. This is a conservative definition of an outlier. In the social sciences, medicine, and other disciplines it is traditional to consider something an outlier if it falls outside the middle 95% or 90% of the comparison distribution.

In 26 of the 27 clusters, the Enacted Map produces a number of Democratic districts that falls within the middle 50% of simulation results and are not partisan outliers. This leaves 1 cluster in which the Enacted Plan is a partisan outlier in comparison to the simulation results.²² The Enacted Map also produces the same number of Democratic leaning districts as the modal (most common) number of Democratic leaning districts in the simulations in

²¹Plaintiffs refer to this as an “optimized map.” It is unclear what this means as optimization is a choice made by the researcher as to which factors to prioritize at the expense of others.

²²This occurs in Guilford County.

22 of the 27 clusters.

In 23 of the 27 clusters, the Duchin Map produces a number of Democratic districts that fall within the middle 50% of simulation results and are not partisan outliers. This leaves 4 clusters in which the Duchin Plan is a partisan outlier in comparison to the simulation results.²³ This is three more clusters that are partisan outliers than the Enacted Map. The Duchin Map also produces the same number of Democratic leaning districts as the modal (most common) number of Democratic leaning districts in the simulations in 20 of the 27 clusters.

By these metrics the Duchin Map is less in alignment with the results of the non-partisan simulations than the Enacted Map and is a greater partisan outlier.

In 20 of the 27 clusters the Enacted Map and the Duchin map are in agreement on the number of Democratic leaning districts.²⁴ This means there is disagreement in 7 of the 40 total clusters. Figure 7 shows a map of the locations in which the Enacted Plan and the Duchin Plan are in agreement on the number of Democratic leaning districts. Figure 8 shows a map of the locations in which the Enacted Plan and the Duchin Plan disagreement on the number of Democratic leaning districts.

Table 2 summarizes the results of the simulation analysis for these 27 House clusters with multiple districts. Thereafter, I present the results cluster-by-cluster.

²³These are Brunswick-New Hanover, Cumberland, Duplin-Wayne, and Pitt

²⁴These county groupings are: Davidson, Columbus-Robeson, Carteret-Craven, Nash-Wilson, Caswell-Orange, Alexander et al., Franklin et al., Alleghany et al., Beaufort et al., Anson-Union, Onslow-Pender, Harnett-Johnston, Catawba-Iredell, Durham-Person, Forsyth-Stokes, Cabarrus et al., Chatham et al., Avery et al., Mecklenburg, and Wake.

Table 2: House County Grouping Analysis Summary

County Cluster	Cluster Democratic Partisan Index	# Districts	# of Districts that are Democratic Leaning		
			Enacted Map	Duchin Map	Simulations
Davidson	0.27	2	0	0	0
Pitt	0.54	2	1	2	1
Alamance	0.45	2	0	1	0-1
Columbus-Robeson	0.45	2	0	0	0
Carteret-Craven	0.35	2	0	0	XXX
Duplin-Wayne	0.43	2	0	1	0
Nash-Wilson	0.52	2	2	2	2
Caswell-Orange	0.71	2	2	2	2
Alexander-Surry-Wilkes	0.25	2	0	0	0
Franklin-Granville-Vance	0.51	2	1	1	1
Alleghany-Ashe- Caldwell-Watauga	0.36	2	0	0	0
Beaufort-Chowan-Currituck Dare-Hyde-Pamlico Perquimans-Tyrrell-Washington	0.39	2	0	0	0
Buncombe	0.60	3	2	3	2-3
Anson-Union	0.37	3	0	0	0
Onslow-Pender	0.35	3	0	0	0
Cumberland	0.59	4	3	4	3
Harnett-Johnston	0.38	4	0	0	0
Catawba-Iredell	0.33	4	0	0	0
Durham-Person	0.76	4	4	4	4
Brunswick-New Hanover	0.45	4	1	2	1
Forsyth-Stokes	0.52	5	2	2	2-3
Cabarrus-Davie-Rowan-Yadkin	0.36	5	0	0	0
Chatham-Lee-Moore- Randolph-Richmond	0.38	5	1	1	1
Guilford	0.61	6	4	5	5
Avery-Cleveland-Gaston- Henderson-McDowell-Mitchell- Polk-Rutherford-Yancey	0.35	7	0	0	0
Mecklenburg	0.65	13	11	11	11-12
Wake	0.61	13	11	11	11-12
Total:		107	45	52	46-51

Note: Number of Democratic leaning districts is measured using the average two-party vote share in each district from the 11 statewide races noted earlier. Simulations range represents the middle 50% of outcomes from the simulations results. There are no simulations results conducted in Carteret-Craven cluster, see later section for explanation. Groupings where a plan falls outside the middle 50% range of the simulations are bolded.

Figure 7: Map of House County Clusters Where Enacted and Duchin Plans Agree on Partisan Lean of Districts

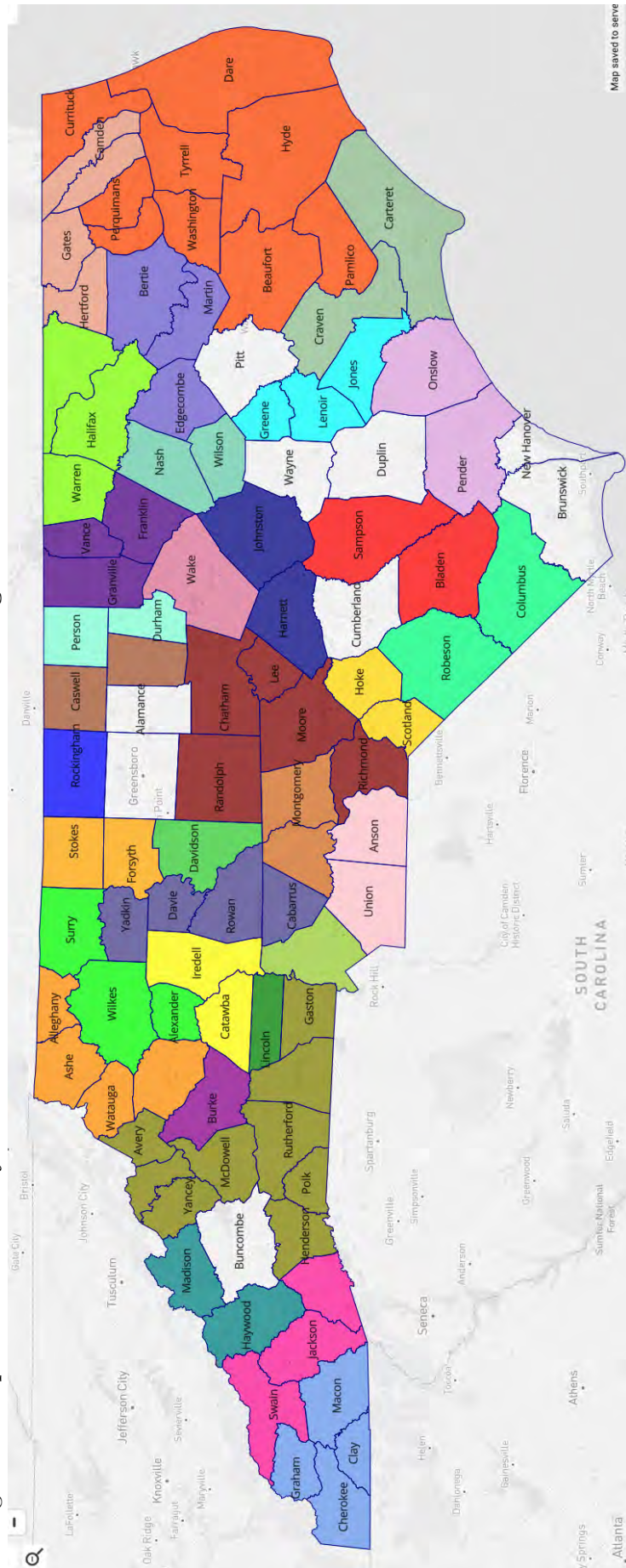
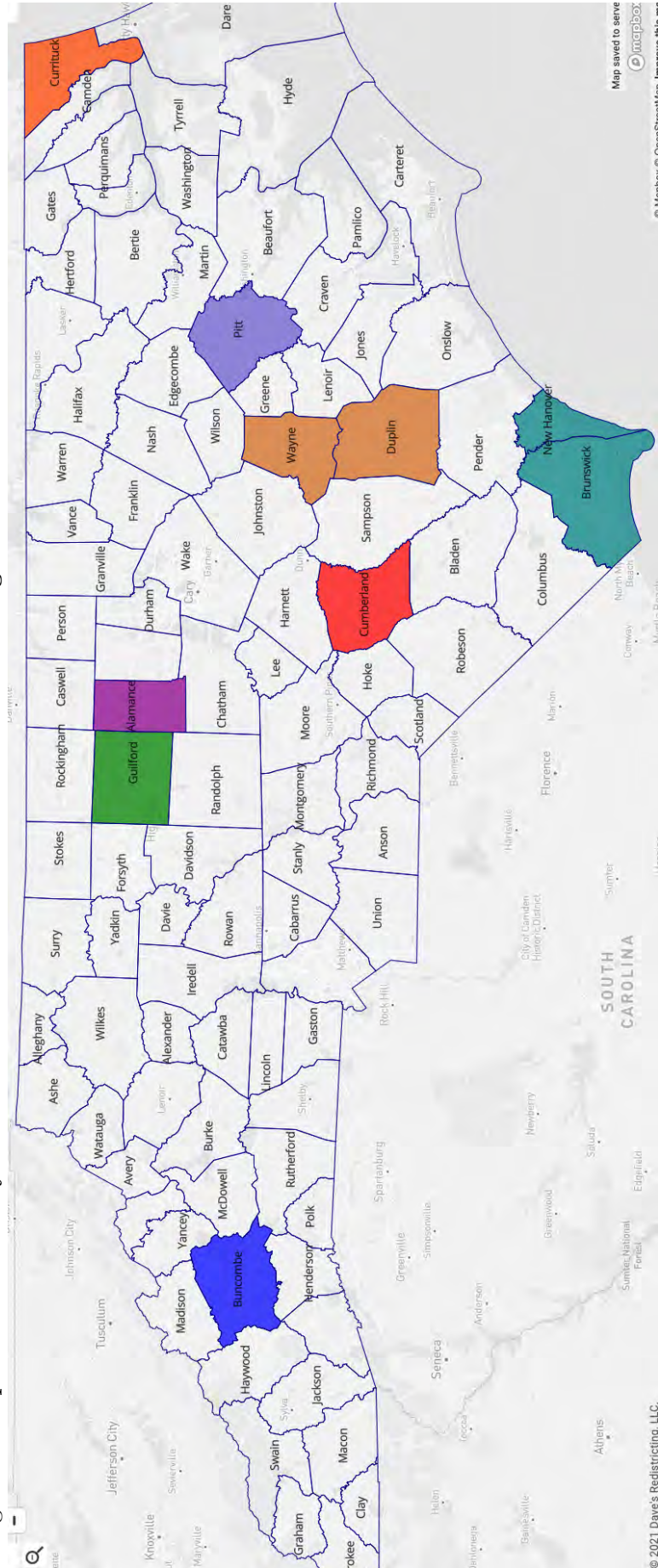


Figure 8: Map of House County Clusters Where Enacted and Duchin Plans Disagree on Partisan Lean of Districts



6.1 Davidson House County Grouping

Davidson County contains 2 districts. In the Enacted Map these are Districts 80 and 81. The county cluster has an overall partisan index of 0.27, which is strongly Republican. After conducting 50,000 initial simulations to create two districts in this cluster, I would normally discard any simulations that contain more county traversals than the Enacted Plan. However, in this case the county cluster is only one county (Davidson) and so the simulations are constrained to keep both districts entirely within the county, and thus, by definition there will be no county traversals in all 50,000 simulations as well as in the Enacted Map. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 37,252 simulated maps, each containing two districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 9. A map of the Enacted Plan’s districts within this cluster is shown in Figure 10.

The distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 11. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In this cluster the simulations, the Enacted Map, and the Duchin Map are in agreement, and all generate 0 Democratic leaning districts.

Table 3 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded

number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In this case there is unanimous agreement across all 11 elections.

Figure 9: Map of Davidson House County Cluster

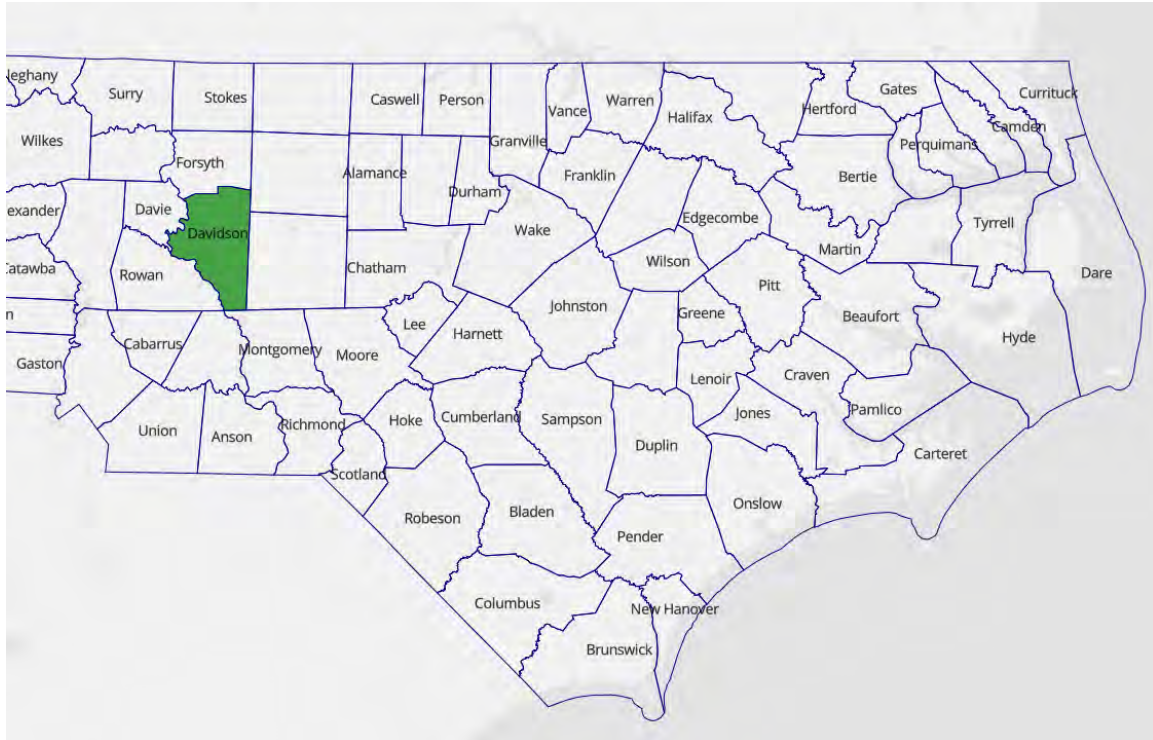
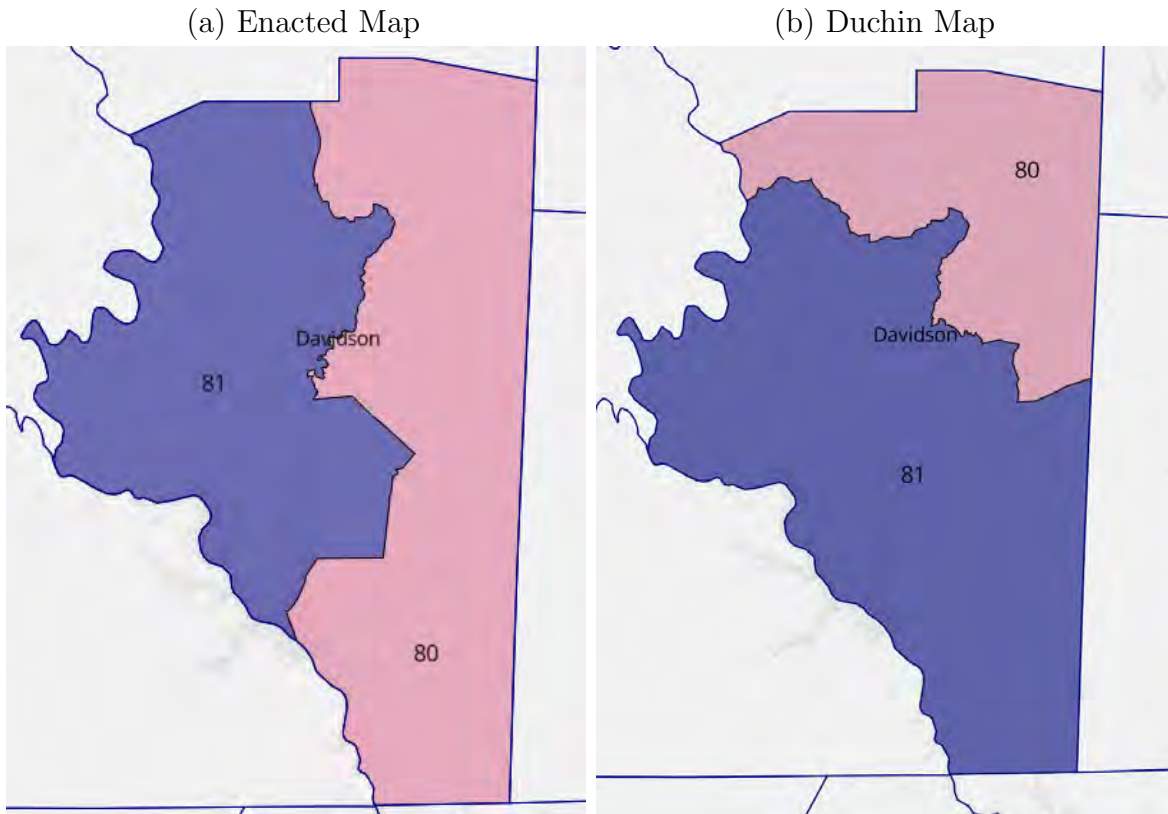


Figure 10: **Map of House Enacted Plan in Davidson County Cluster**



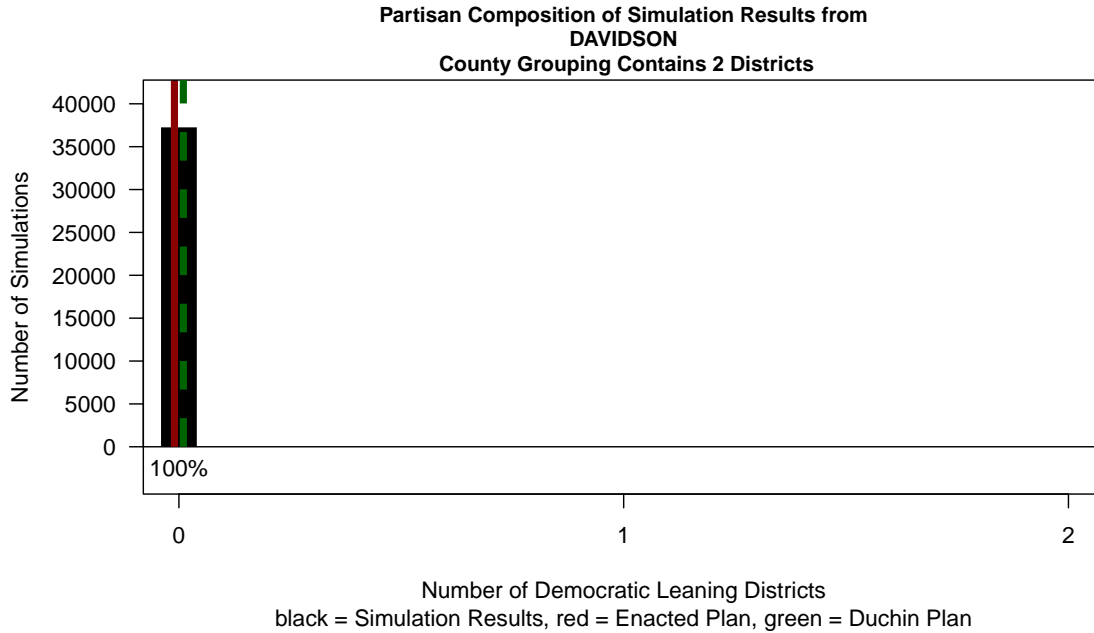
Note: The left map shows the district lines for the Enacted Map and the right map shows the district lines for the Duchin Map.

Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
80	0.26	0.28
81	0.29	0.27

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 11: **Distribution of Partisan Districts from Simulations in Davidson House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 3: Simulation Results by Individual Elections

Davidson House County Cluster			
Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	100%	0%	0%
2020 Senate	100%	0%	0%
2020 Governor	100%	0%	0%
2020 Lt. Governor	100%	0%	0%
2020 Attorney General	100%	0%	0%
2016 President	100%	0%	0%
2016 Senate	100%	0%	0%
2016 Governor	100%	0%	0%
2016 Lt. Governor	100%	0%	0%
2016 Attorney General	100%	0%	0%
2014 Senate	100%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 0 Democratic leaning districts. The Enacted Plan does as well, as the ‘0 District’ cell is bolded in that row.

6.2 Pitt House County Grouping

Pitt County contains 2 districts. In the Enacted Map these are Districts 8 and 9. The county cluster has an overall partisan index of 0.54, which is slightly Democratic. After conducting 50,000 initial simulations to create two districts in this cluster, I would normally discard any simulations that contain more county traversals than the Enacted Plan. However, in this case the county cluster is only one county and so the simulations are constrained to keep both districts entirely within the county, and thus, by definition there will be no county traversals in all 50,000 simulations as well as in the Enacted Map. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 5,189 simulated maps, each containing two districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 12. A map of the Enacted Maps’ districts and the Duchin Map’s district boundaries within this cluster are shown in Figure 13.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 14. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 91% of the simulations there is 1 Democratic leaning district and in the remaining 9% of the simulations there are two Democratic leaning districts. The Enacted Map is in alignment with the modal outcome of the simulations by creating one Democratic district. The Duchin Map generates two Democratic districts.

Table 4 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Demo-

cratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In this case there is unanimous agreement between the modal outcome in the simulations and the Enacted Map across all 11 elections.

Figure 12: **Map of Pitt House County Cluster**

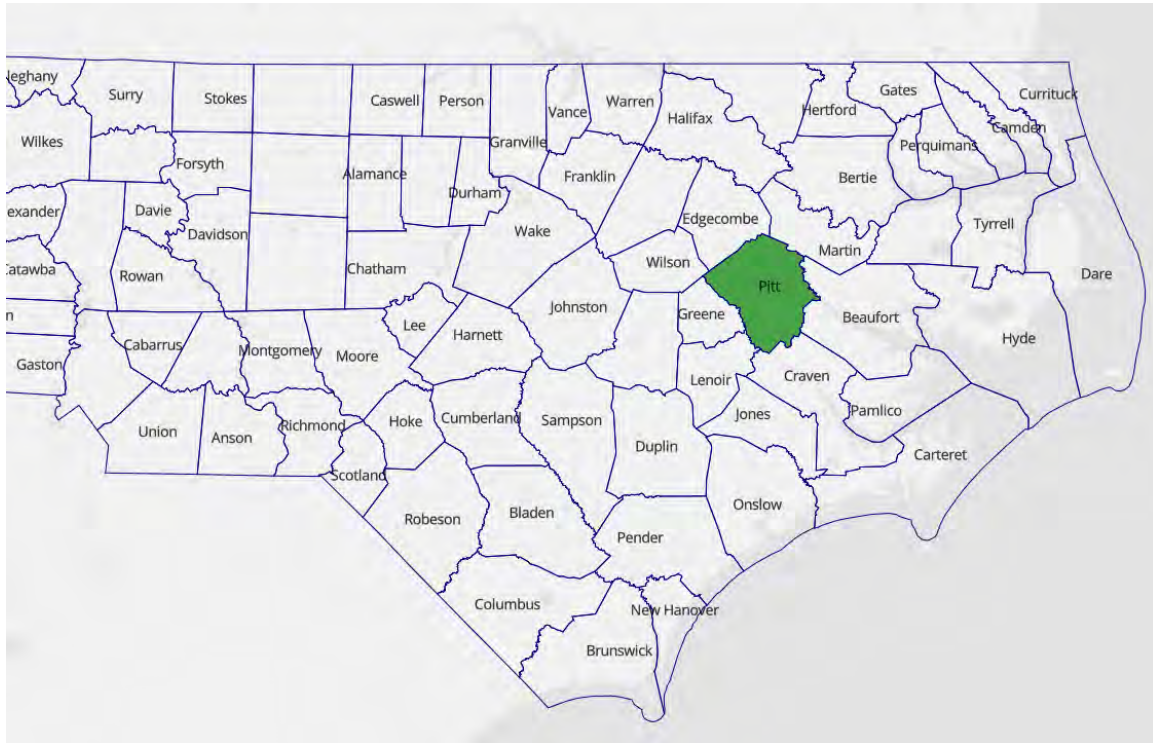
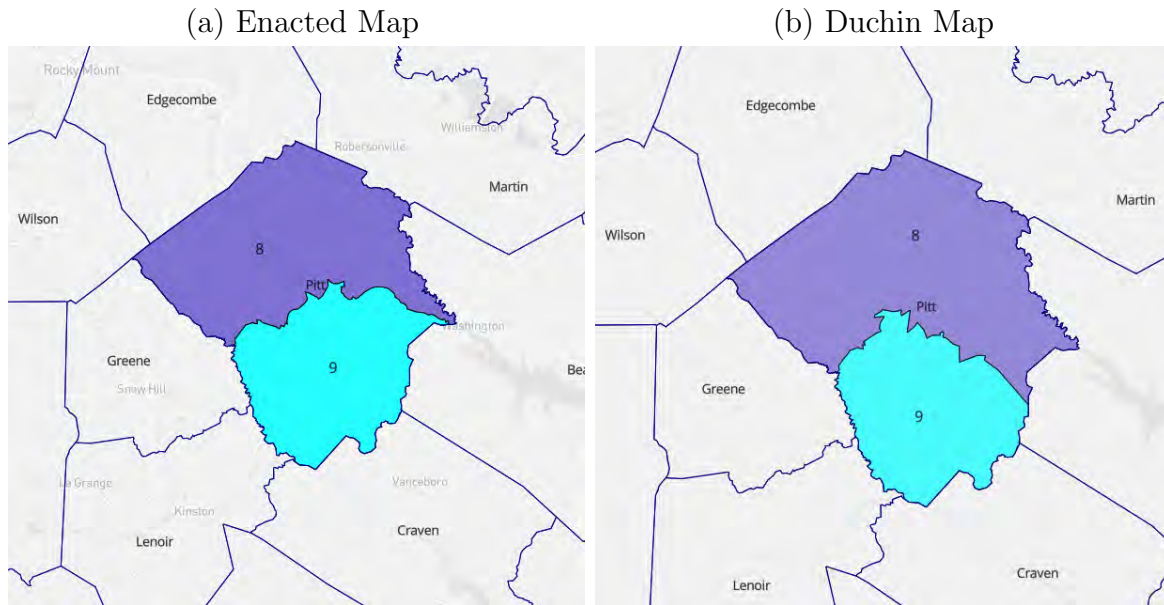


Figure 13: Enacted Map and Duchin Map in Pitt House County Cluster

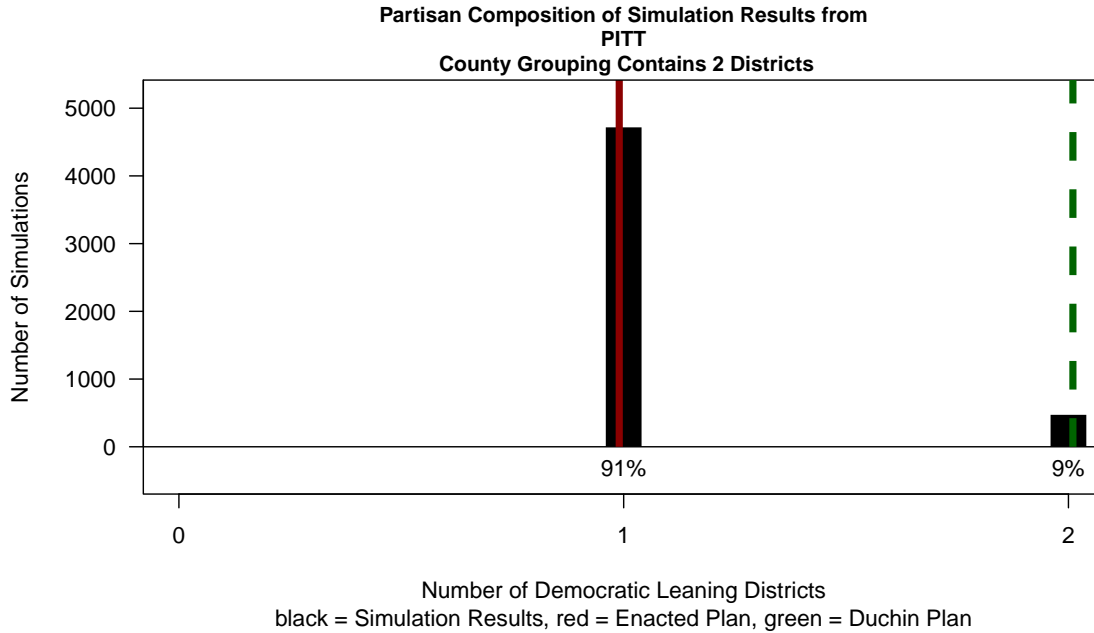


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
8	0.64	0.55
9	0.46	0.53

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 14: **Distribution of Partisan Districts from Simulations in Pitt House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 4: Simulation Results by Individual Elections

Pitt House County Cluster

Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	0%	89%	11%
2020 Senate	0%	91%	9%
2020 Governor	0%	44%	56%
2020 Lt. Governor	0%	94%	6%
2020 Attorney General	0%	71%	29%
2016 President	0%	97%	3%
2016 Senate	0%	100%	0%
2016 Governor	0%	97%	3%
2016 Lt. Governor	0%	100%	0%
2016 Attorney General	0%	83%	17%
2014 Senate	0%	100%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 89% of the simulations produce 1 Democratic leaning district. The Enacted Plan does as well, as the ‘1 District’ cell is bolded in that row.

6.3 Alamance House County Grouping

Alamance County contains 2 districts. In the Enacted Map these are Districts 63 and 64. The county cluster has an overall partisan index of 0.45, which is slightly Republican. After conducting 50,000 initial simulations to create two districts in this cluster, I would normally discard any simulations that contain more county traversals than the Enacted Plan. However, in this case the county cluster is only one county and so the simulations are constrained to keep both districts entirely within the county, and thus, by definition there will be no county traversals in all 50,000 simulations as well as in the Enacted Map. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 47,482 simulated maps, each containing two districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 15. A map of the Enacted Maps’ districts and the Duchin Map’s district boundaries within this cluster are shown in Figure 16. I also include the map of districts in this county from the 2020 plan for comparison here.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 17. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 44% of the simulations there are 0 Democratic leaning districts and in the remaining 56% of the simulations there is 1 Democratic leaning district. The Enacted Map is within the middle 50% of the simulation results, but is not in alignment with the modal outcome of the simulations. The Duchin Map generates 1 Democratic district.

Table 5 breaks apart the partisan index into the 11 constituent elections and shows

the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In 10 of the 11 elections considered the Enacted Plan agrees with the modal outcome of the simulations. The only case in which it does not agree with the modal result is in the 2020 Lt. Governor’s race. However, in this race the simulations were nearly equally split between generating 0 and 1 Democratic district.

The Enacted Plan is also extremely similar to the maps used in Alamance County in the 2020 elections. These districts were approved by a court in 2019. The Enacted Plan is different by only two and one half precincts - South Burlington precinct is now placed in District 64 (it was in District 63 in the 2020 map) and North Thompson and the part of Melville 3 precinct that was split into District 64 is now placed into District 63, making it whole and keeping the municipality of Swepsonville entirely in District 63.

Another consideration is that while the Enacted Plan does not generate a Democratic leaning district using the partisan index, there is one district that is effectively a 50/50 split between Republicans and Democrats. The partisan index of District 63 is 0.4994, which is about as close to a perfect split between Republican and Democratic votes as a district could get. It is very likely that both parties will win this district a number of times over the next several years.

Figure 15: Map of Alamance House County Cluster

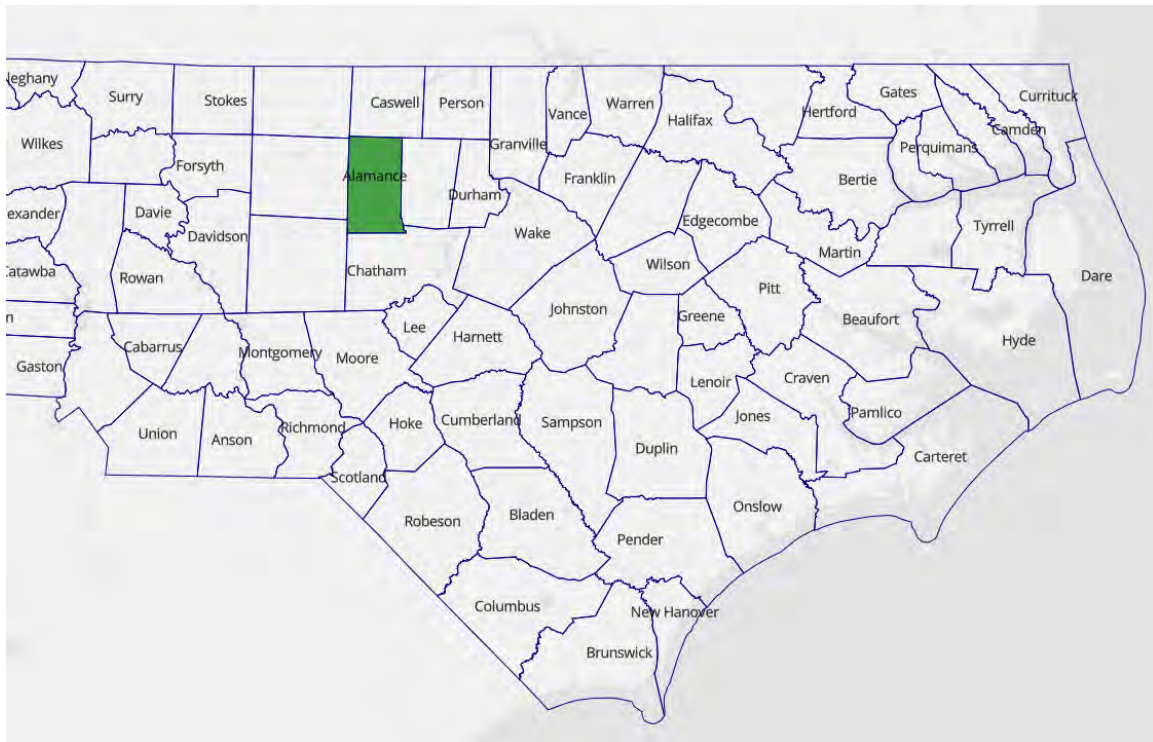
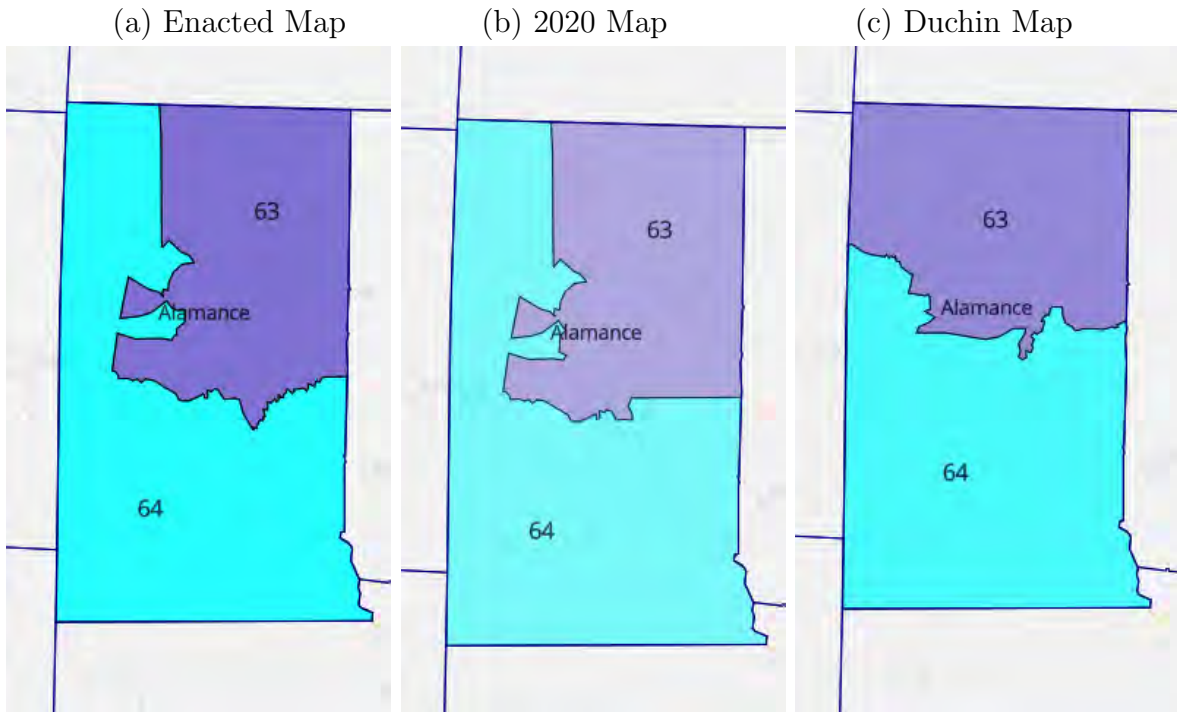


Figure 16: **Enacted Map, 2020 Map, and Duchin Map in Pitt House County Cluster**

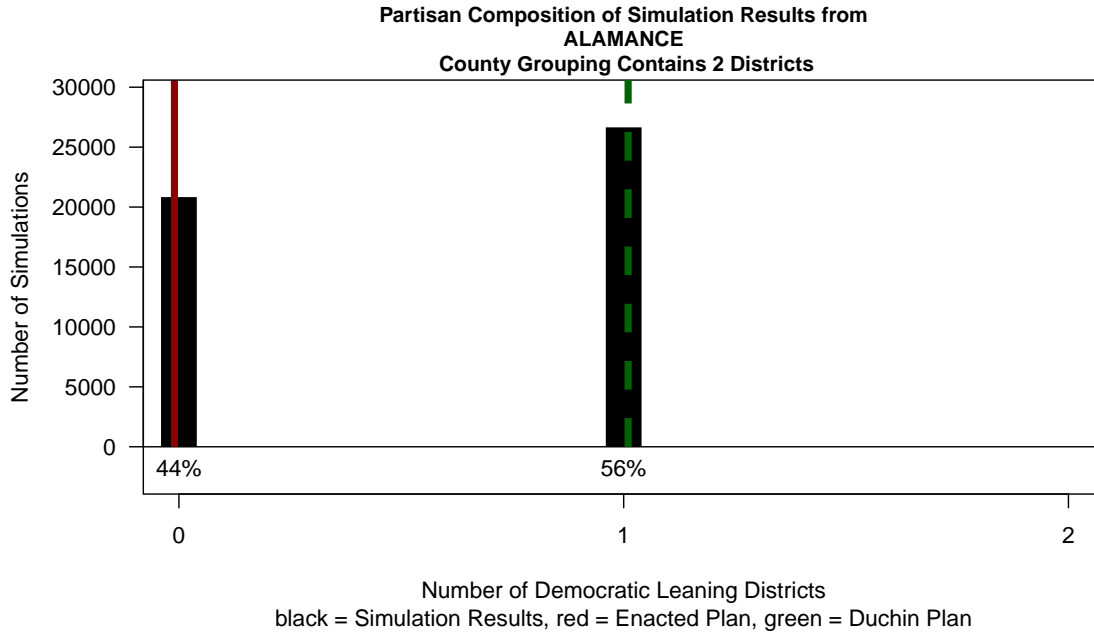


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
63	0.50	0.54
64	0.41	0.38

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 17: **Distribution of Partisan Districts from Simulations in Alamance House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 5: Simulation Results by Individual Elections

Alamance House County Cluster			
Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	40%	60%	0%
2020 Senate	38%	62%	0%
2020 Governor	3%	97%	0%
2020 Lt. Governor	47%	53%	0%
2020 Attorney General	13%	87%	0%
2016 President	77%	23%	0%
2016 Senate	98%	2%	0%
2016 Governor	39%	61%	0%
2016 Lt. Governor	99%	1%	0%
2016 Attorney General	42%	58%	0%
2014 Senate	97%	3%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 60% of the simulations produce 1 Democratic leaning district. The Enacted Plan does as well, as the ‘1 District’ cell is bolded in that row.

6.4 Columbus and Robeson House County Grouping

The Columbus-Robeson House county grouping contains 2 districts. In the Enacted Map these are Districts 46 and 47. The county cluster has an overall partisan index of 0.45, which is slightly Republican. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 46,076 remaining simulated maps. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 2,664 simulated maps, each containing two districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 18. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 19.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 20. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 0 Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 0 Democratic leaning districts. The Enacted Map is in alignment with the modal outcome of the simulations by creating 0 Democratic districts. The Duchin Map also generates 0 Democratic district.

Table 6 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted

Plan using the equivalent election. In this case there is unanimous agreement between the modal outcome in the simulations and the Enacted Map across all 11 elections.

Figure 18: **Map of Columbus and Robeson House County Cluster**

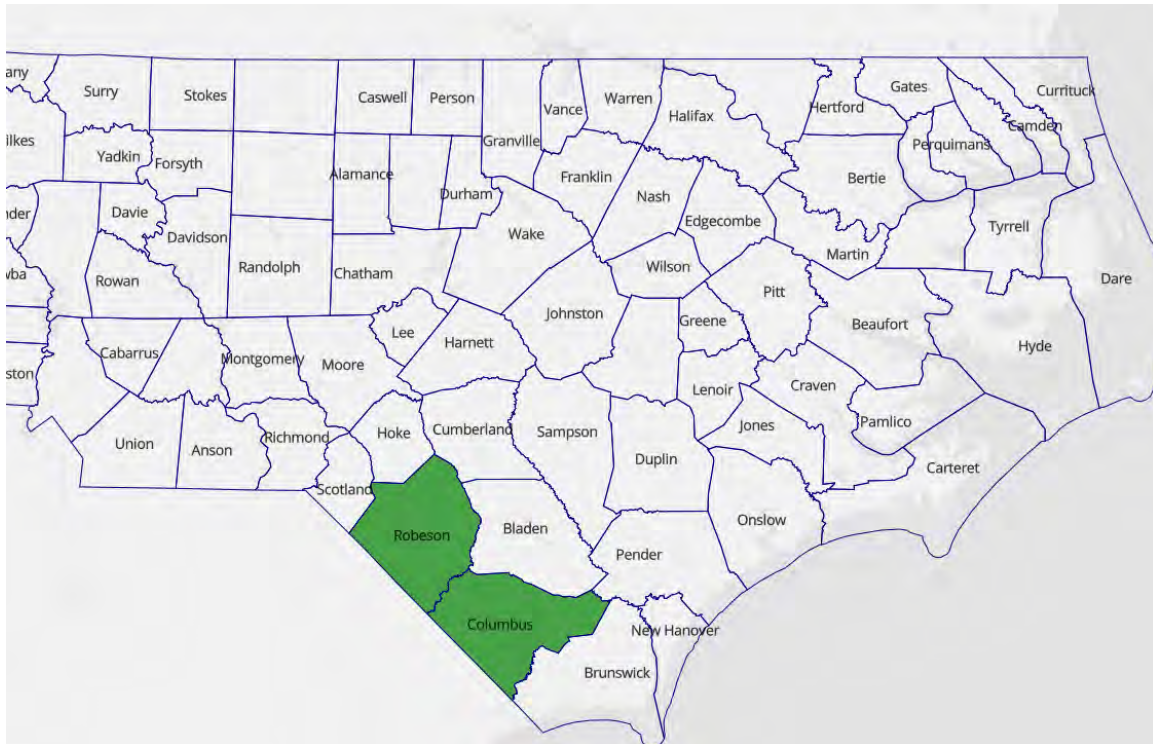
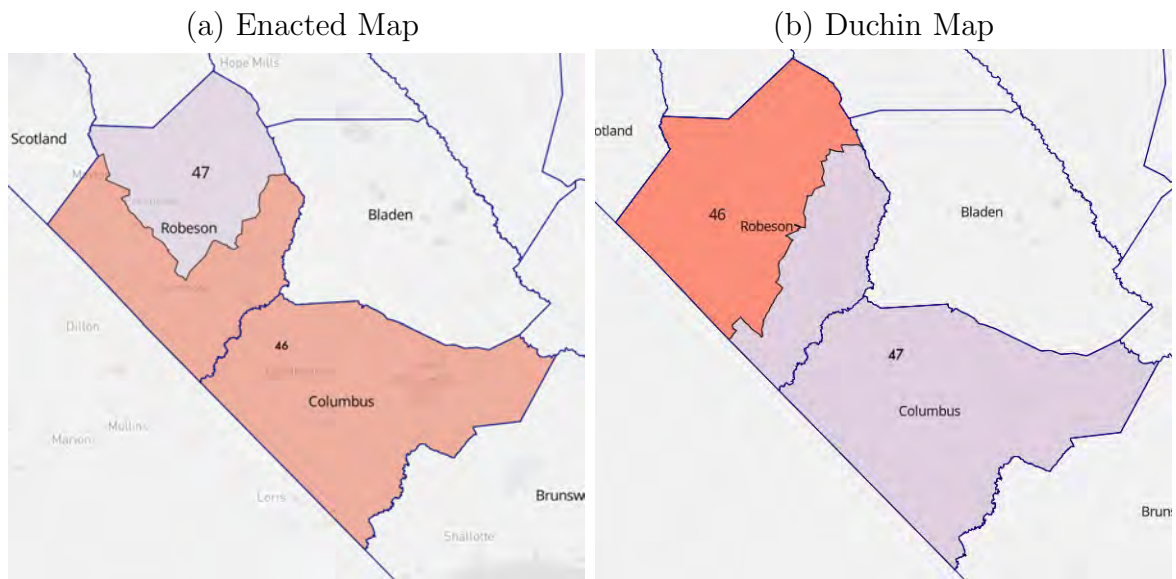


Figure 19: Map of House Enacted Plan and Duchin Plan in Columbus and Robeson County Cluster

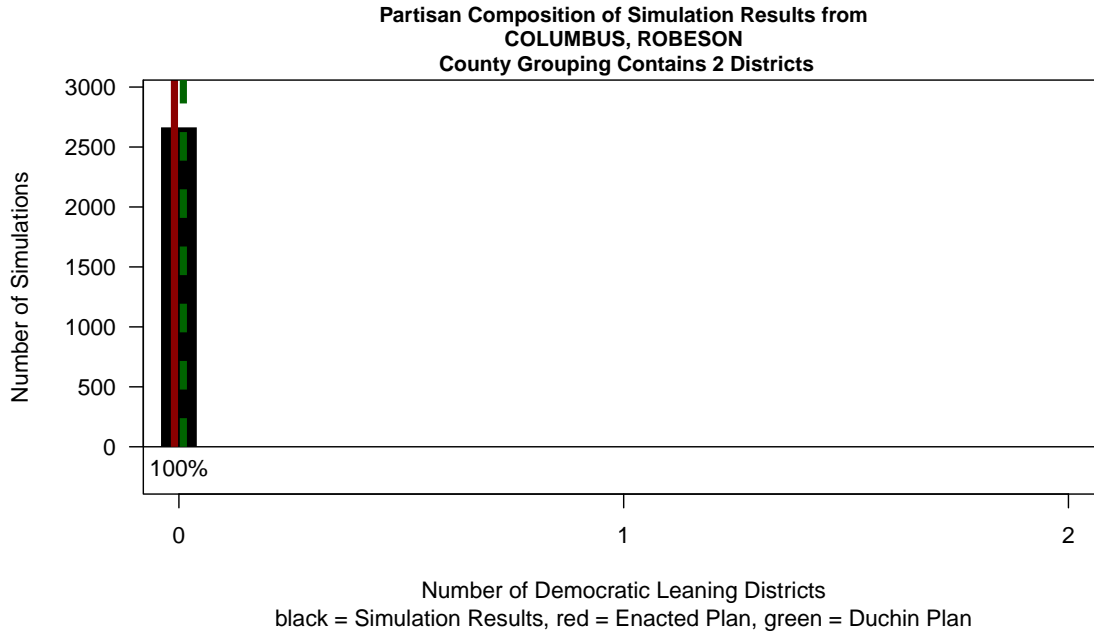


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
46	0.42	0.49
47	0.48	0.42

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 20: **Distribution of Partisan Districts from Simulations in Columbus and Robeson House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 6: Simulation Results by Individual Elections

Columbus and Robeson House County Cluster			
Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	100%	0%	0%
2020 Senate	100%	0%	0%
2020 Governor	100%	0%	0%
2020 Lt. Governor	100%	0%	0%
2020 Attorney General	100%	0%	0%
2016 President	100%	0%	0%
2016 Senate	100%	0%	0%
2016 Governor	100%	0%	0%
2016 Lt. Governor	0%	100%	0%
2016 Attorney General	0%	53%	47%
2014 Senate	0	0%	100%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 0 Democratic leaning districts. The Enacted Plan does as well, as the ‘0 District’ cell is bolded in that row.

6.5 Carteret and Craven House County Grouping

The Carteret-Craven House county grouping contains 2 districts. In the Enacted Map these are Districts 3 and 13. The county cluster has an overall partisan index of 0.35, which is strongly Republican. I do not conduct simulations in this cluster because there is no possible way to assemble VTDs in this county grouping and produce two districts that meet the equal population criteria. To do so requires splitting a VTD, something both the Enacted Plan and Duchin Plans do, but the simulations are not capable of. However, there is agreement between the Enacted Plan and the Duchin Plan, as both plans create two Republican leaning districts that are nearly identical in shape. Furthermore, given the strong Republican lean of the county grouping and relatively even distribution of partisan preferences in the county, it would be impossible to assemble any district that leans Democratic.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 21. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 22.

Figure 21: Map of Carteret and Craven County Cluster

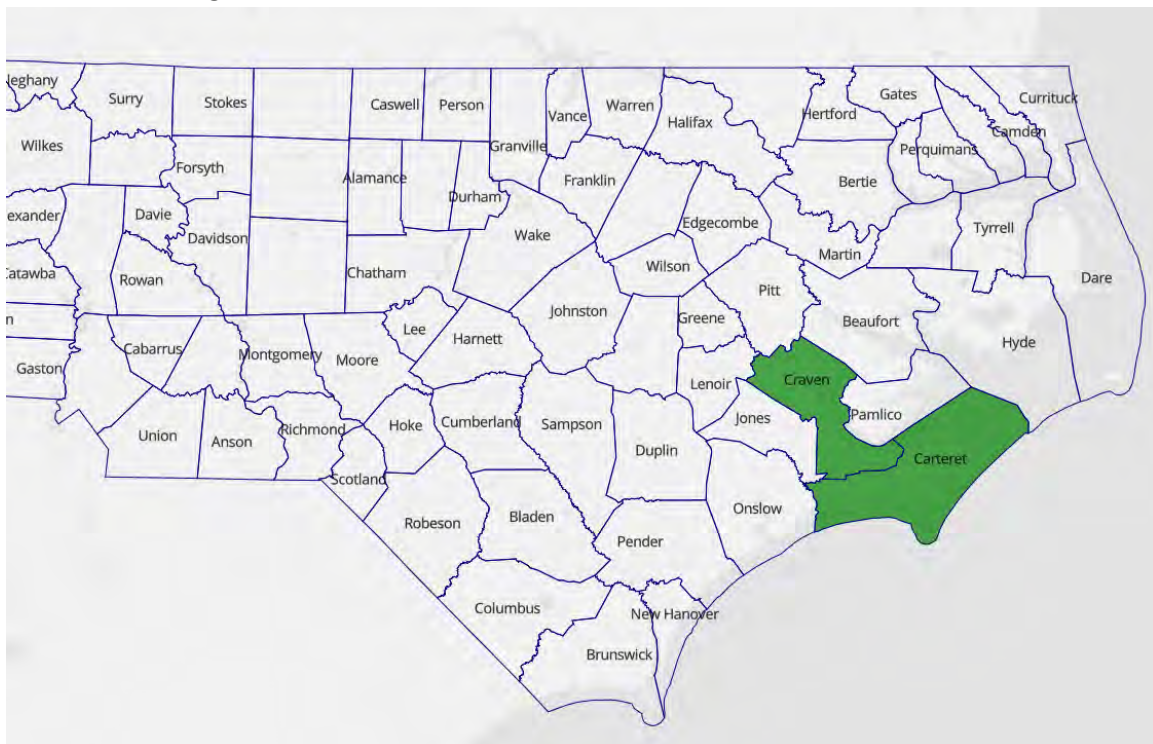
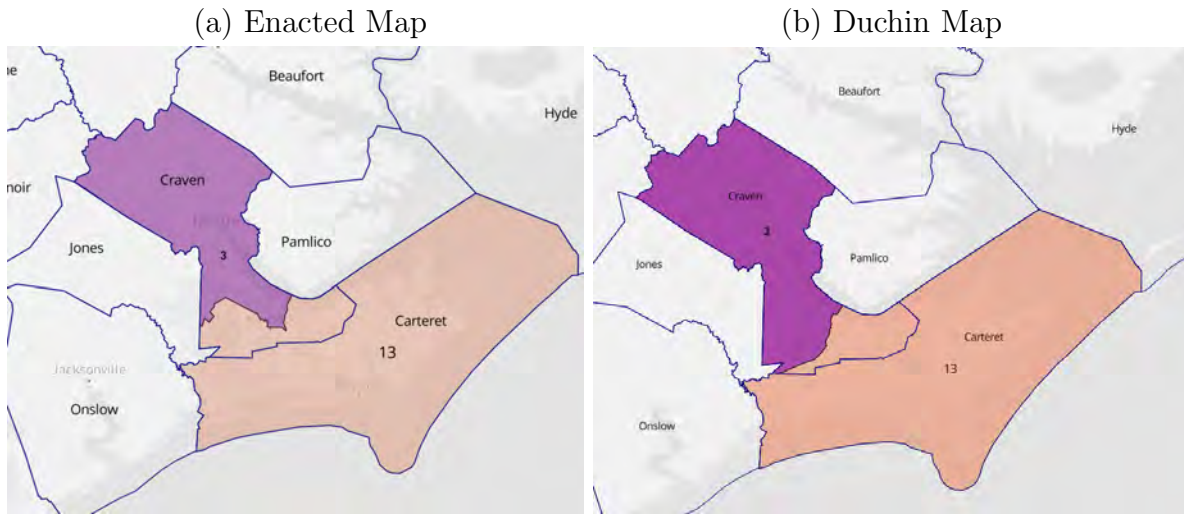


Figure 22: Map of House Enacted Plan in Carteret and Craven County Cluster



Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
3	0.40	0.40
13	0.31	0.31

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

6.6 Duplin and Wayne House County Grouping

The Duplin-Wayne House county grouping contains 2 districts. In the Enacted Map these are Districts 4 and 10. The county cluster has an overall partisan index of 0.43, which is moderately Republican. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any maps that contain more county traversals than the Enacted Plan, leaving 23,399 maps. Next, I would normally discard any simulations in which the average compactness score of the districts in the simulations that are not as large or larger than the compactness score of the Enacted Map. However, this leaves 0 simulated maps, as the Enacted Plan is more compact than any of the simulations (an average Polsby-Popper score of .50, which is very high). To have some simulations to compare to the Enacted Plan and the Duchin plan, I retained the 10% of the simulated maps that have the highest compactness score (2,704 maps).

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 23. A map of the Enacted Maps’ districts and the Duchin Map’s district boundaries within this cluster are shown in Figure 24.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 25. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 0 Democratic leaning districts. The Enacted Map is in agreement with the simulation results and generates 0 Democratic leaning districts. The Duchin Map creates one Democratic leaning district (District 21) surrounding the town of Goldsboro. However to avoid Republican leaning VTDs in the north and western portions of Wayne County, District 4 in the Duchin Plan joins these VTDs with Duplin County to the south. This creates a district that has a

northern “hook,” which is much less compact than the districts in the Enacted Plan. The average Polsby-Popper score for Districts 21 and 4 in the Duchin plan is 0.32. What reason could there be for the shape of District 4? One possibility is that the district is attempting to keep Goldsboro, the largest city in Wayne County whole. However, both the Enacted and Duchin plans keep Goldsboro whole.²⁵ Given this, it is hard to imagine another explanation for the unusual shape of District 4 aside from an attempt to avoid Republican precincts so as to create a Democratic leaning seat in District 21.

Table 7 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In all 11 of the elections considered the Enacted Plan agrees with the modal (most common) outcome of the simulations.

²⁵The Enacted Plan places 5 residents from Goldsboro and the Goldsboro wastewater treatment plant in District 4. The remaining 99.99% of Goldsboro is in District 10.

Figure 23: Map of Duplin and Wayne House County Cluster

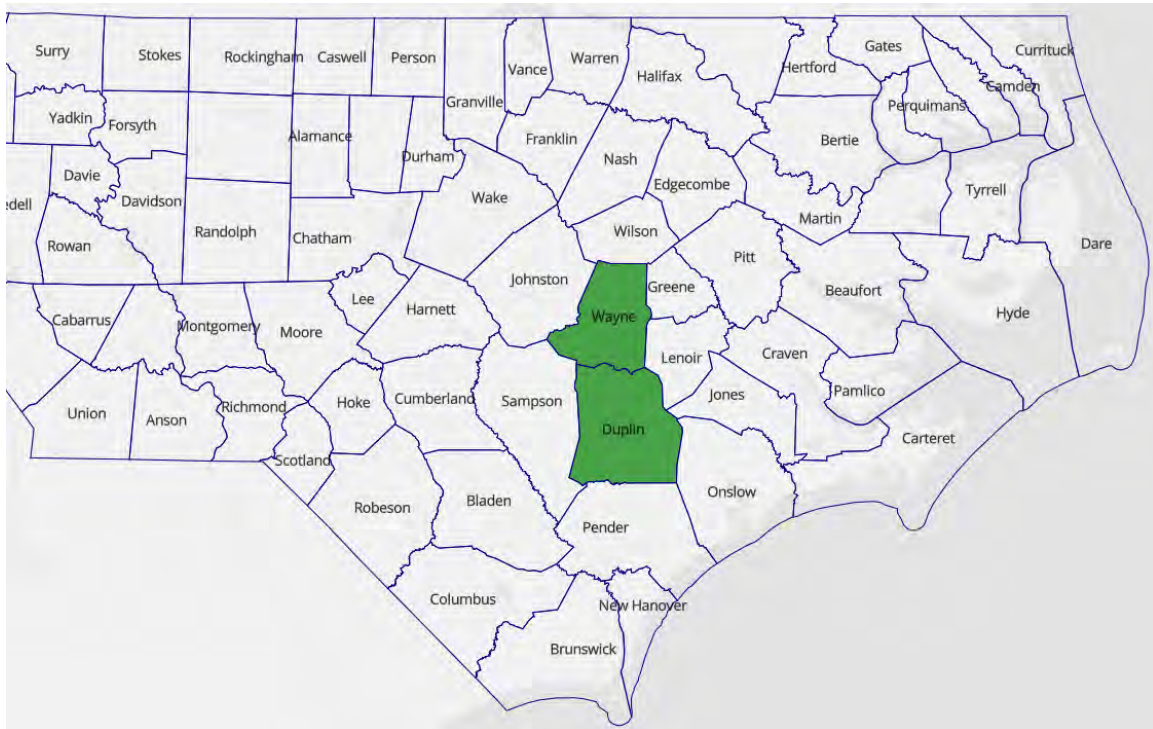
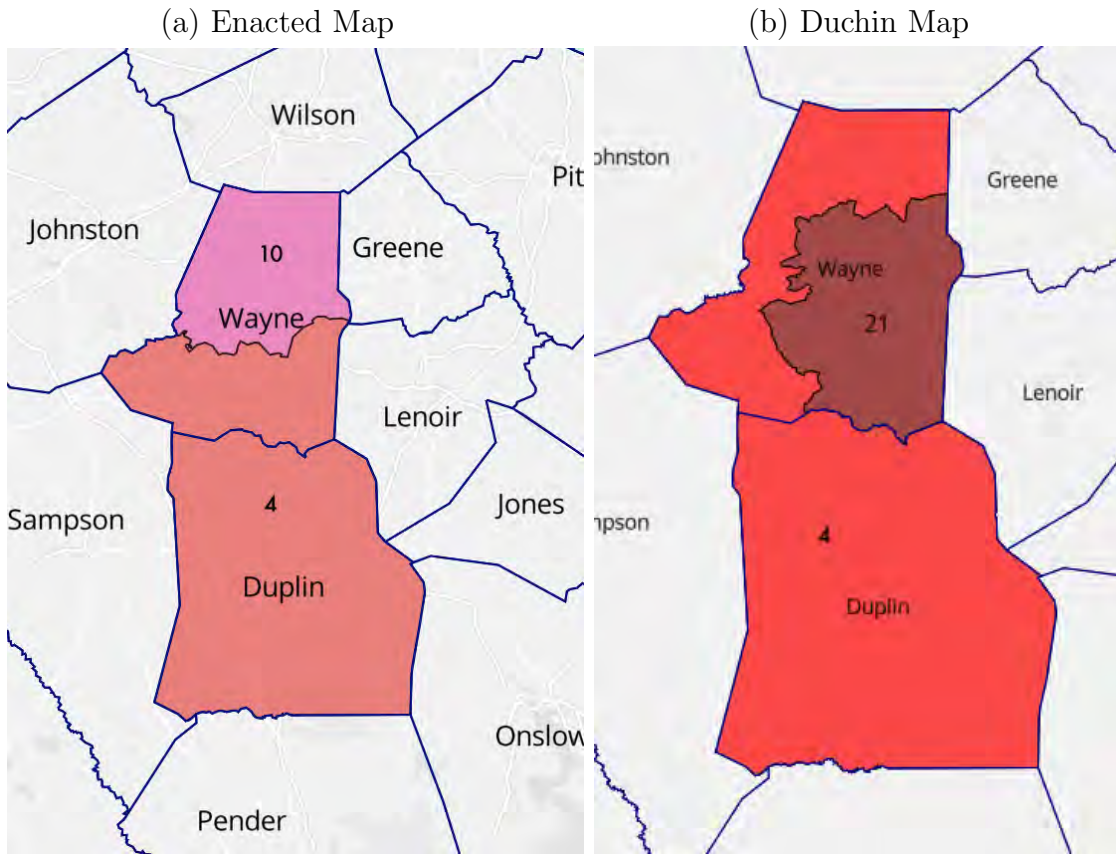


Figure 24: **Map of House Enacted Plan in Duplin and Wayne County Cluster**

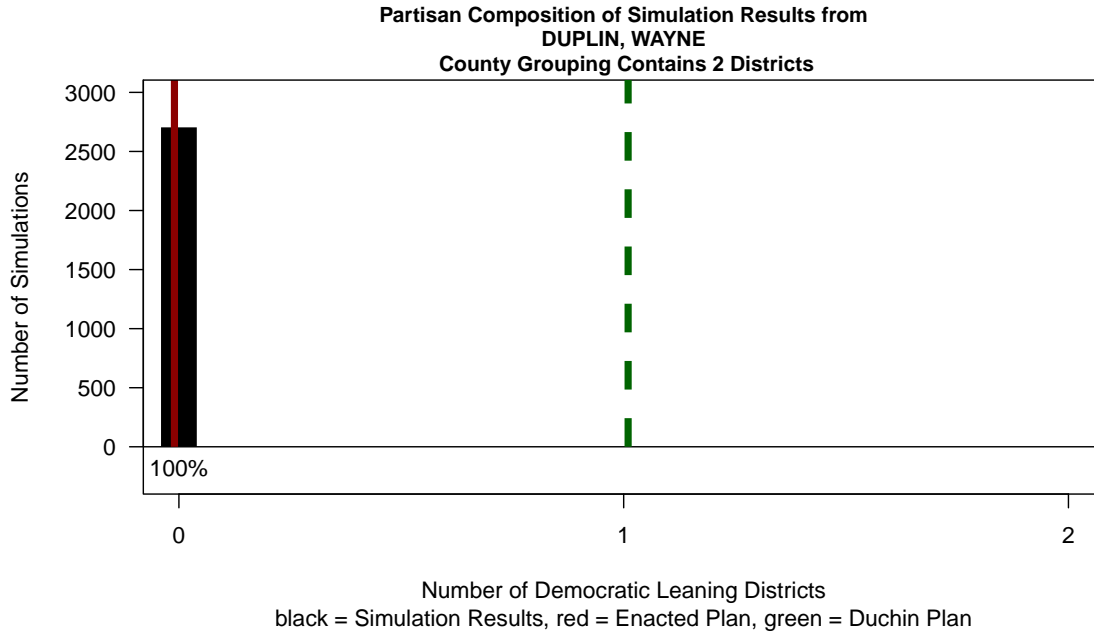


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
4	0.41	0.36
10 (21 in Duchin)	0.46	0.51

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 25: **Distribution of Partisan Districts from Simulations in Duplin and Wayne House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 7: Simulation Results by Individual Elections

Duplin and Wayne House County Cluster			
Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	100%	0%	0%
2020 Senate	100%	0%	0%
2020 Governor	100%	0%	0%
2020 Lt. Governor	100%	0%	0%
2020 Attorney General	100%	0%	0%
2016 President	100%	0%	0%
2016 Senate	100%	0%	0%
2016 Governor	100%	0%	0%
2016 Lt. Governor	100%	0%	0%
2016 Attorney General	95%	5%	0%
2014 Senate	95%	5%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 0 Democratic leaning districts. The Enacted Plan does as well, as the ‘0 District’ cell is bolded in that row.

6.7 Nash and Wilson House County Grouping

The Nash-Wilson House county grouping contains 2 districts. In the Enacted Map these are Districts 24 and 25. The county cluster has an overall partisan index of 0.52, which is slightly Democratic. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 41,476 remaining simulated maps. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 14,569 simulated maps, each containing two districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 26. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 27.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 28. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 2 Democratic leaning districts. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 2 Democratic districts. The Duchin Map also generates 2 Democratic districts.

Table 8 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted

Plan using the equivalent election. In this case there is unanimous agreement between the modal outcome in the simulations and the Enacted Map across all 11 elections.

Figure 26: Map of Nash and Wilson House County Cluster

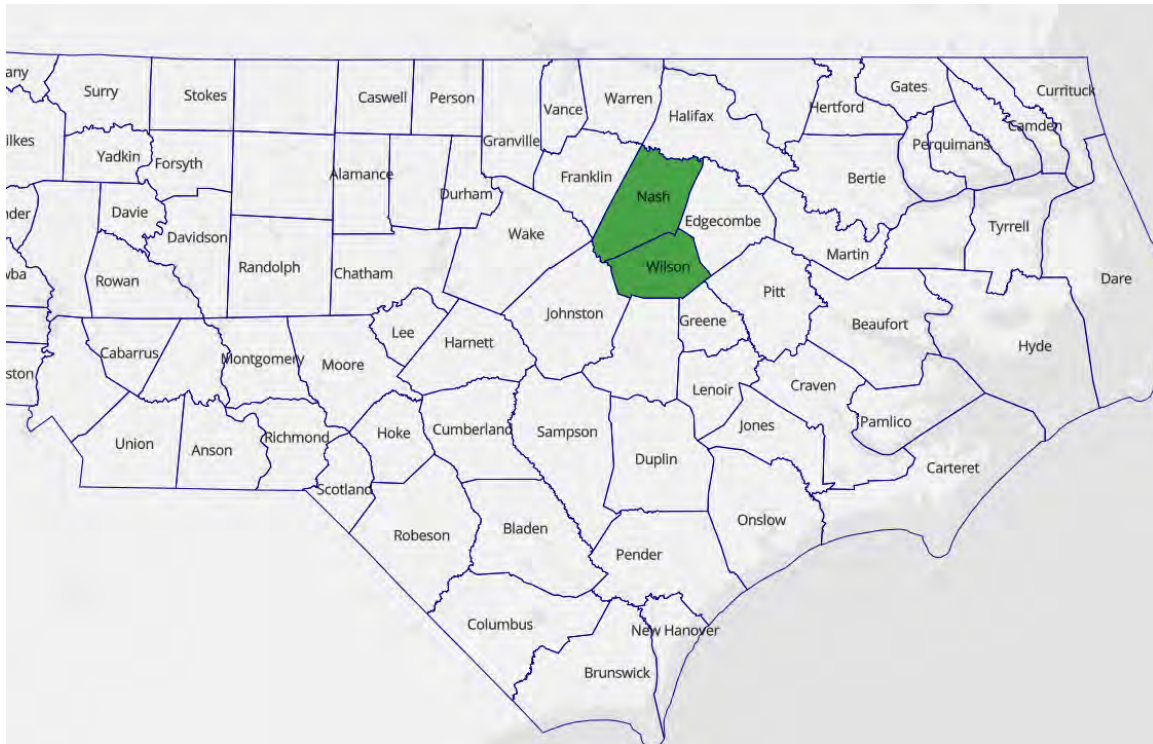
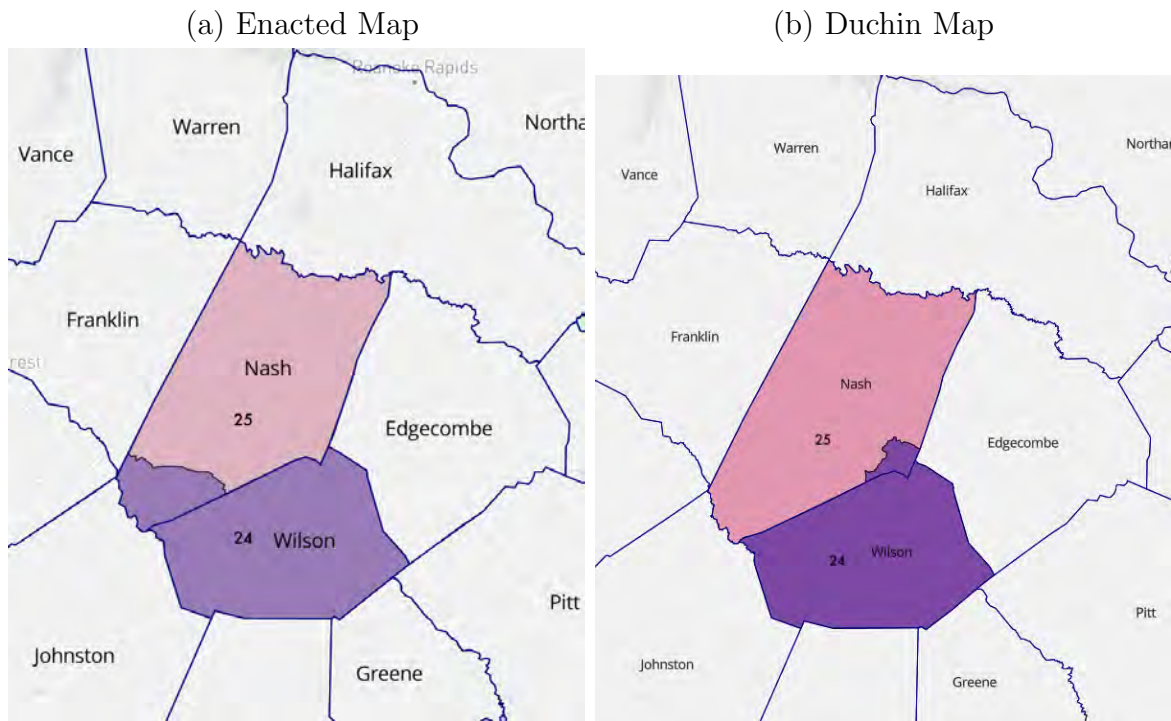


Figure 27: Map of House Enacted Plan in Nash and Wilson County Cluster

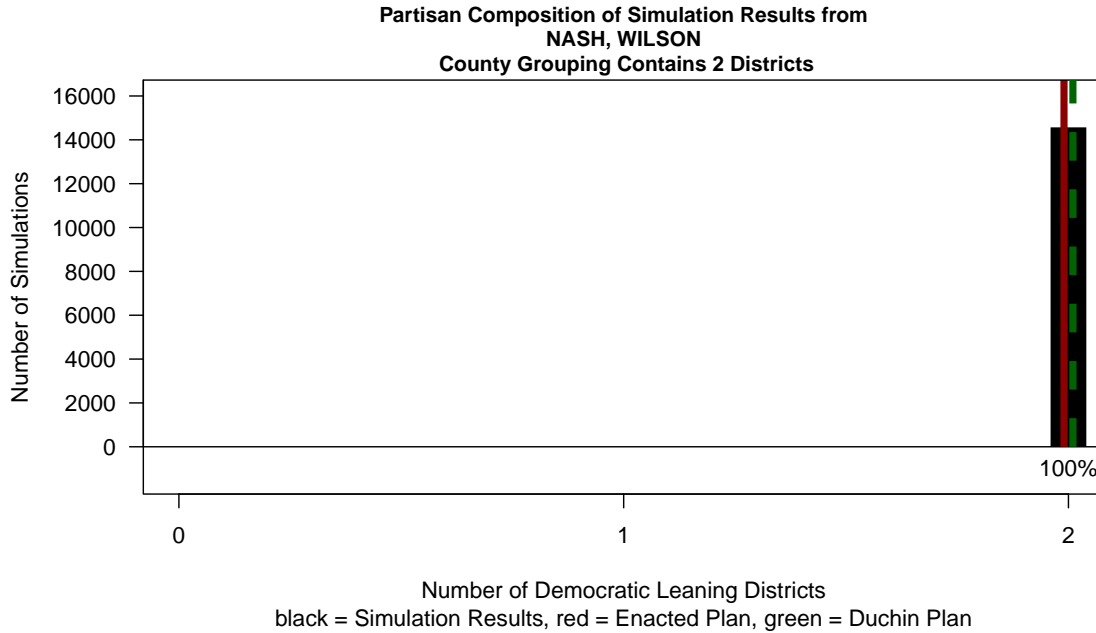


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
24	0.52	0.52
25	0.52	0.52

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 28: **Distribution of Partisan Districts from Simulations in Nash and Wilson House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 8: Simulation Results by Individual Elections

Nash and Wilson House County Cluster			
Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	0%	88%	12%
2020 Senate	0%	0%	100%
2020 Governor	0%	0%	100%
2020 Lt. Governor	0%	88%	12%
2020 Attorney General	0%	0%	100%
2016 President	0%	0%	100%
2016 Senate	0%	0%	100%
2016 Governor	0%	0%	100%
2016 Lt. Governor	0%	0%	100%
2016 Attorney General	0%	0%	100%
2014 Senate	0%	88%	12%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 88% of the simulations produce 1 Democratic leaning districts. The Enacted Plan does as well, as the ‘1 District’ cell is bolded in that row.

6.8 Caswell and Orange House County Grouping

The Caswell-Orange House county grouping contains 2 districts. In the Enacted Map these are Districts 50 and 56. The county cluster has an overall partisan index of 0.71, which is strongly Democratic. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 50,000 simulated maps since in this case all of the simulation results only include one county traversal, as does the Enacted Map. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 40,012 simulated maps, each containing two districts.

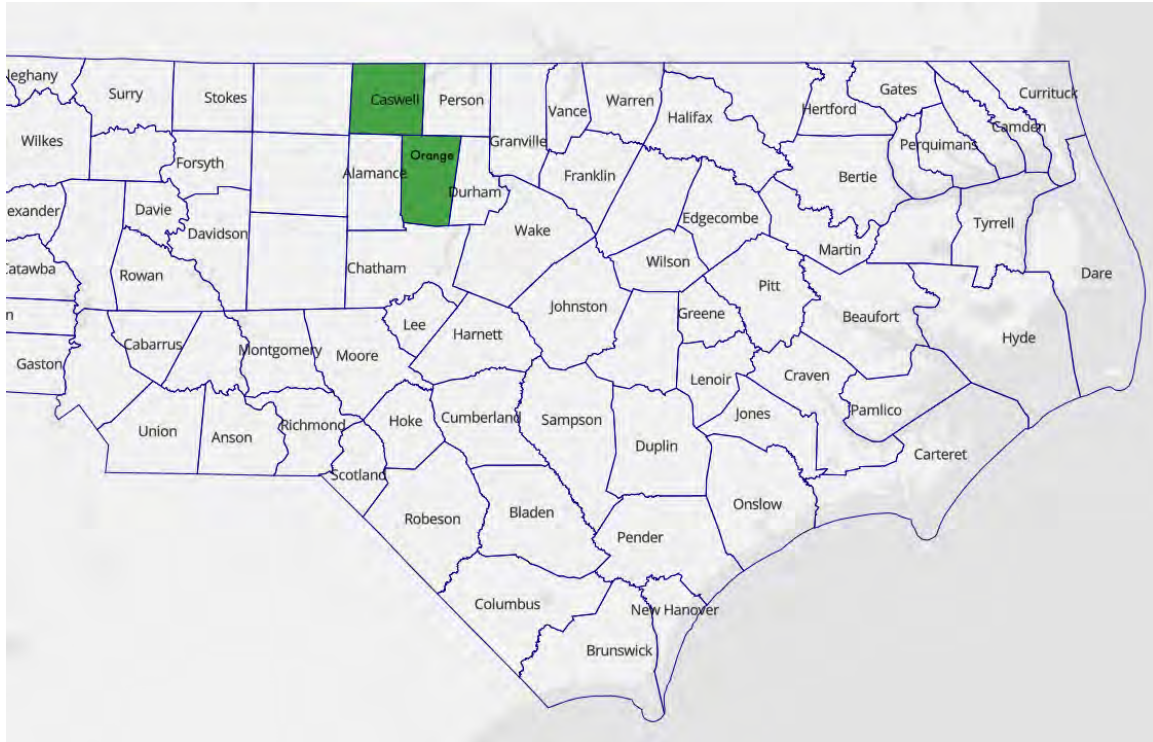
A map of the location of this county cluster in relation to the rest of the state is shown in Figure 29. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 30.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 31. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 2 Democratic leaning districts. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 2 Democratic districts. The Duchin Map also generates 2 Democratic districts.

Table 9 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded

number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In this case there is unanimous agreement between the modal outcome in the simulations and the Enacted Map across all 11 elections.

Figure 29: Map of Caswell and Orange House County Cluster



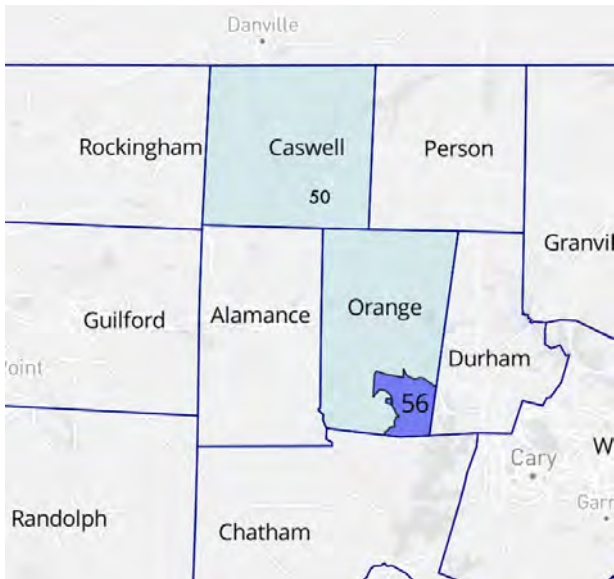
Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
50	0.57	0.56
56	0.85	0.85

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 30: Map of House Enacted Plan in Caswell and Orange County Cluster

(a) Enacted Map



(b) Duchin Map

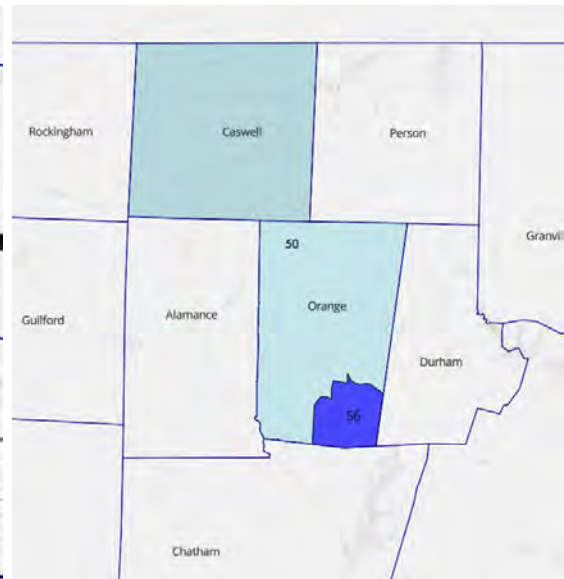
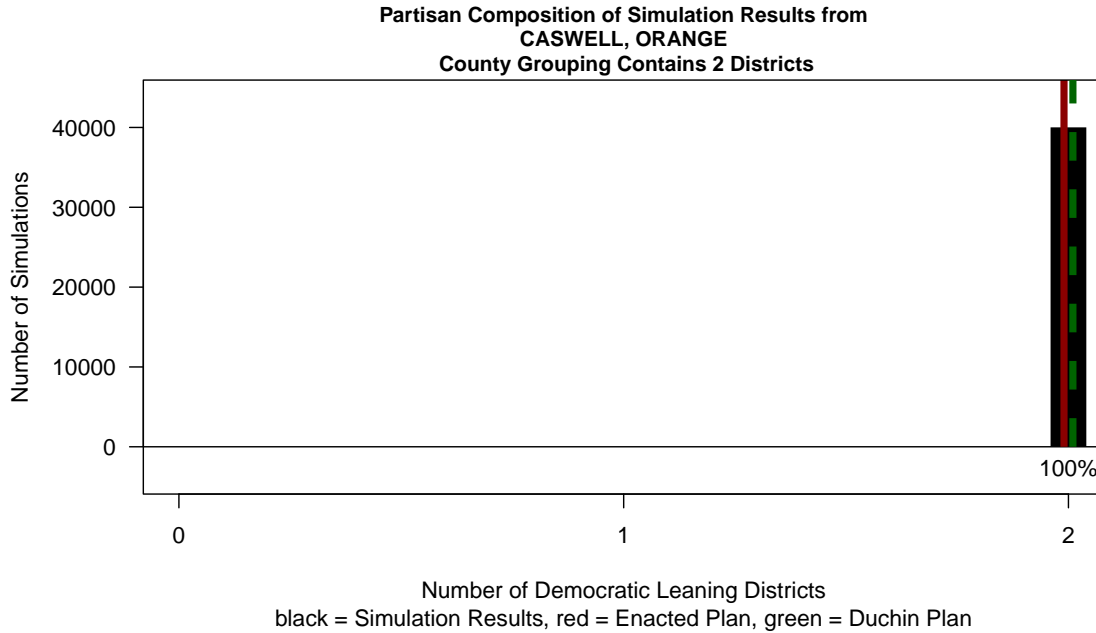


Figure 31: **Distribution of Partisan Districts from Simulations in Caswell and Orange House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 9: Simulation Results by Individual Elections

Caswell and Orange House County Cluster			
Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	0%	0%	100%
2020 Senate	0%	0%	100%
2020 Governor	0%	0%	100%
2020 Lt. Governor	0%	0%	100%
2020 Attorney General	0%	0%	100%
2016 President	0%	0%	100%
2016 Senate	0%	0%	100%
2016 Governor	0%	0%	100%
2016 Lt. Governor	0%	0%	100%
2016 Attorney General	0%	0%	100%
2014 Senate	0%	0%	100%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 2 Democratic leaning districts. The Enacted Plan does as well, as the ‘2 District’ cell is bolded in that row.

6.9 Alexander, Surry, and Wilkes House County Grouping

The Alexander-Surry-Wilkes House county grouping contains 2 districts. In the Enacted Map these are Districts 90 and 94. The county cluster has an overall partisan index of 0.25, which is strongly Republican. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 49,931 simulated maps. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 20,124 simulated maps, each containing two districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 32. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 33.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 34. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 0 Democratic leaning districts. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 0 Democratic districts. The Duchin Map also generates 0 Democratic districts.

Table 10 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted

Plan using the equivalent election. In this case there is unanimous agreement between the modal outcome in the simulations and the Enacted Map across all 11 elections.

Figure 32: **Map of Alexander, Surry, and Wilkes County House County Cluster**

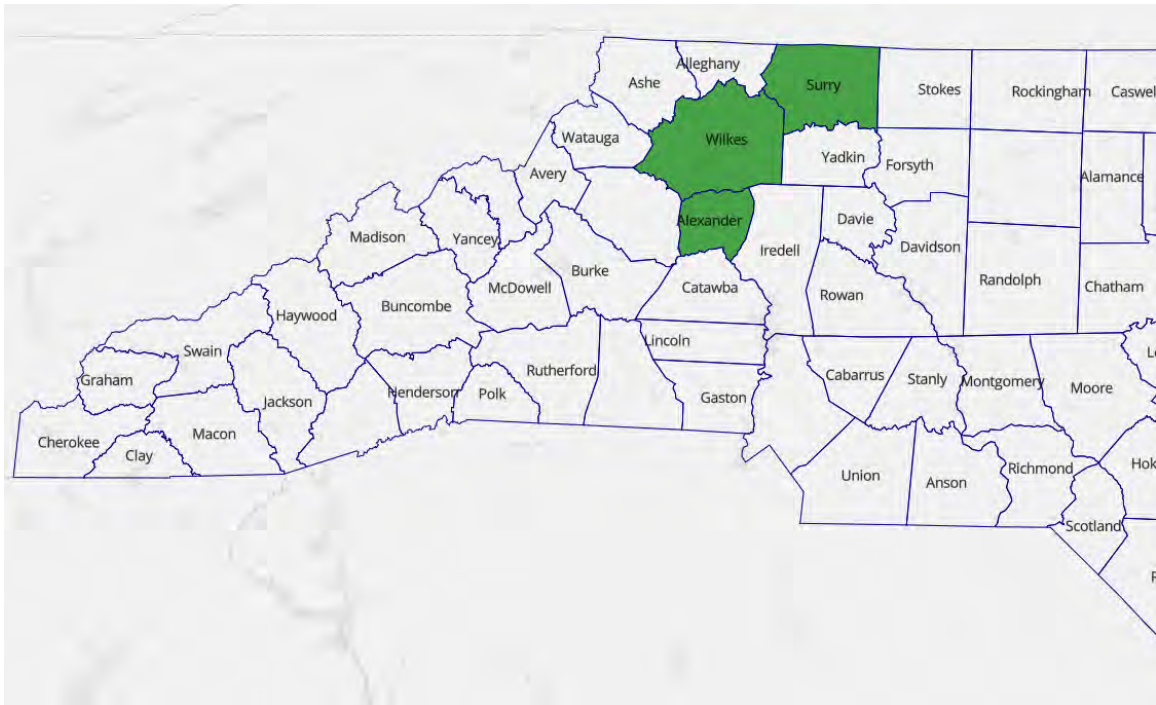
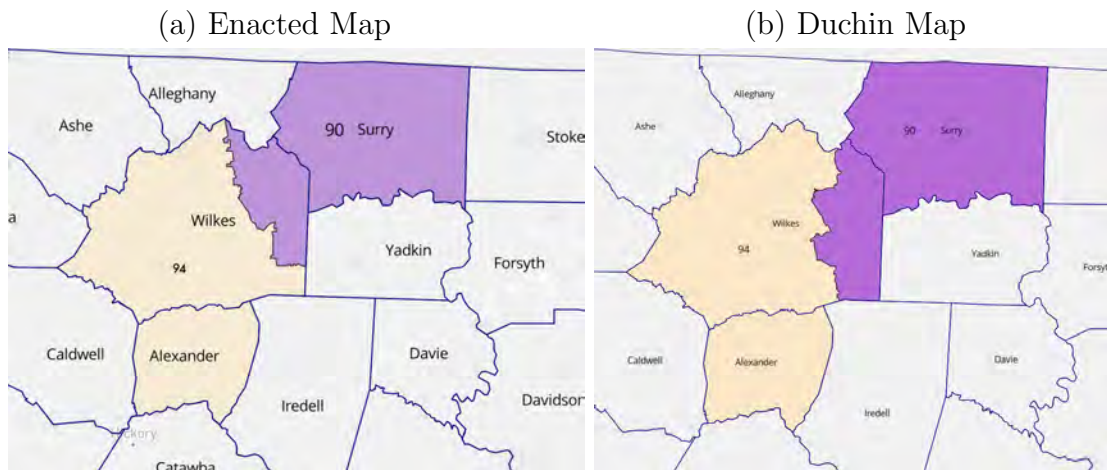


Figure 33: Map of House Enacted Plan in Alexander, Surry, and Wilkes County Cluster

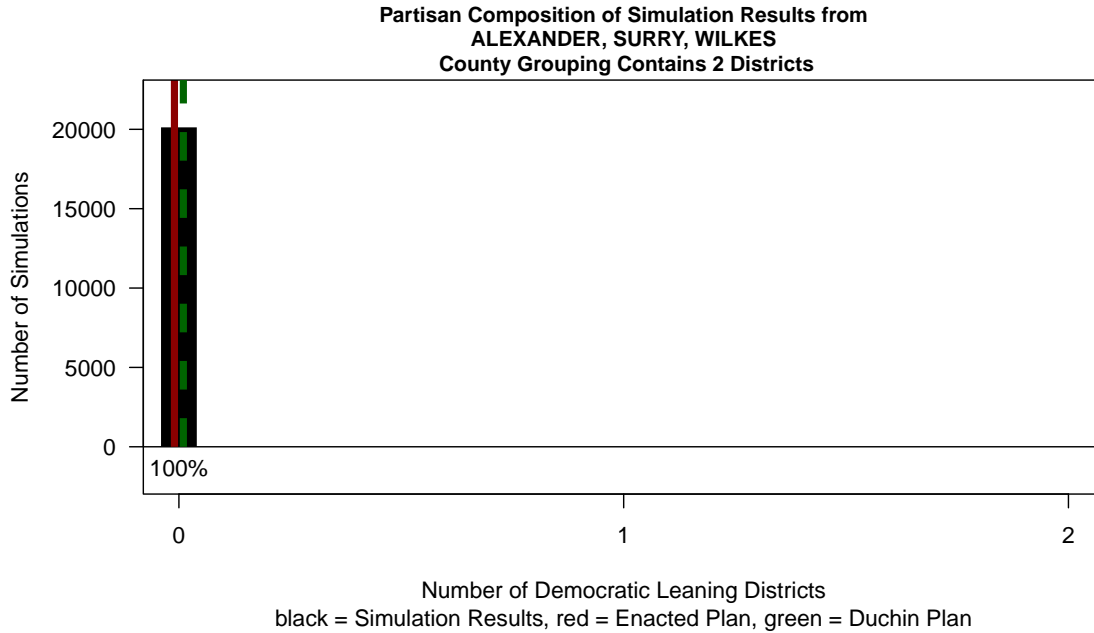


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
90	0.26	0.26
94	0.25	0.25

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 34: **Distribution of Partisan Districts from House Simulations in Alexander, Surry, and Wilkes CountyCluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 10: Simulation Results by Individual Elections

Alexander, Surry, and Wilkes House County Cluster

Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	100%	0%	0%
2020 Senate	100%	0%	0%
2020 Governor	100%	0%	0%
2020 Lt. Governor	100%	0%	0%
2020 Attorney General	100%	0%	0%
2016 President	100%	0%	0%
2016 Senate	100%	0%	0%
2016 Governor	100%	0%	0%
2016 Lt. Governor	100%	0%	0%
2016 Attorney General	100%	0%	0%
2014 Senate	100%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 0 Democratic leaning districts. The Enacted Plan does as well, as the ‘0 District’ cell is bolded in that row.

6.10 Franklin, Granville, and Vance House County Grouping

The Franklin-Granville-Vance House county grouping contains 2 districts. In the Enacted Map these are Districts 32 and 7. The county cluster has an overall partisan index of 0.51, which is very slightly Democratic. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 17,823 simulated maps. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 7,682 simulated maps, each containing two districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 35. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 36.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 37. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there is 1 Democratic leaning district. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 1 Democratic district. The Duchin Map also generates 1 Democratic district.

Table 11 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted

Plan using the equivalent election. In this case there is unanimous agreement between the modal outcome in the simulations and the Enacted Map across all 11 elections.

Figure 35: Map of Franklin, Granville, and Vance House County Cluster

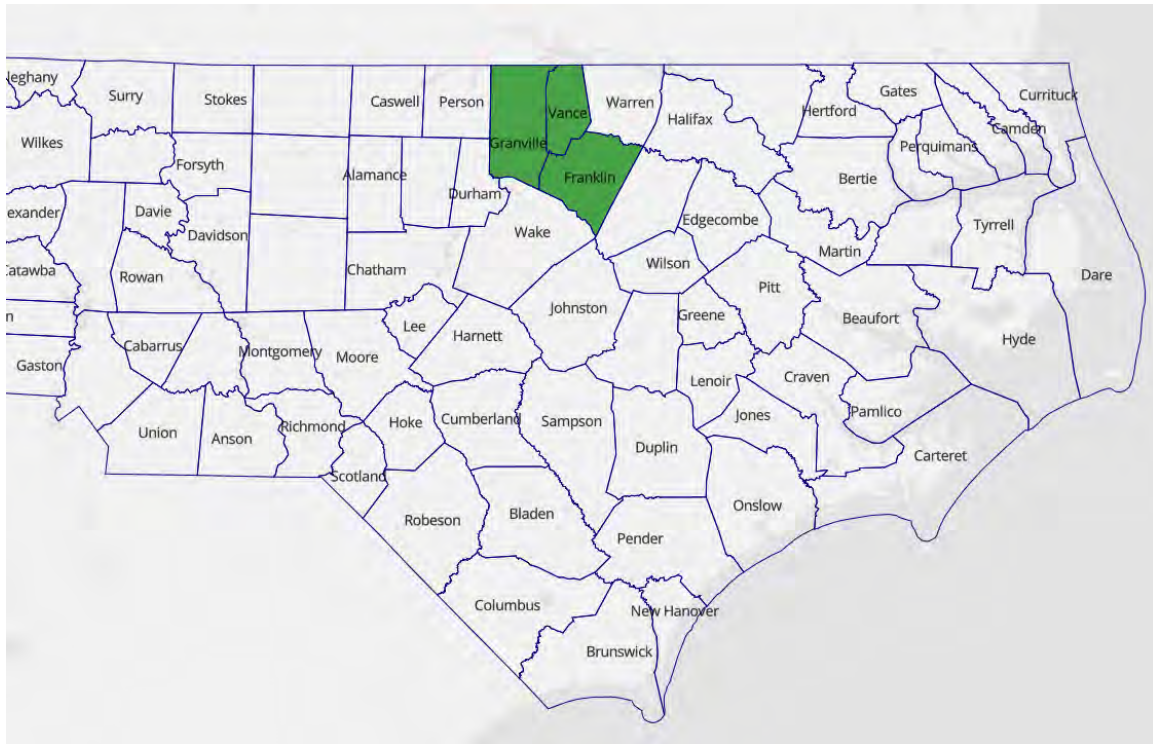
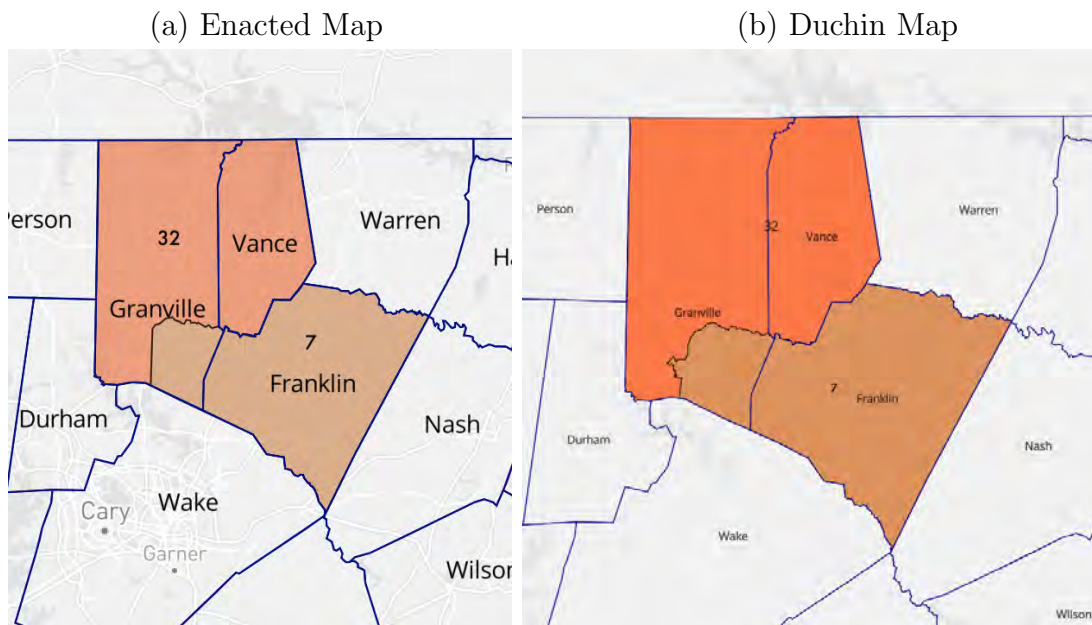


Figure 36: **Map of House Enacted Plan in Franklin, Granville, and Vance County Cluster**

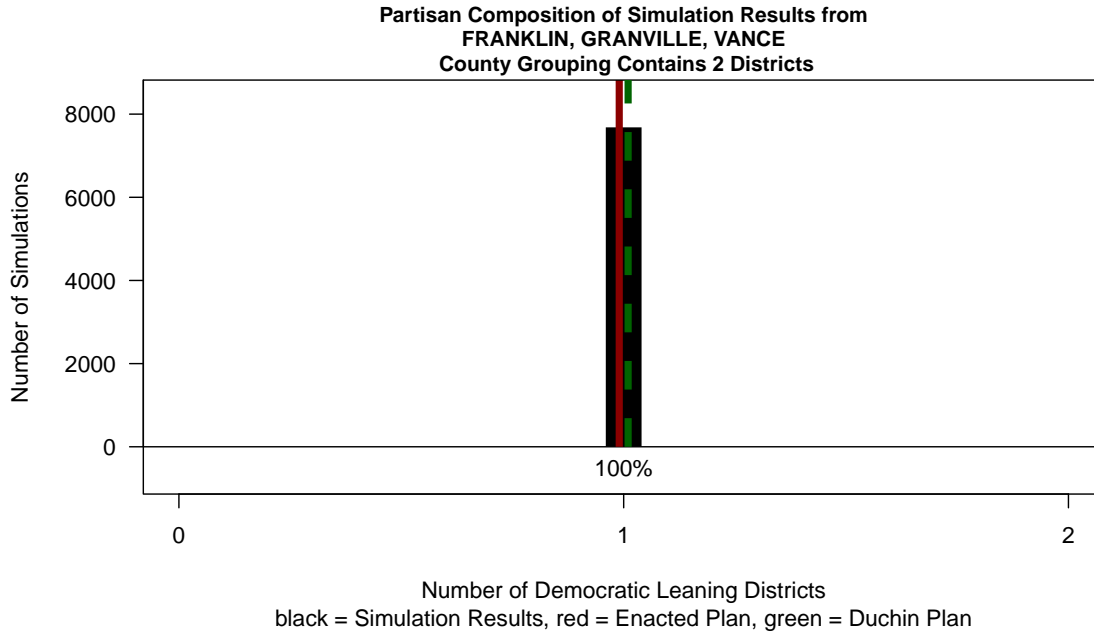


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
7	0.44	0.44
32	0.58	0.58

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 37: Distribution of Partisan Districts from Simulations in Franklin, Granville, and Vance House County Cluster



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 11: Simulation Results by Individual Elections
Franklin, Granville, and Vance House County Cluster

Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	0%	100%	0%
2020 Senate	0%	100%	0%
2020 Governor	0%	100%	0%
2020 Lt. Governor	0%	100%	0%
2020 Attorney General	0%	100%	0%
2016 President	0%	100%	0%
2016 Senate	0%	100%	0%
2016 Governor	0%	100%	0%
2016 Lt. Governor	0%	100%	0%
2016 Attorney General	0%	100%	0%
2014 Senate	0%	100%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 1 Democratic leaning district. The Enacted Plan does as well, as the ‘1 District’ cell is bolded in that row.

6.11 Alleghany, Ashe, Caldwell, and Watauga House County Grouping

The Alleghany-Ashe-Caldwell-Watauga House county grouping contains 2 districts. In the Enacted Map these are Districts 93 and 87. The county cluster has an overall partisan index of 0.36, which is strongly Republican. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 47,843 simulated maps. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves only six unique maps that are as compact as the Enacted Plan.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 38. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 39.

Because there are only six maps that fit the criteria I use of equal population, county traversals, and compactness equal to or better than the Enacted Map, I do not present the distribution of district partisanship for the simulations here. It is sufficient to say that in the Enacted Map, the Duchin map, and the six remaining simulations, all create 2 Republican districts and 0 Democratic leaning districts, regardless of the index or election used. Table 12 shows this below.

Figure 38: Map of Alleghany, Ashe, Caldwell, and Watauga House County Cluster

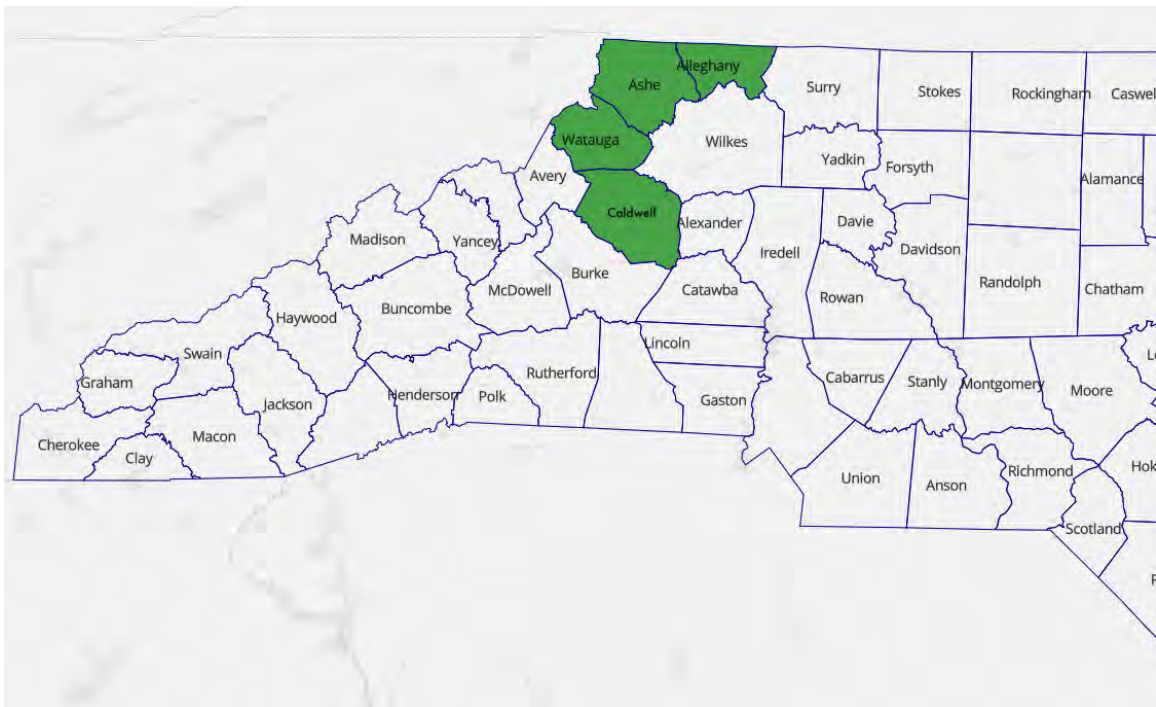
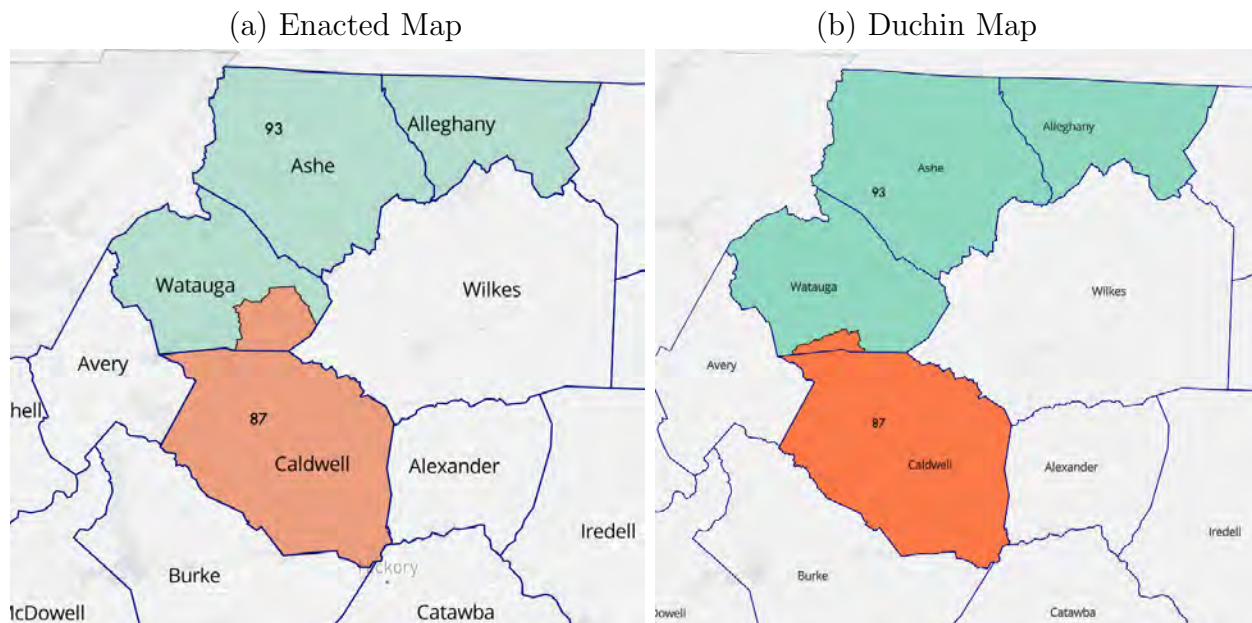


Figure 39: Map of House Enacted Plan in Alleghany, Ashe, Caldwell, and Watauga County Cluster



Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
87	0.28	0.27
93	0.43	0.43

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Table 12: Simulation Results by Individual Elections

Alleghany, Ashe, Caldwell, and Watauga House County Cluster

Number of Democratic Leaning Districts:			
	0	1	2
Election Indices:	Percentage of Simulations		
All Elections Index	100%	0%	0%
Individual Elections:			
2020 President	100%	0%	0%
2020 Senate	100%	0%	0%
2020 Governor	100%	0%	0%
2020 Lt. Governor	100%	0%	0%
2020 Attorney General	100%	0%	0%
2016 President	100%	0%	0%
2016 Senate	100%	0%	0%
2016 Governor	100%	0%	0%
2016 Lt. Governor	100%	0%	0%
2016 Attorney General	100%	0%	0%
2014 Senate	100%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 0 Democratic leaning districts. The Enacted Plan does as well, as the ‘0 District’ cell is bolded in that row.

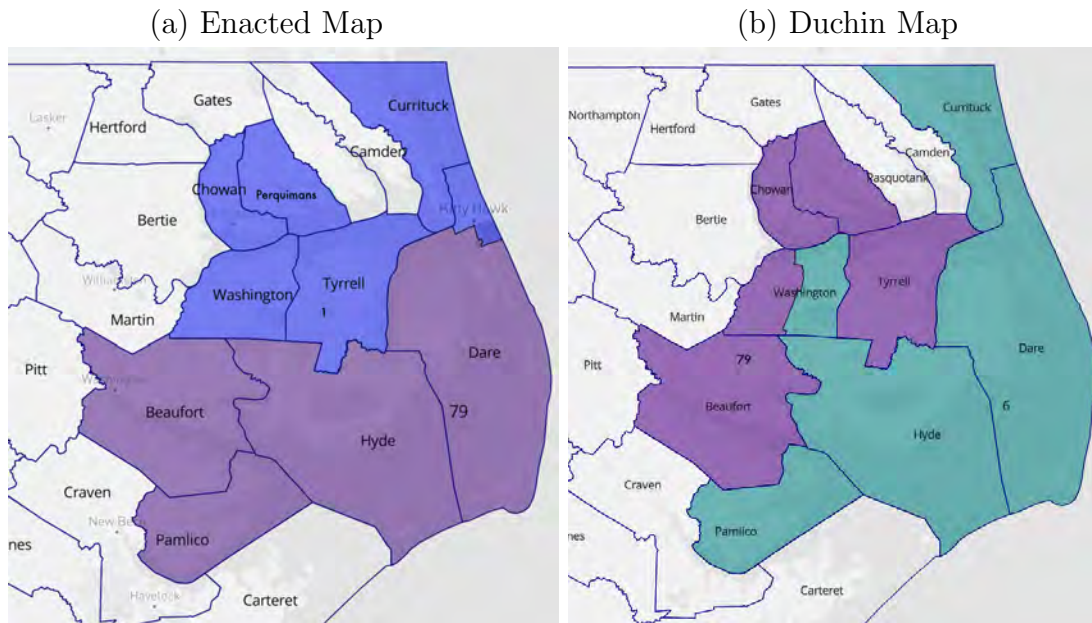
6.12 Beaufort, Chowan, Currituck, Dare, Hyde, Pamlico, Perquimans, Tyrrell, and Washington House County Grouping

The Beaufort-Chowan-Currituck-Dare-Hyde-Pamlico-Perquimans-Tyrrell-Washington House county grouping contains 2 districts. In the Enacted Map these are Districts 1 and 79. The county cluster has an overall partisan index of 0.39, which is strongly Republican. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 379 simulated maps. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves only two unique maps that are as compact as the Enacted Plan.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 40. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 41.

Because there are only two maps that fit the criteria I use of equal population, county traversals, and compactness equal to or better than the Enacted Map, I do not present the distribution of district partisanship for the simulations here. It is sufficient to say that in the Enacted Map, the Duchin map, and the two remaining simulations, all create 2 Republican districts and 0 Democratic leaning districts, regardless of the index or election used. Table 13 shows this below.

Figure 41: Map of House Enacted Plan in Beaufort, Chowan, Currituck, Dare, Hyde, Pamlico, Perquimans, Tyrrell, and Washington County Cluster



Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
1 (6 in Duchin)	0.39	0.36
79	0.39	0.41

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Table 13: Simulation Results by Individual Elections

Beaufort, Chowan, Currituck, Dare, Hyde, Pamlico, Perquimans, Tyrrell, and Washington House County Cluster

Number of Democratic Leaning Districts:			
	0	1	2
Election Indices:	Percentage of Simulations		
All Elections Index	100%	0%	0%
Individual Elections:			
2020 President	100%	0%	0%
2020 Senate	100%	0%	0%
2020 Governor	100%	0%	0%
2020 Lt. Governor	100%	0%	0%
2020 Attorney General	100%	0%	0%
2016 President	100%	0%	0%
2016 Senate	100%	0%	0%
2016 Governor	100%	0%	0%
2016 Lt. Governor	100%	0%	0%
2016 Attorney General	100%	0%	0%
2014 Senate	100%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 0 Democratic leaning districts. The Enacted Plan does as well, as the ‘0 District’ cell is bolded in that row.

6.13 Buncombe House County Grouping

The Buncombe House county grouping contains 3 districts. In the Enacted Map these are Districts 114, 115, and 116. The county cluster has an overall partisan index of 0.60, which is moderately Democratic. After conducting 50,000 initial simulations to create three districts in this cluster, I would normally discard any simulations that contain more county traversals than the Enacted Plan. However, this grouping contains only one county, so all of the simulations will contain the same number of traversals as the Enacted Map. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 38,664 simulated maps, each containing three districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 42. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 43.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 45. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 28% of the simulations there are 2 Democratic leaning districts. In 72% of the simulations there are three Democratic leaning districts. The Enacted Map is in alignment with the minority outcome of the simulations by also creating 2 Democratic districts. The Duchin Map generates 3 Democratic districts.

Table 15 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded

number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In this case the Enacted Plan creates 2 Democratic leaning districts, regardless of the election considered. However, the frequency with which the simulations produce 2 Democratic districts varies from a low of 2% in the 2020 Governor race to a 51% majority in the 2016 Presidential race.

One consideration for why the Enacted Plan diverges from the Duchin Plan and the modal outcome of the simulations is because it keeps a larger portion of the town of Asheville, the county seat and largest city in Buncombe County, in fewer districts. Figure 44 shows a map of the city and how the two different plans divide the city. The Duchin Plan splits Asheville nearly equally across all three districts in a pie shape while the Enacted Plan keeps much more of Asheville within two districts. There is a small portion of the southern most part of the city in District 116. The tactic of dividing Democratic cities in a ‘pinwheel’ or ‘pizza’ shape and grouping those ‘slices’ with more Republican suburban and exurban areas is a classic tactic to generate more Democratic districts and overcome the geographic clustering that is common among Democratic voters. The Enacted Plan keeps much more of Asheville within two districts. Table 14 shows the percent of Asheville voters in each district in each plan. It is clear that the Duchin plan splits Asheville into three roughly equal parts while the Enacted Plan places a much larger majority of Asheville into only two districts.

Table 14: Division of Asheville in Enacted Plan and Duchin Plan

	Percent of Asheville in district	
District:	Enacted Plan	Duchin Plan
114	55.6	27.7
115	30.9	39.9
116	13.5	32.5
Total:	100%	100%

Note: Population number for city by district for Enacted Plan from: https://ncleg.gov/Files/GIS/Plans_Main/Senate_2021/SL%202021-173%20Senate%20-%20StatPack%20Report.pdf Population numbers for city by district for Duchin Plan from Dave’s Redistricting online. <https://davesredistricting.org/>

Figure 42: Map of Buncombe House County Cluster

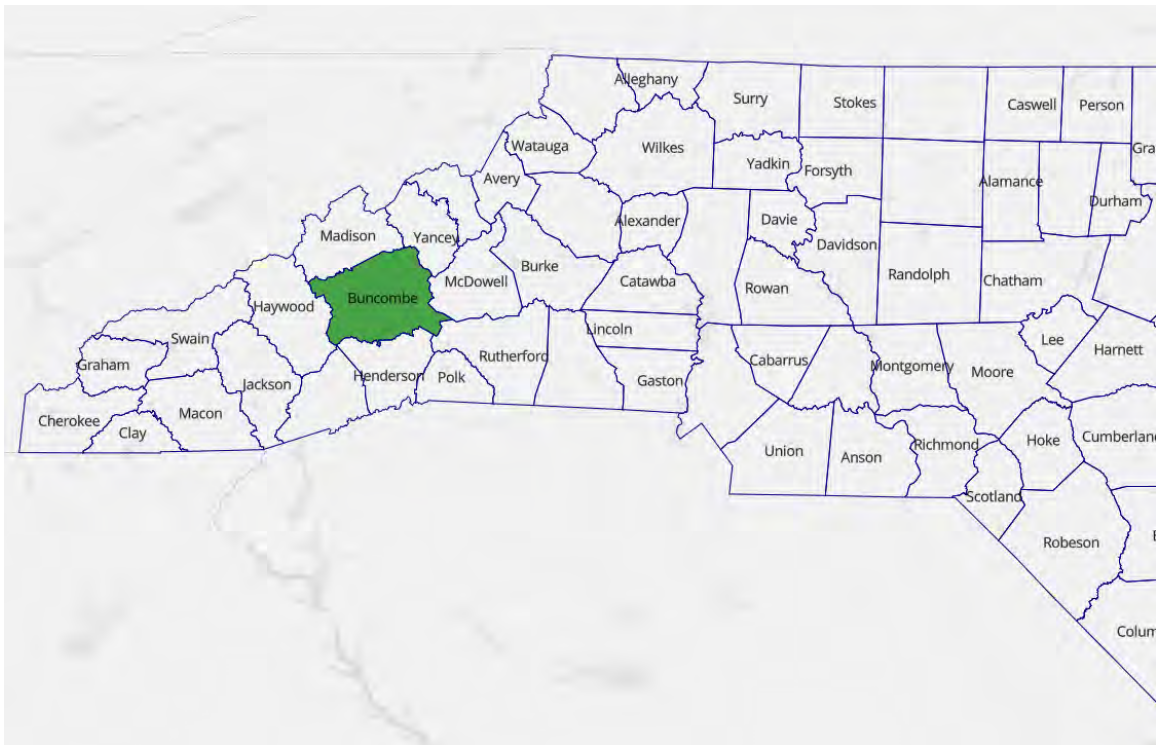
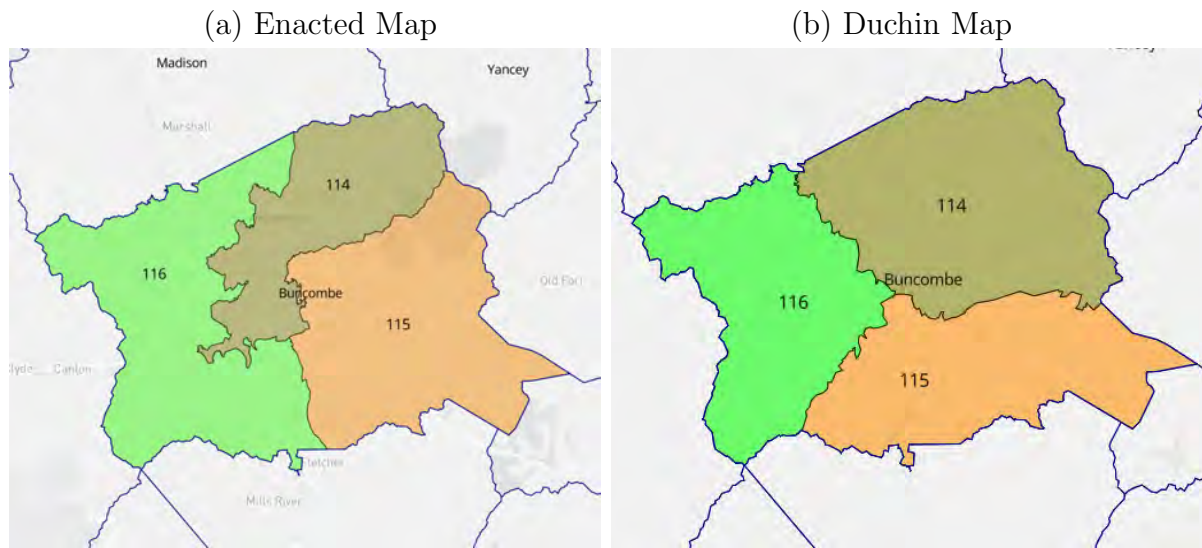


Figure 43: Map of House Enacted Plan and Duchin Plan in Buncombe County Cluster



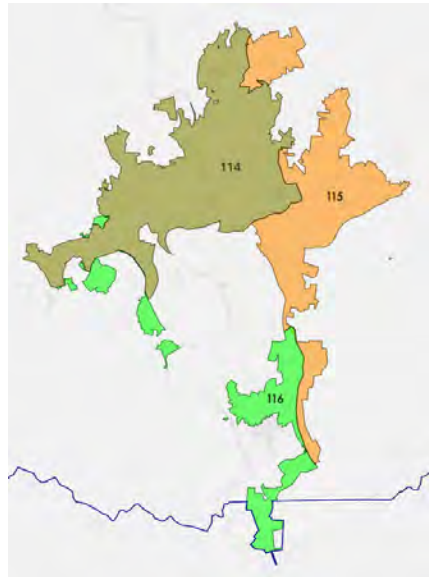
Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
114	0.72	0.62
115	0.60	0.60
116	0.46	0.57

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 44: Map of Asheville Divisions in Buncombe County Cluster

(a) Enacted Map



(b) Duchin Map

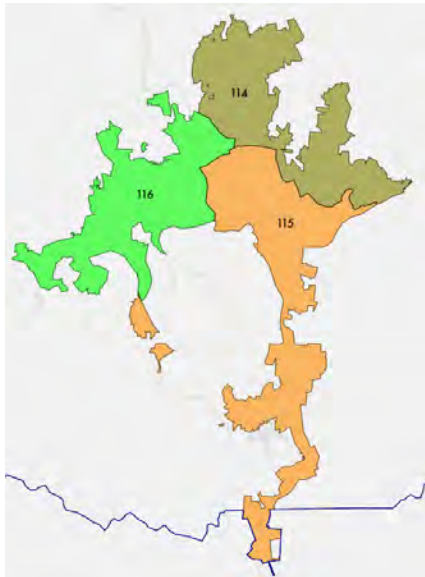
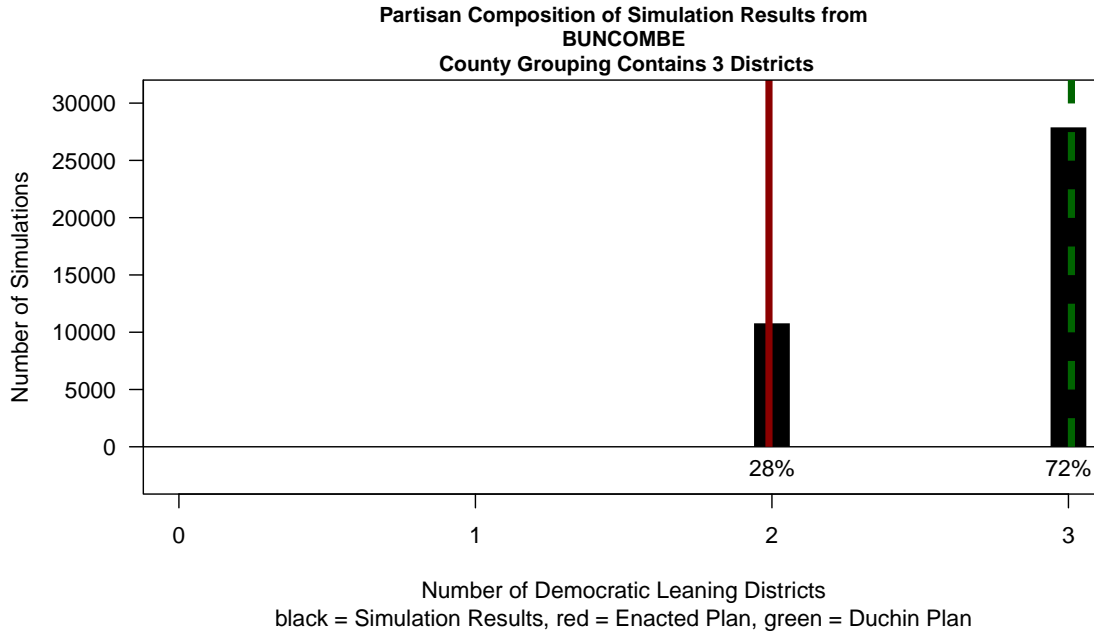


Figure 45: **Distribution of Partisan Districts from Simulations in Buncombe House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 15: Simulation Results by Individual Elections

Buncombe House County Cluster				
Number of Democratic Leaning Districts:				
	0	1	2	3
Individual Elections:				
2020 President	0%	0%	26%	74%
2020 Senate	0%	0%	23%	77%
2020 Governor	0%	0%	2%	98%
2020 Lt. Governor	0%	0%	31%	69%
2020 Attorney General	0%	0%	16%	84%
2016 President	0%	1%	51%	48%
2016 Senate	0%	1%	46%	53%
2016 Governor	0%	0%	12%	88%
2016 Lt. Governor	0%	1%	43%	56%
2016 Attorney General	0%	0%	20%	80%
2014 Senate	0%	0%	24%	76%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 26% of the simulations produce 2 Democratic leaning districts. The Enacted Plan does as well, as the ‘2 Districts’ cell is bolded in that row.

6.14 Anson and Union House County Grouping

The Anson-Union House county grouping contains 3 districts. In the Enacted Map these are Districts 55, 68 and 69. The county cluster has an overall partisan index of .37, which is strongly Republican. After conducting 50,000 initial simulations to create three districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 43,555 simulated maps. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 20,759 simulated maps, each containing three districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 46. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 47.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 48. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 0 Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 0 Democratic leaning districts. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 0 Democratic districts. The Duchin Map also generates 0 Democratic districts.

Table 16 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted

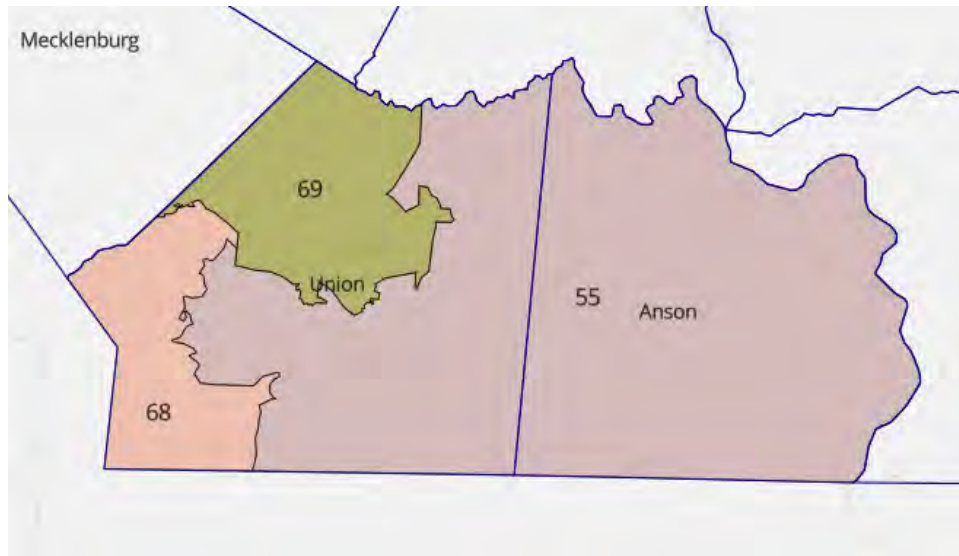
Plan using the equivalent election. In this case there is unanimous agreement between the modal outcome in the simulations and the Enacted Map across all 11 elections.

Figure 46: **Map of Anson and Union House County Cluster**

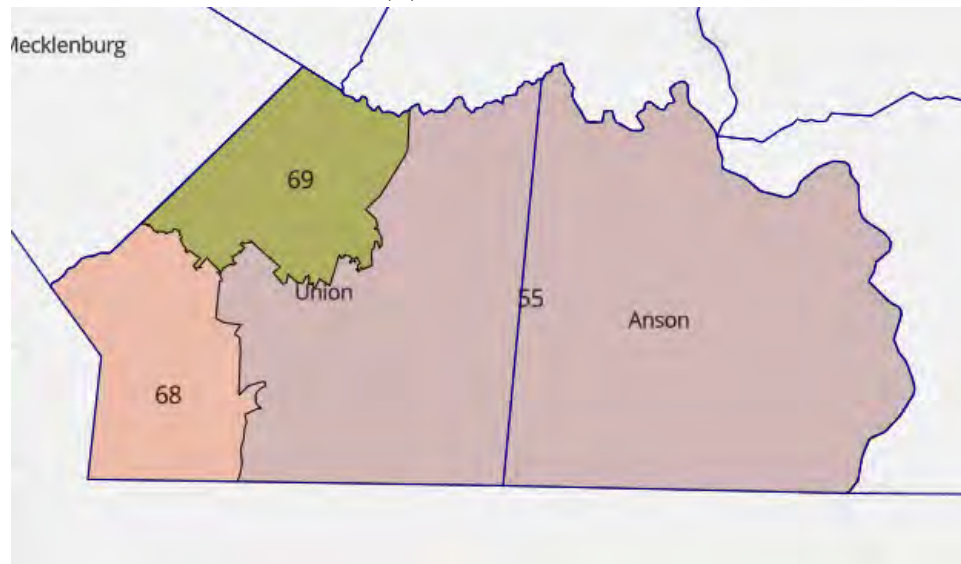


Figure 47: Map of House Enacted Plan in Anson and Union House County Cluster

(a) Enacted Map



(b) Duchin Map

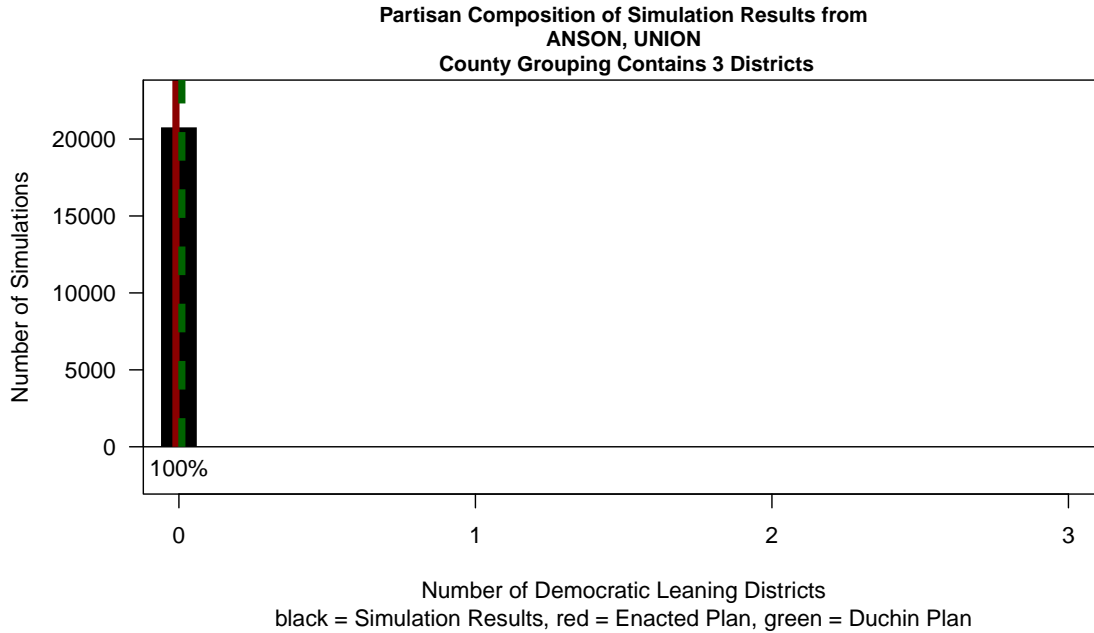


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
55	0.41	0.44
68	0.36	0.35
69	0.35	0.34

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 48: **Distribution of Partisan Districts from Simulations in Anson and Union House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 16: Simulation Results by Individual Elections

Anson and Union House County Cluster

Number of Democratic Leaning Districts:				
	0	1	2	3
Individual Elections:				
2020 President	100%	0%	0%	0%
2020 Senate	100%	0%	0%	0%
2020 Governor	100%	0%	0%	0%
2020 Lt. Governor	100%	0%	0%	0%
2020 Attorney General	100%	0%	0%	0%
2016 President	100%	0%	0%	0%
2016 Senate	100%	0%	0%	0%
2016 Governor	100%	0%	0%	0%
2016 Lt. Governor	100%	0%	0%	0%
2016 Attorney General	100%	0%	0%	0%
2014 Senate	73%	27%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 0 Democratic leaning districts. The Enacted Plan does as well, as the ‘0 District’ cell is bolded in that row.

6.15 Onslow and Pender House County Grouping

The Onslow-Pender House county grouping contains 3 districts. In the Enacted Map these are Districts 14, 15, and 16. The county cluster has an overall partisan index of .35, which is heavily Republican. After conducting 50,000 initial simulations to create three districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 48,928 simulated maps. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 35,873 simulated maps, each containing three districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 49. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 50.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 51. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 0 Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 0 Democratic leaning districts. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 0 Democratic districts. The Duchin Map also generates 0 Democratic districts.

Table 17 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted

Plan using the equivalent election. In this case there is unanimous agreement between the modal outcome in the simulations and the Enacted Map across all 11 elections.

Figure 49: Map of Onslow and Pender House County Cluster

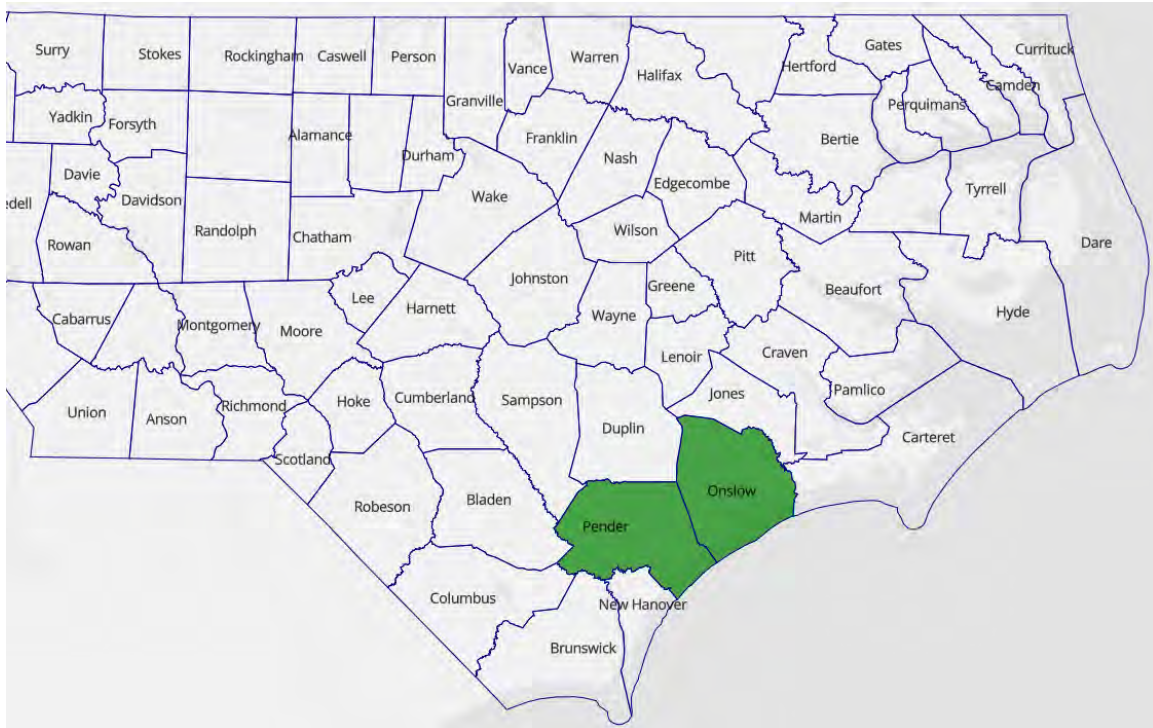
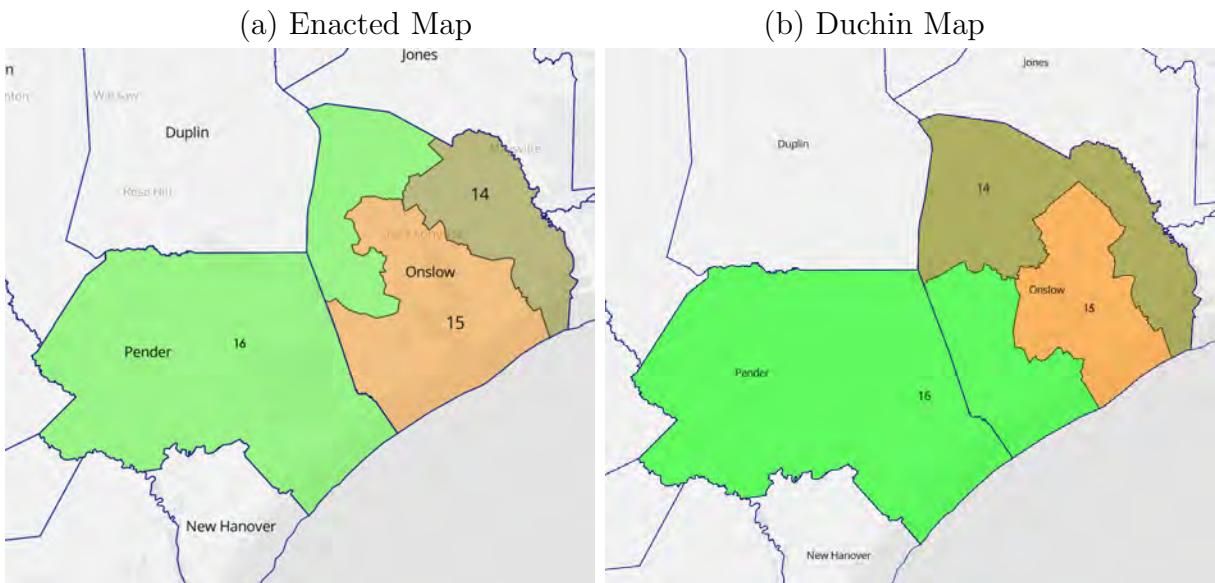


Figure 50: Map of House Enacted Plan in Onslow and Pender County Cluster

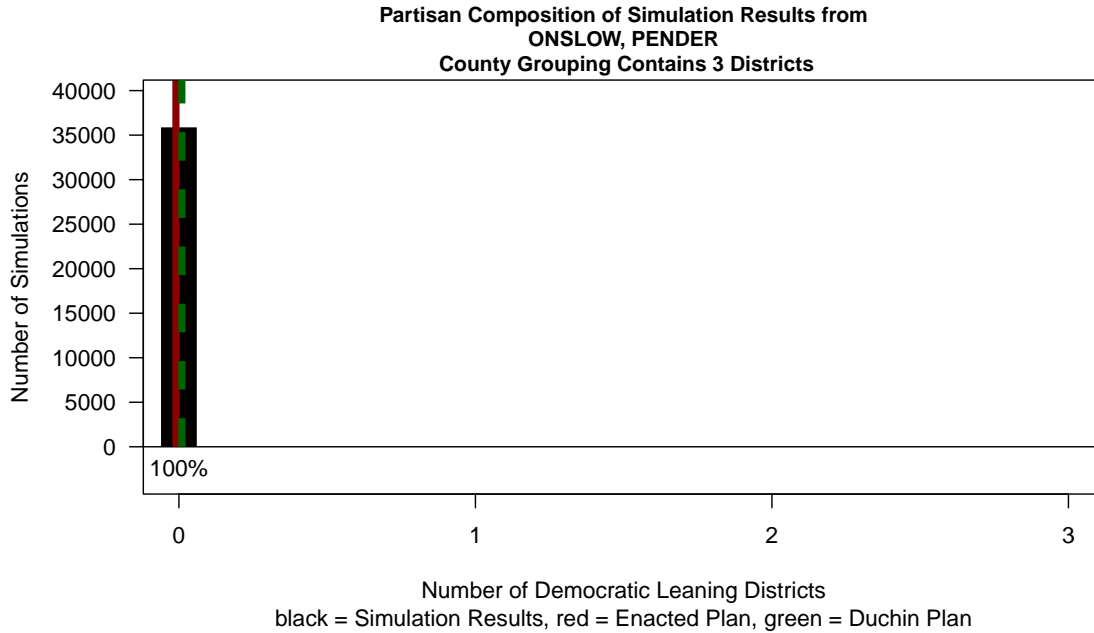


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
14	0.39	0.29
15	0.32	0.49
16	0.33	0.33

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 51: Distribution of Partisan Districts from Simulations in Onslow and Pender House County Cluster



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 17: Simulation Results by Individual Elections

Onslow and Pender House County Cluster				
Number of Democratic Leaning Districts:				
	0	1	2	3
Individual Elections:				
2020 President	100%	0%	0%	0%
2020 Senate	100%	0%	0%	0%
2020 Governor	100%	0%	0%	0%
2020 Lt. Governor	100%	0%	0%	0%
2020 Attorney General	100%	0%	0%	0%
2016 President	100%	0%	0%	0%
2016 Senate	100%	0%	0%	0%
2016 Governor	100%	0%	0%	0%
2016 Lt. Governor	100%	0%	0%	0%
2016 Attorney General	100%	0%	0%	0%
2014 Senate	100%	0%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 0 Democratic leaning districts. The Enacted Plan does as well, as the ‘0 District’ cell is bolded in that row.

6.16 Cumberland House County Grouping

The Cumberland House county group contains 4 districts. In the Enacted Map these are Districts 42, 43, 44, and 45. The county cluster has an overall partisan index of .59, which is moderately Democratic. After conducting 50,000 initial simulations to create four districts in this cluster, I would normally discard any simulations that contain more county traversals than the Enacted Plan. However, Cumberland is a single county group, and so all of the simulations have the same number of traversals as the Enacted Map. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 10,521 simulated maps, each containing four districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 52. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 53.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 55. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 82% of the simulations there are 3 Democratic leaning districts. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 3 Democratic districts. In 18% of the simulations there are 4 Democratic leaning districts. The Duchin Map generates 4 Democratic districts. This falls outside of the 50% range of simulation results and is thus classified as a partisan outlier result.

Table 19 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election

separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In 5 of the 11 elections there is agreement between the modal outcome in the simulations and the Enacted Map. In 6 of the 11 elections the Enacted Plan results fall outside the middle 50% range of the simulations and would be classified as outliers.

One consideration for why the Enacted Plan diverges from the Duchin Plan is because it keeps a larger portion of the town of Fayetteville, the county seat and largest city in Cumberland County, in fewer districts. Figure 54 shows a map of the city and how the two different plans divide the city. The Duchin Plan splits Fayetteville nearly equally across all four districts in a pie shape. The tactic of dividing Democratic cities in a ‘pinwheel’ or ‘pizza’ shape and grouping those ‘slices’ with more Republican suburban and exurban areas is a classic tactic to generate more Democratic districts and overcome the geographic clustering that is common among Democratic voters. The Enacted Plan keeps much more of Fayetteville within three districts. A small portion of the southern most part of the city is located in District 45. Table 18 shows the percent of Fayetteville voters in each district in each plan. It is clear that the Duchin plan splits Fayetteville into 4 roughly equal parts while the Enacted Plan places a much larger majority of Fayetteville into only three districts.

Table 18: Division of Fayetteville in Enacted Plan and Duchin Plan

District:	Percent of Fayetteville in district	
	Enacted Plan	Duchin Plan
42	31.4	33.4
43	21.4	21.5
44	39.9	26.8
45	7.3	18.3
Total:	100%	100%

Note: Population number for city by district for Enacted Plan from: https://ncleg.gov/Files/GIS/Plans_Main/Senate_2021/SL%202021-173%20Senate%20-%20StatPack%20Report.pdf Population numbers for city by district for Duchin Plan from Dave’s Redistricting online. <https://davesredistricting.org/>

Figure 52: Map of Cumberland House County Cluster

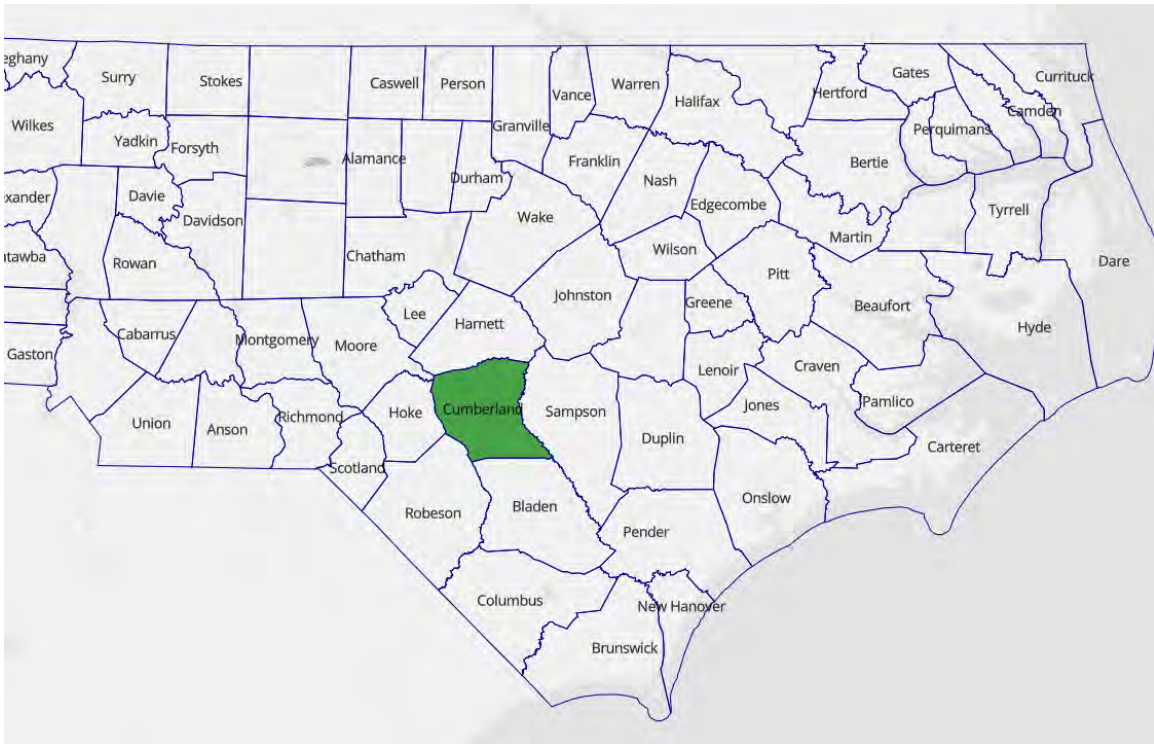
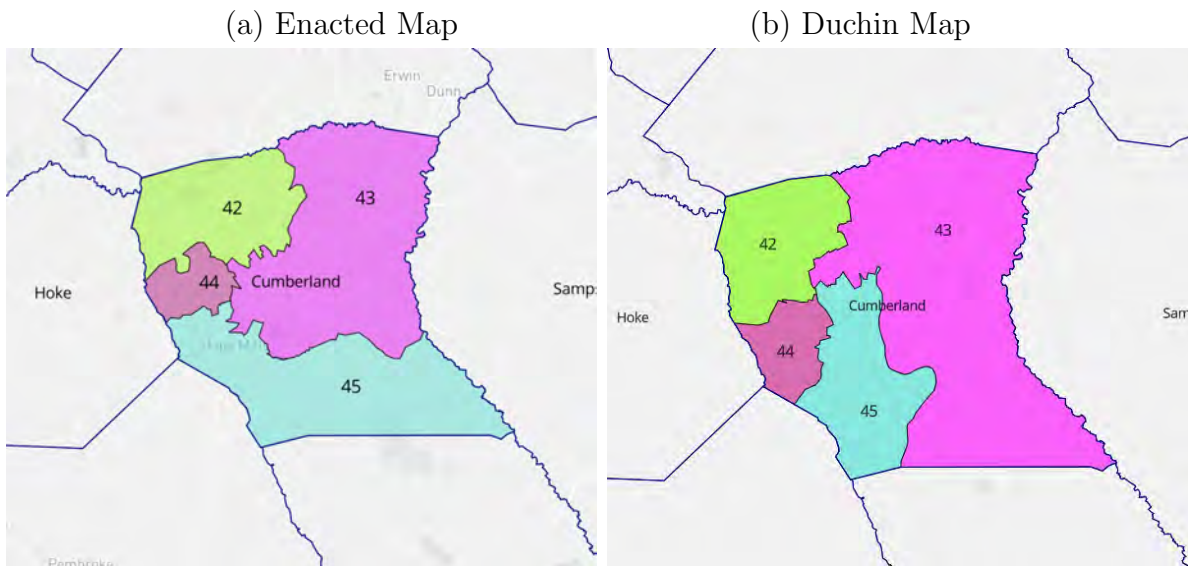


Figure 53: **Map of House Enacted Plan in Cumberland County Cluster**



Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
42	0.67	0.72
43	0.50	0.55
44	0.72	0.60
45	0.49	0.53

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 54: **Map of Fayetteville Divisions in Cumberland County Cluster**

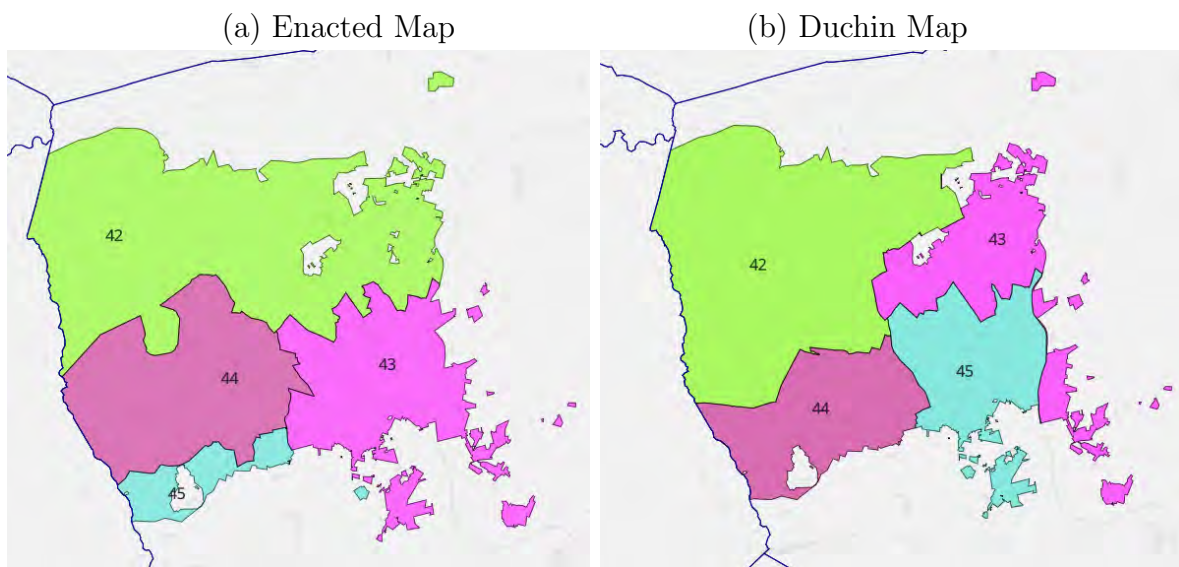
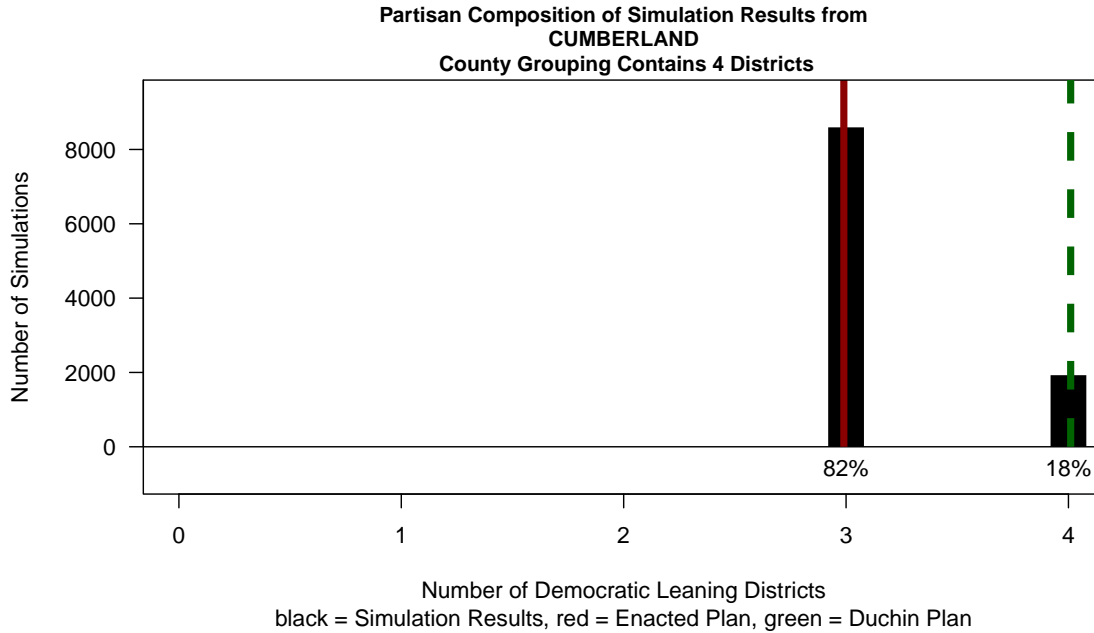


Figure 55: **Distribution of Partisan Districts from Simulations in Cumberland House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 19: Simulation Results by Individual Elections

Cumberland House County Cluster

	Number of Democratic Leaning Districts:				
	0	1	2	3	4
Individual Elections:					
2020 President	0%	0%	0%	91%	9%
2020 Senate	0%	0%	0%	88%	12%
2020 Governor	0%	0%	0%	23%	77%
2020 Lt. Governor	0%	0%	0%	90%	10%
2020 Attorney General	0%	0%	0%	49%	51%
2016 President	0%	0%	0%	90%	10%
2016 Senate	0%	0%	0%	94%	6%
2016 Governor	0%	0%	0%	94%	6%
2016 Lt. Governor	0%	0%	0%	94%	6%
2016 Attorney General	0%	0%	0%	48%	52%
2014 Senate	0%	0%	0%	89%	11%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 0% of the simulations produce 2 Democratic leaning districts. The Enacted Plan does as well, as the ‘3 Districts’ cell is bolded in that row.

One thing to note regarding the instances in which the Enacted Plan does not align with the simulation results in individual elections. In all six cases the Enacted Plan creates one district (and occasionally two districts) that is extremely competitive and is effectively tied (less than 1% from 50/50), but is just below 0.50 and is thus not classified as a Democratic district. For example, in the 2020 Presidential race the Enacted Plan districts have a partisan lean of 0.719, 0.672, 0.495, and 0.492. Thus, two of the districts, while not classified as Democratic leaning will be heavily contested and both parties will likely win these districts at different times in the coming years.

6.17 Harnett and Johnston House County Grouping

The Harnett-Johnston House county group contains 4 districts. In the Enacted Map these are Districts 6, 26, 28, and 53. The county cluster has an overall partisan index of .38, which is moderately Republican. After conducting 50,000 initial simulations to create four districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 34,976 simulations. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 593 simulated maps, each containing four districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 56. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 57.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 58. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 0 Democratic leaning districts. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 0 Democratic districts. The Duchin Map also generates 0 Democratic districts.

Table 20 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted

Plan using the equivalent election. In all 11 of the individual elections there is agreement between the modal outcome in the simulations and the Enacted Map.

Figure 56: **Map of Harnett and Johnston House County Cluster**

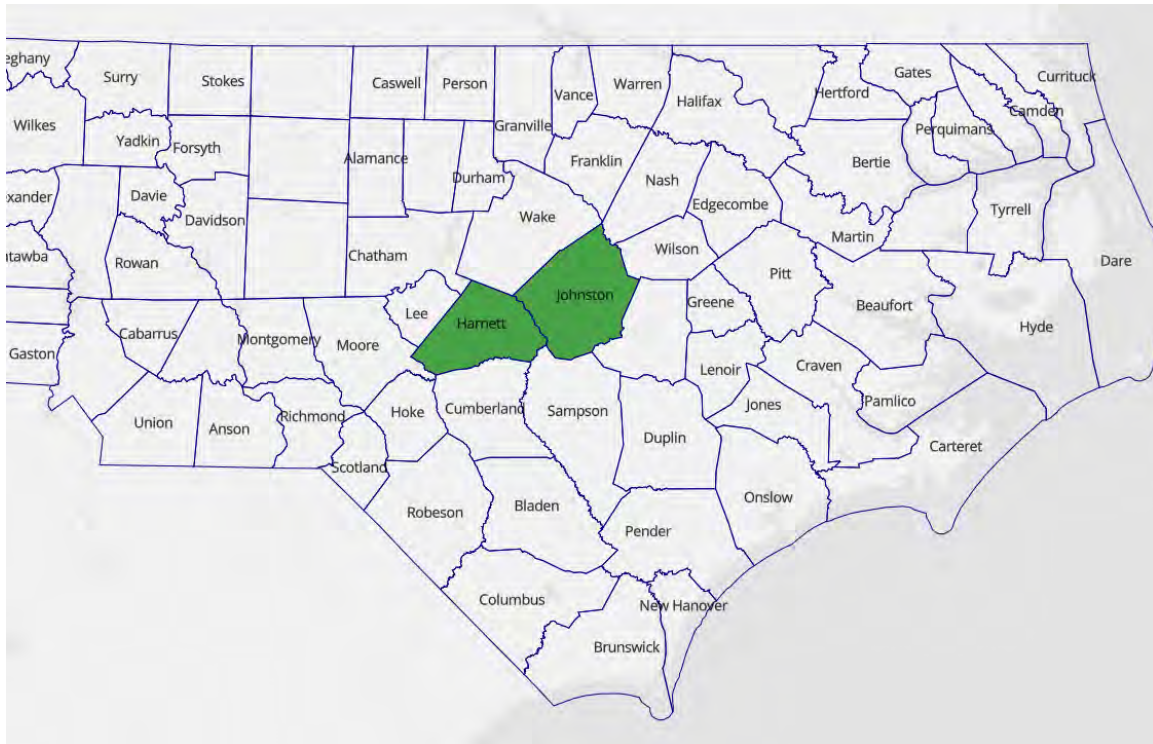
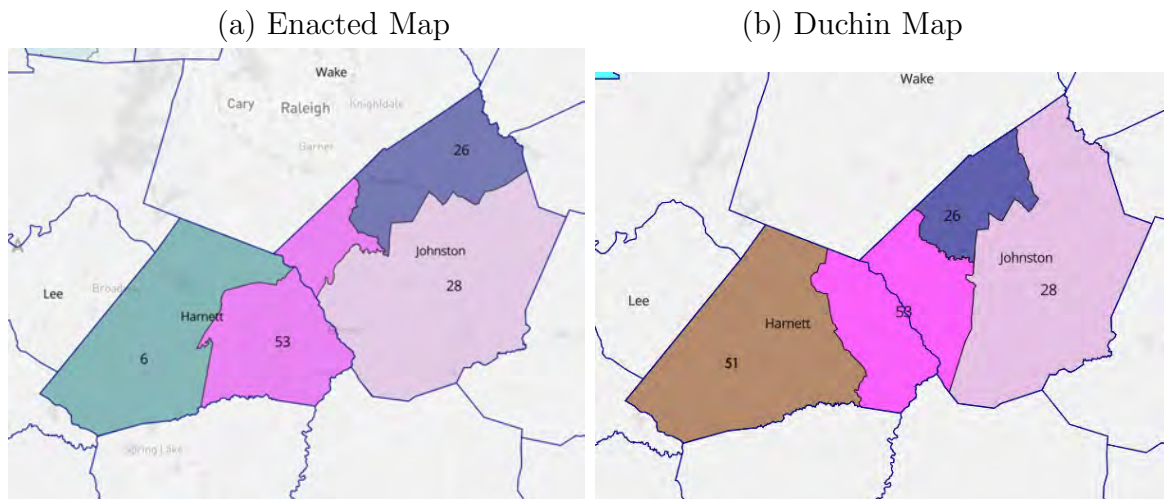


Figure 57: Map of House Enacted Plan in Harnett and Johnston County Cluster

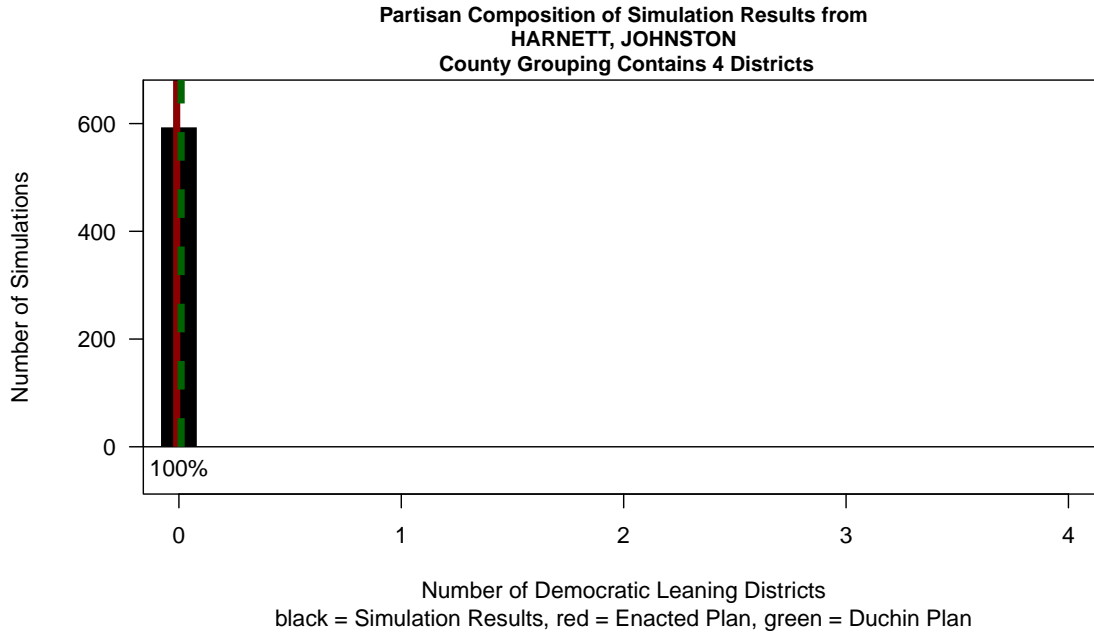


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
6 (51 in Duchin)	0.40	0.42
26	0.41	0.43
28	0.34	0.35
53	0.37	0.33

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 58: **Distribution of Partisan Districts from Simulations in Harnett and Johnston House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 20: Simulation Results by Individual Elections

Harnett and Johnston House County Cluster

	Number of Democratic Leaning Districts:				
	0	1	2	3	4
Individual Elections:					
2020 President	100%	0%	0%	0%	0%
2020 Senate	100%	0%	0%	0%	0%
2020 Governor	100%	0%	0%	0%	0%
2020 Lt. Governor	100%	0%	0%	0%	0%
2020 Attorney General	100%	0%	0%	0%	0%
2016 President	100%	0%	0%	0%	0%
2016 Senate	100%	0%	0%	0%	0%
2016 Governor	100%	0%	0%	0%	0%
2016 Lt. Governor	100%	0%	0%	0%	0%
2016 Attorney General	100%	0%	0%	0%	0%
2014 Senate	100%	0%	0%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 0 Democratic leaning districts. The Enacted Plan does as well, as the ‘0 District’ cell is bolded in that row.

6.18 Catawba and Iredell House County Grouping

The Catawba-Iredell House county group contains 4 districts. In the Enacted Map these are Districts 84, 89, 95, and 96. The county cluster has an overall partisan index of .33, which is strongly Republican. After conducting 50,000 initial simulations to create four districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 14,955 simulations. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 2,944 simulated maps, each containing four districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 59. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 60.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 61. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 0 Democratic leaning districts. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 0 Democratic districts. The Duchin Map also generates 0 Democratic districts.

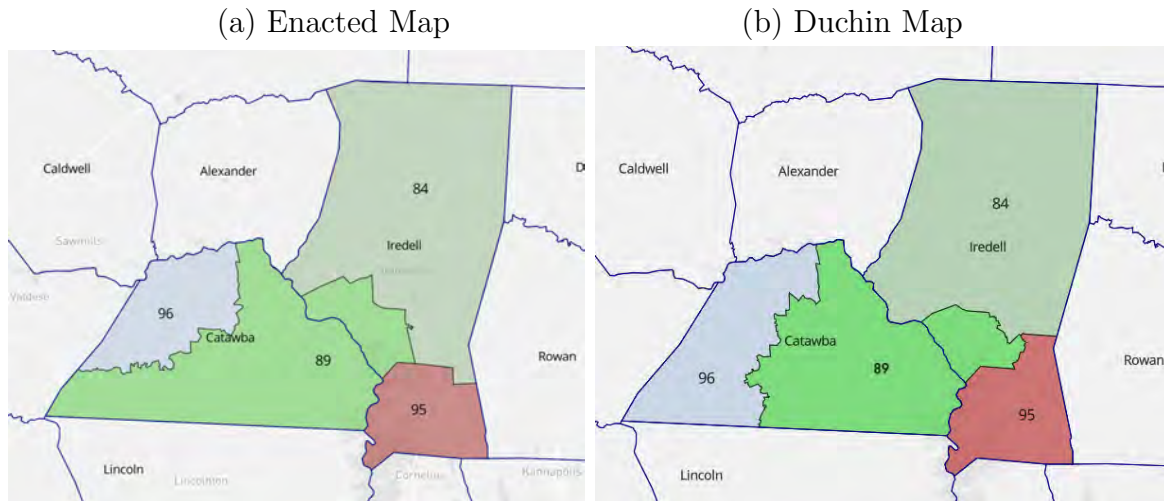
Table 21 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted

Plan using the equivalent election. In all 11 of the individual elections there is agreement between the modal outcome in the simulations and the Enacted Map.

Figure 59: **Map of Catawba and Iredell House County Cluster**



Figure 60: Map of House Enacted Plan in Catawba and Iredell County Cluster

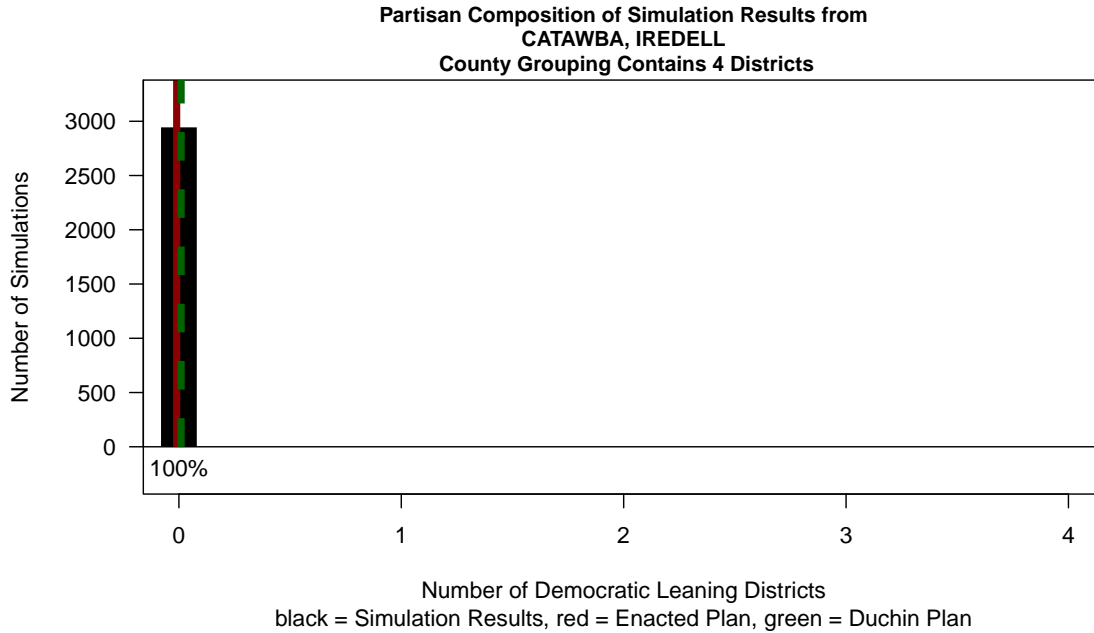


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
84	0.34	0.34
89	0.26	0.28
95	0.34	0.34
96	0.37	0.36

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 61: **Distribution of Partisan Districts from Simulations in Catawba and Iredell House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 21: Simulation Results by Individual Elections

Catawba and Iredell House County Cluster

	Number of Democratic Leaning Districts:				
	0	1	2	3	4
Individual Elections:					
2020 President	100%	0%	0%	0%	0%
2020 Senate	100%	0%	0%	0%	0%
2020 Governor	100%	0%	0%	0%	0%
2020 Lt. Governor	100%	0%	0%	0%	0%
2020 Attorney General	100%	0%	0%	0%	0%
2016 President	100%	0%	0%	0%	0%
2016 Senate	100%	0%	0%	0%	0%
2016 Governor	100%	0%	0%	0%	0%
2016 Lt. Governor	100%	0%	0%	0%	0%
2016 Attorney General	100%	0%	0%	0%	0%
2014 Senate	100%	0%	0%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 0 Democratic leaning districts. The Enacted Plan does as well, as the ‘0 District’ cell is bolded in that row.

6.19 Durham and Person House County Grouping

The Durham-Person House county group contains 4 districts. In the Enacted Map these are Districts 2, 29, 30, and 31. The county cluster has an overall partisan index of .76, which is strongly Democratic. After conducting 50,000 initial simulations to create four districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 49,896 simulations. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 37,800 simulated maps, each containing four districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 62. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 63.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 64. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 4 Democratic leaning districts. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 4 Democratic districts. The Duchin Map also generates 4 Democratic districts.

Table 22 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted

Plan using the equivalent election. In all 11 of the individual elections there is agreement between the modal outcome in the simulations and the Enacted Map.

Figure 62: Map of Durham and Person House County Cluster

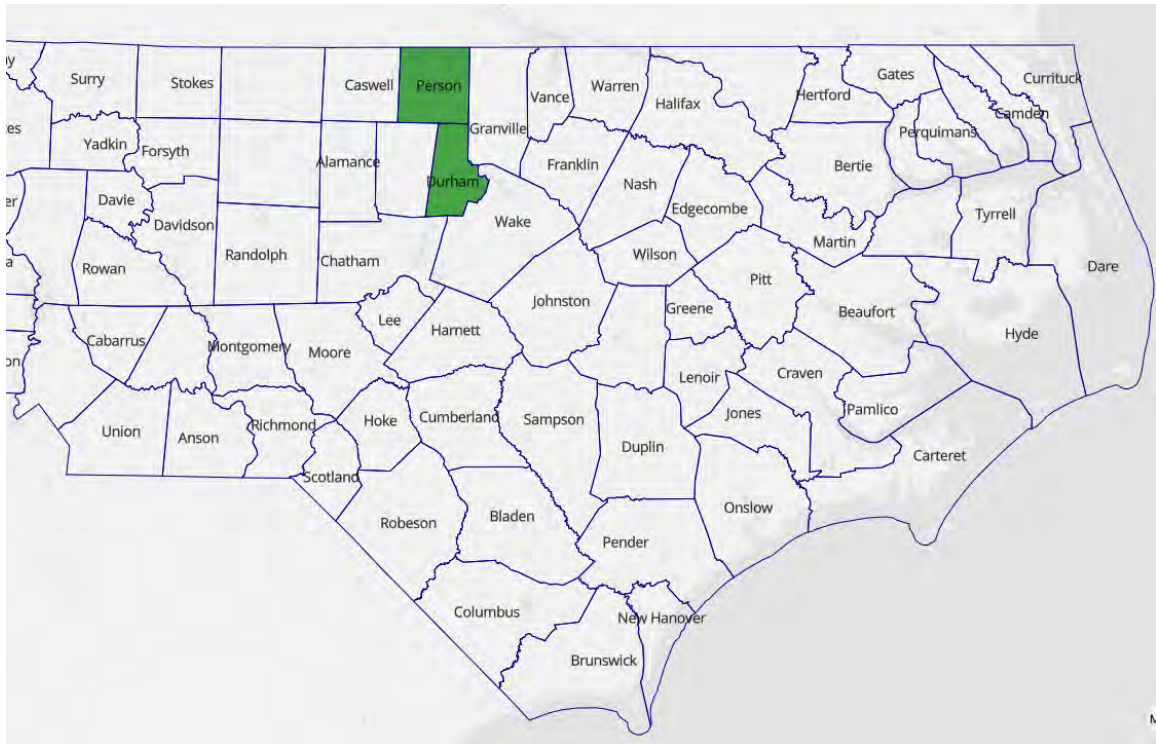
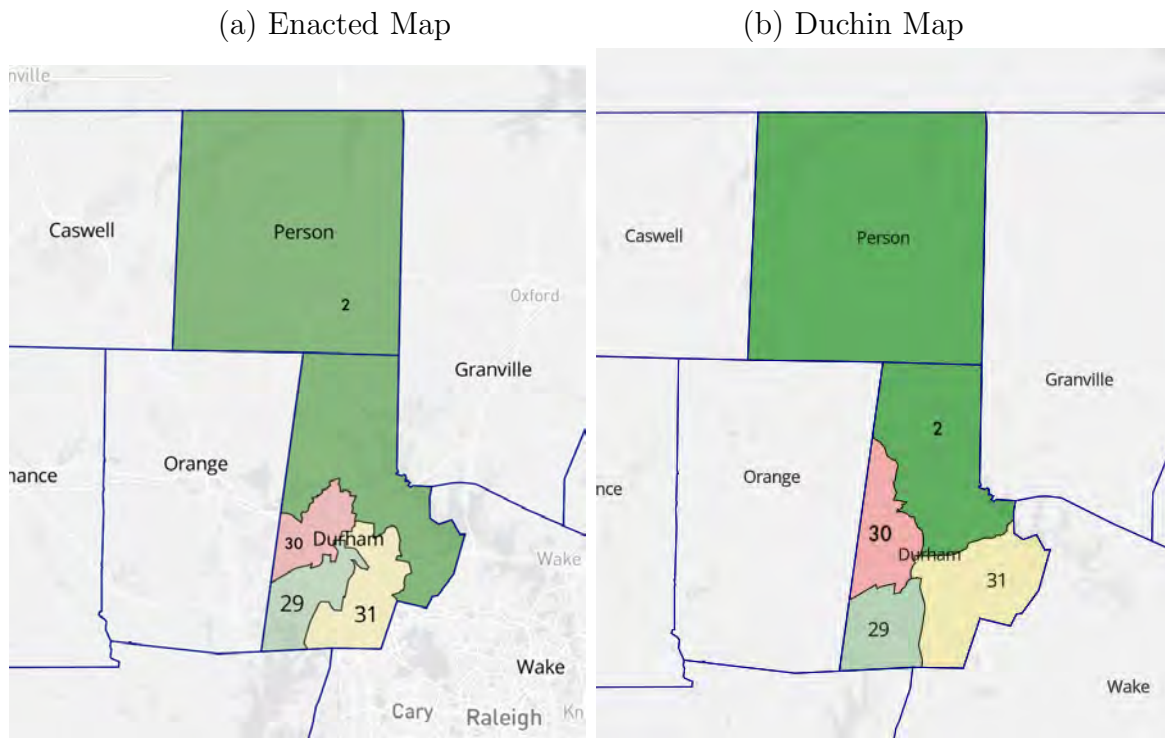


Figure 63: Map of House Enacted Plan in Durham and Person House County Cluster

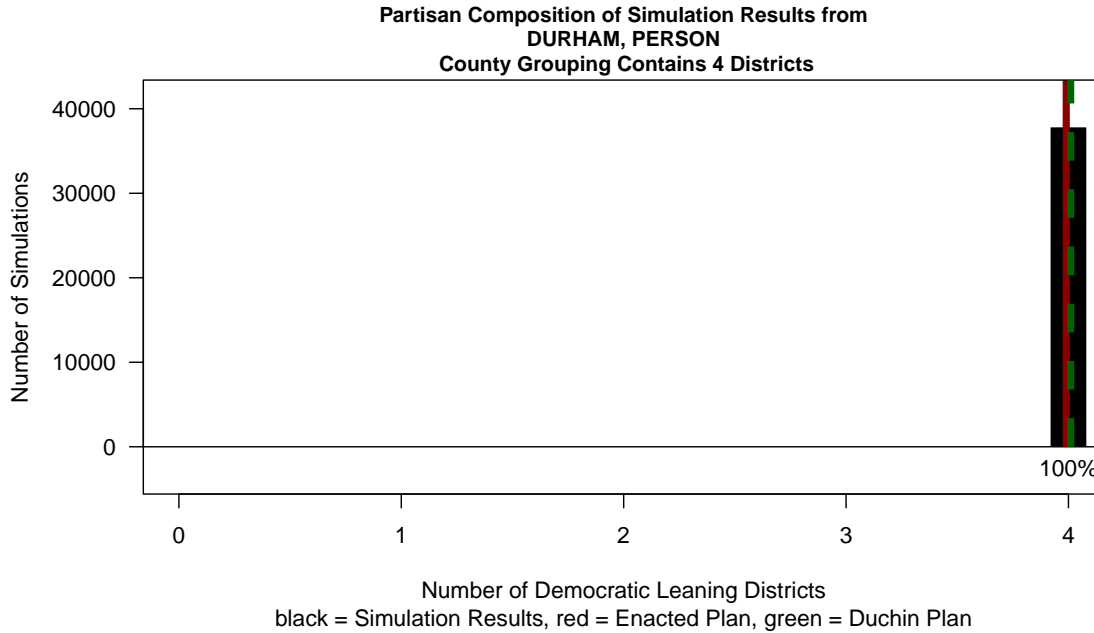


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
2	0.52	0.58
29	0.86	0.83
30	0.87	0.81
31	0.81	0.81

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 64: **Distribution of Partisan Districts from Simulations in Durham and Person House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 22: Simulation Results by Individual Elections

Durham and Person House County Cluster

	Number of Democratic Leaning Districts:				
	0	1	2	3	4
Individual Elections:					
2020 President	0%	0%	0%	0%	100%
2020 Senate	0%	0%	0%	0%	100%
2020 Governor	0%	0%	0%	0%	100%
2020 Lt. Governor	0%	0%	0%	0%	100%
2020 Attorney General	0%	0%	0%	0%	100%
2016 President	0%	0%	0%	0%	100%
2016 Senate	0%	0%	0%	0%	100%
2016 Governor	0%	0%	0%	0%	100%
2016 Lt. Governor	0%	0%	0%	0%	100%
2016 Attorney General	0%	0%	0%	0%	100%
2014 Senate	0%	0%	0%	0%	100%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 4 Democratic leaning districts. The Enacted Plan does as well, as the ‘4 District’ cell is bolded in that row.

6.20 Brunswick and New Hanover House County Grouping

The Brunswick-New Hanover House county group contains 4 districts. In the Enacted Map these are Districts 17, 18, 19, and 20. The county cluster has an overall partisan index of .45, which is Republican leaning. After conducting 50,000 initial simulations to create four districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 12,087 simulations. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 562 simulated maps, each containing four districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 65. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 66.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 67. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there is 1 Democratic leaning district. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 1 Democratic district. The Duchin Map generates 2 Democratic districts. The Duchin Map does not align with any of the simulations because it is less compact (average Polsby-Popper score of 0.35) than the Enacted Map (average Polsby-Popper score of 0.36) and the simulated maps, which are constrained to be at least as compact, on average, as the Enacted Map. This is evident by looking at the maps of the districts in the Duchin Plan. District 20 is a long and narrow district that begins south of Wilmington (the largest city in the cluster), takes in the eastern side of Wilmington, which

is more Republican, and then loops around to the north west. In doing this, the Duchin map then splits the more Democratic portion of Wilmington between districts 18 and 19 in order to create two Democratic leaning districts. As a result, the town of Wilmington is a part of districts 18, 19, and 20. This is also true of the Enacted Map, however, the Enacted map does this while creating more compact districts.

Table 23 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In 10 of the 11 individual elections there is agreement between the modal outcome in the simulations and the Enacted Map. In the 1 scenario in which they do not agree (2020 Governor race), the Enacted Map generates one more Democratic district than the simulations do.

Figure 65: Map of Brunswick and New Hanover House County Cluster

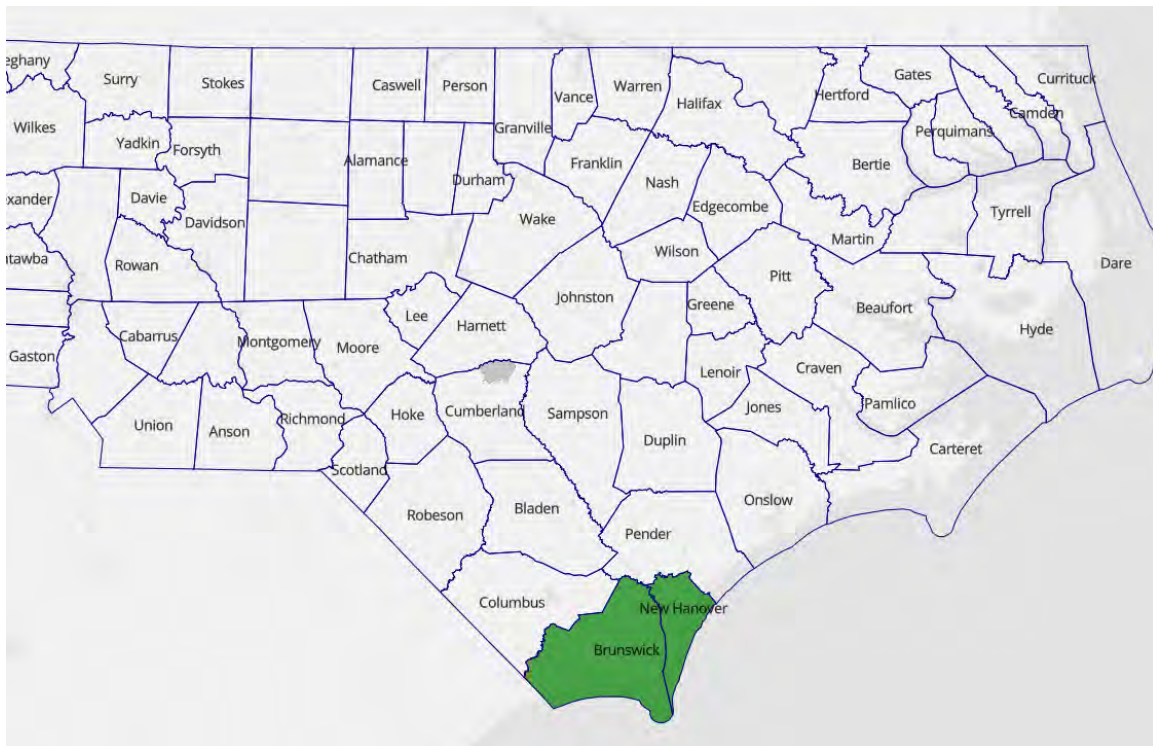
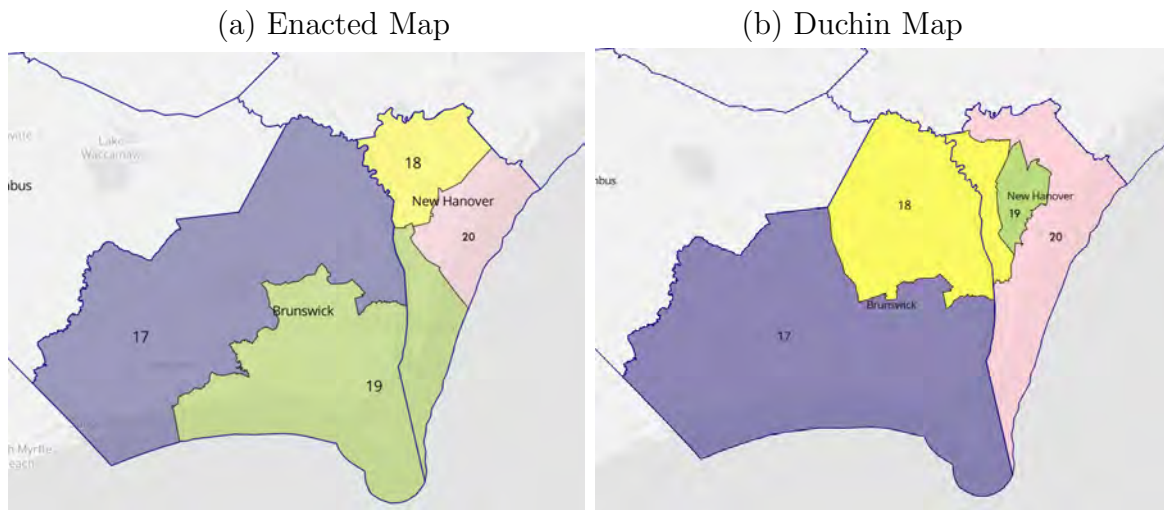


Figure 66: Map of House Enacted Plan in Brunswick and New Hanover County Cluster

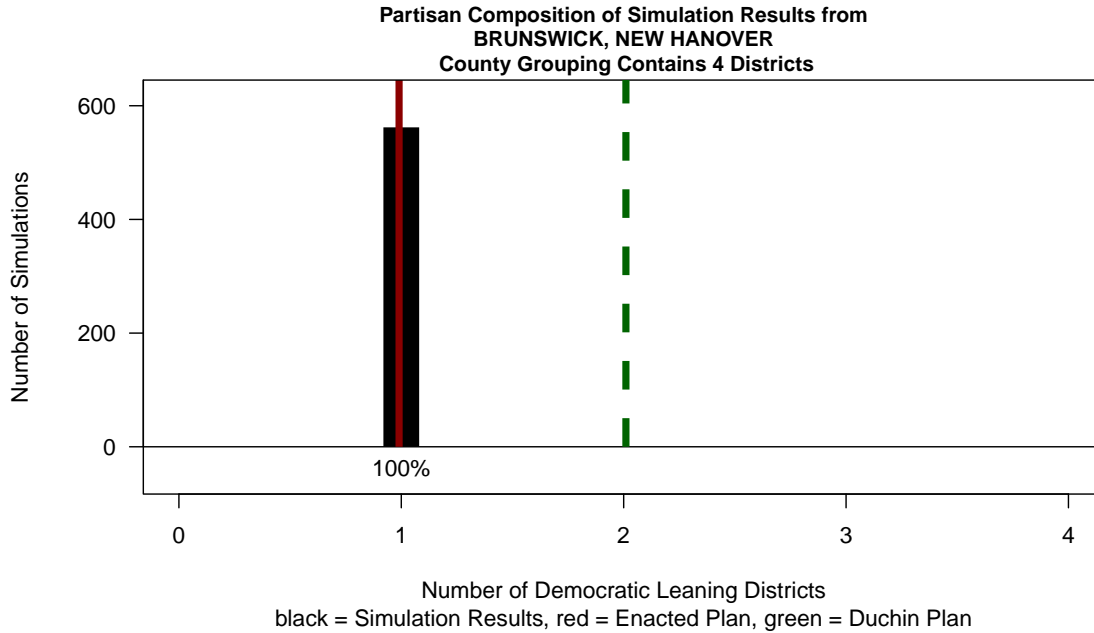


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
17	0.39	0.35
18	0.60	0.53
19	0.39	0.55
20	0.45	0.41

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 67: **Distribution of Partisan Districts from Simulations in Brunswick and New Hanover House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 23: Simulation Results by Individual Elections

Brunswick and New Hanover House County Cluster

	Number of Democratic Leaning Districts:				
	0	1	2	3	4
Individual Elections:					
2020 President	0%	100%	0%	0%	0%
2020 Senate	0%	100%	0%	0%	0%
2020 Governor	0%	100%	0%	0%	0%
2020 Lt. Governor	0%	100%	0%	0%	0%
2020 Attorney General	0%	100%	0%	0%	0%
2016 President	0%	100%	0%	0%	0%
2016 Senate	0%	100%	0%	0%	0%
2016 Governor	0%	100%	0%	0%	0%
2016 Lt. Governor	0%	100%	0%	0%	0%
2016 Attorney General	0%	100%	0%	0%	0%
2014 Senate	0%	100%	0%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 1 Democratic leaning district. The Enacted Plan does as well, as the ‘1 District’ cell is bolded in that row.

6.21 Forsyth and Stokes House County Grouping

The Forsyth-Stokes House county group contains 5 districts. In the Enacted Map these are Districts 71, 72, 74, 75, and 91. The county cluster has an overall partisan index of .52, which is slightly Democratic leaning. After conducting 50,000 initial simulations to create five districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 17,147 simulations. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 3,726 simulated maps, each containing five districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 68. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 69. I also include the 2020 map’s boundaries for comparison.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 70. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 33% of the simulations there are 2 Democratic leaning districts. In 50% of the simulations there are 3 Democratic leaning districts, and in 17% of the simulations there are 4 Democratic leaning districts. The Enacted Map creates 2 Democratic districts. The Duchin Map also generates 2 Democratic districts.

Table 24 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded

number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In 10 of the 11 individual elections the Enacted Map generates 2 Democratic districts. In 1 scenario (2020 Governor race), the Enacted Map generates 3 Democratic districts.

The Enacted Plan is also extremely similar to the maps used in Forsyth County in the 2020 elections. These districts were approved by a court in 2019. The county grouping was different, and Forsyth was combined with Yadkin County in 2020, however, in both plans the less populous county is kept whole and combined with a portion of Forsyth County. Within the more populated Forsyth County, the boundaries are extremely similar. The Enacted Plan is different by only 5 precincts total, and no district differs from the 2020 maps by more than a 3 precinct shift.

Figure 68: **Map of Forsyth and Stokes House County Cluster**

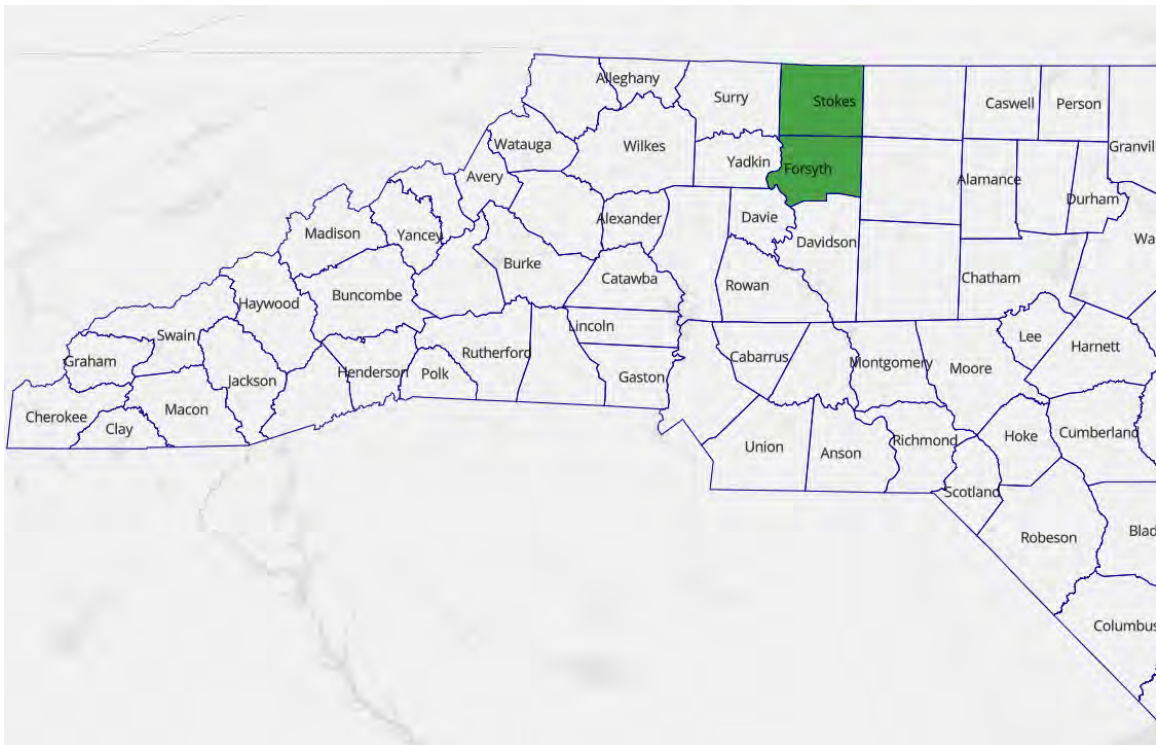
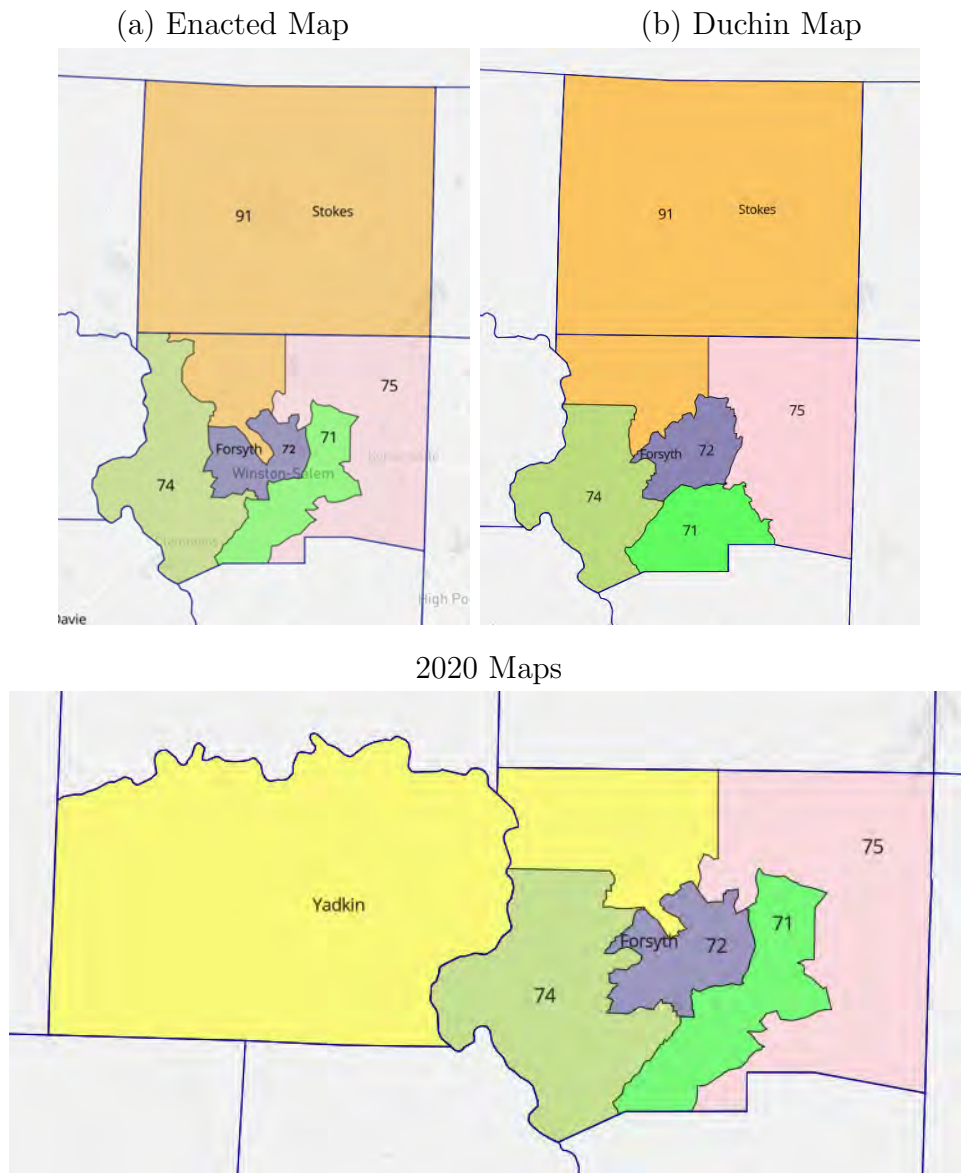


Figure 69: Map of House Enacted Plan in Forsyth and Stokes County Cluster

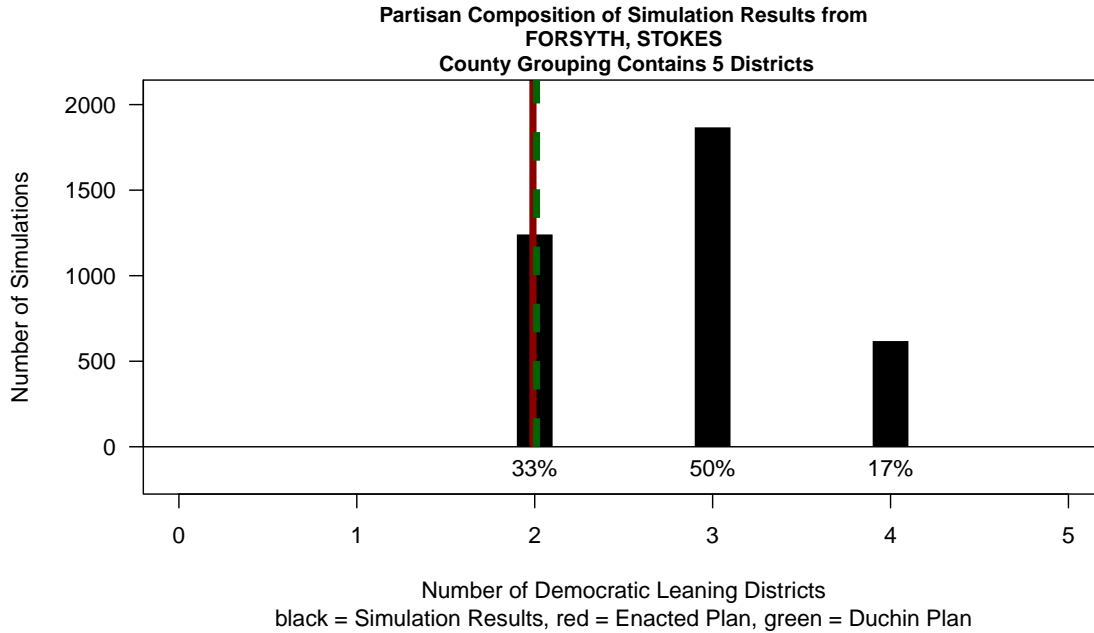


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
71	0.71	0.69
72	0.70	0.74
74	0.45	0.46
75	0.39	0.42
91	0.38	0.35

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 70: **Distribution of Partisan Districts from Simulations in Forsyth and Stokes House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 24: Simulation Results by Individual Elections

Forsyth and Stokes House County Cluster

	Number of Democratic Leaning Districts:					
	0	1	2	3	4	5
Individual Elections:						
2020 President	0%	0%	14%	50%	35%	0%
2020 Senate	0%	0%	29%	52%	19%	0%
2020 Governor	0%	0%	0%	21%	79%	0%
2020 Lt. Governor	0%	0%	44%	44%	13%	0%
2020 Attorney General	0%	0%	30%	52%	18%	0%
2016 President	0%	0%	45%	45%	11%	0%
2016 Senate	0%	5%	67%	28%	0%	0%
2016 Governor	0%	0%	21%	55%	24%	0%
2016 Lt. Governor	0%	4%	66%	30%	0%	0%
2016 Attorney General	0%	0%	25%	56%	19%	0%
2014 Senate	0%	3%	58%	38%	1%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 14% of the simulations produce 2 Democratic leaning districts. The Enacted Plan does as well, as the ‘2 District’ cell is bolded in that row.

6.22 Cabarrus, Davie, Rowan, and Yadkin House County Grouping

The Cabarrus-Davie-Rowan-Yadkin House county group contains 5 districts. In the Enacted Map these are Districts 73, 76, 77, 82, and 83. The county cluster has an overall partisan index of .36, which is strongly Republican. After conducting 50,000 initial simulations to create five districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 6,649 simulations. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 283 simulated maps, each containing five districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 71. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 72.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 73. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 99% of the simulations there are 0 Democratic leaning districts. The Enacted Map creates 0 Democratic districts. The Duchin Map also generates 0 Democratic districts.

Table 25 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted

Plan using the equivalent election. In all of the 11 individual elections the Enacted Map generates 0 Democratic districts and is in agreement with the majority of the simulations results in 8 of the 11 individual elections considered.

Figure 71: **Map of Cabarrus, Davie, Rowan, and Yadkin House County Cluster**

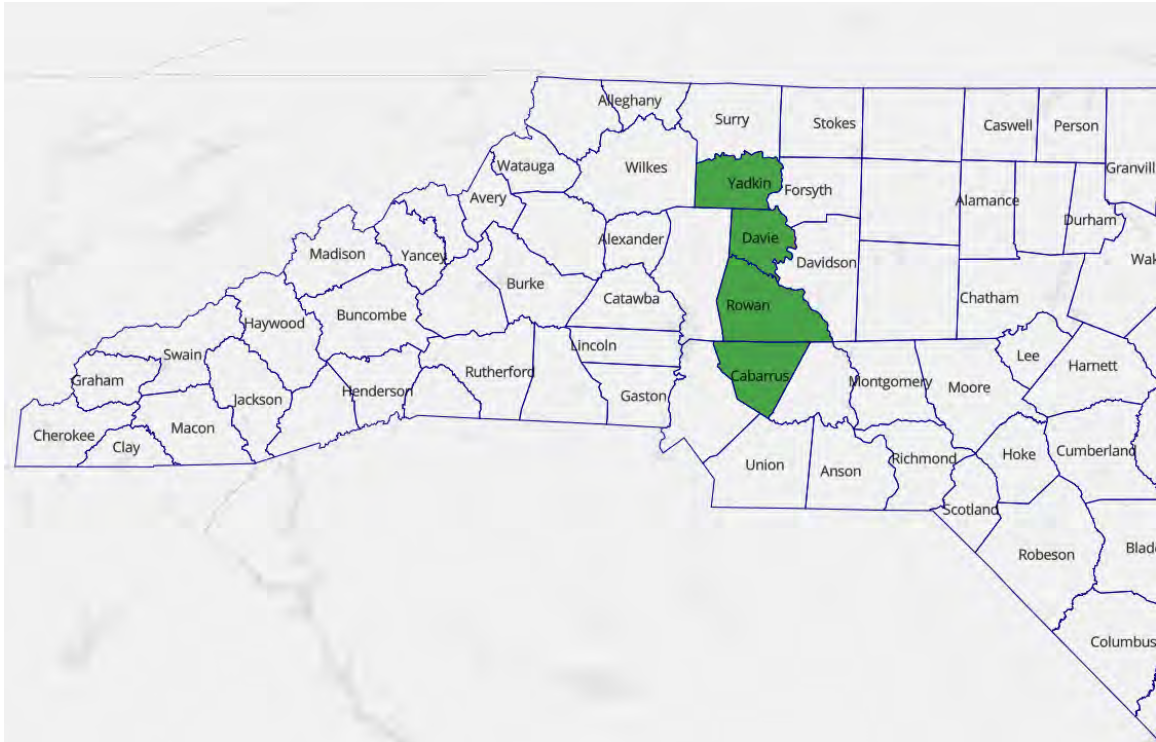
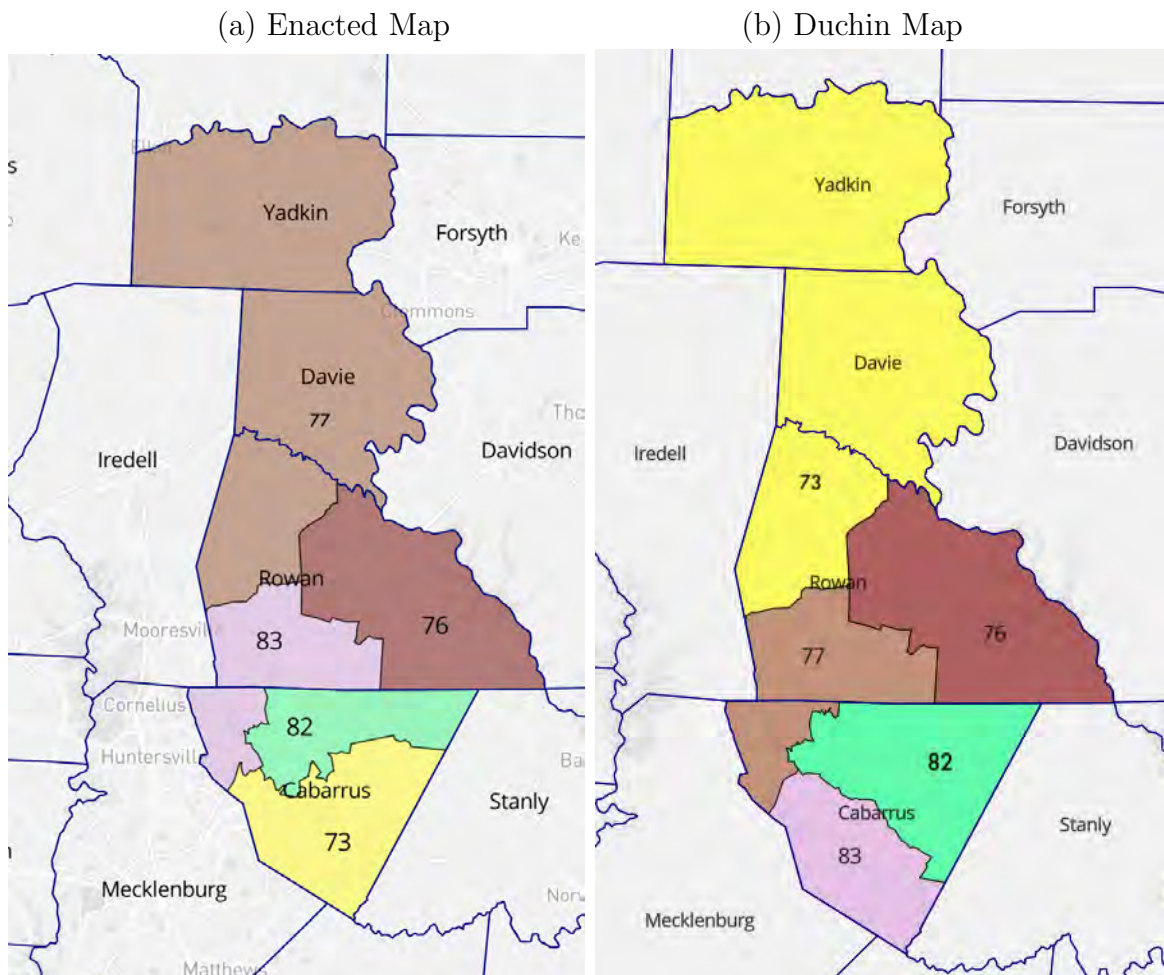


Figure 72: Map of House Enacted Plan in Cabarrus, Davie, Rowan, and Yadkin County Cluster

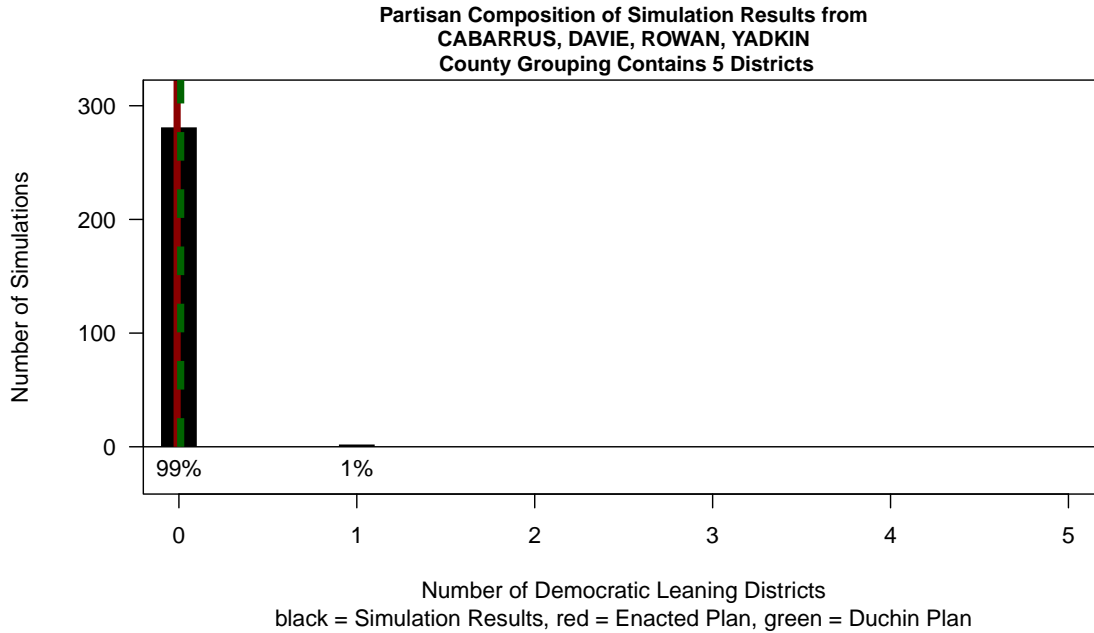


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
73	0.40	0.25
76	0.40	0.40
77	0.25	0.35
82	0.45	0.41
83	0.34	0.43

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 73: **Distribution of Partisan Districts from Simulations in Cabarrus, Davie, Rowan, and Yadkin House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 25: Simulation Results by Individual Elections

Cabarrus, Davie, Rowan, and Yadkin House County Cluster

	Number of Democratic Leaning Districts:					
	0	1	2	3	4	5
Individual Elections:						
2020 President	10%	90%	0%	0%	0%	0%
2020 Senate	85%	15%	0%	0%	0%	0%
2020 Governor	2%	98%	0%	0%	0%	0%
2020 Lt. Governor	87%	13%	0%	0%	0%	0%
2020 Attorney General	9%	91%	0%	0%	0%	0%
2016 President	100%	0%	0%	0%	0%	0%
2016 Senate	100%	0%	0%	0%	0%	0%
2016 Governor	100%	0%	0%	0%	0%	0%
2016 Lt. Governor	100%	0%	0%	0%	0%	0%
2016 Attorney General	100%	0%	0%	0%	0%	0%
2014 Senate	100%	0%	0%	0%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 10% of the simulations produce 0 Democratic leaning districts. The Enacted Plan does as well, as the ‘0 District’ cell is bolded in that row.

6.23 Chatham, Lee, Moore, Randolph, and Richmond House County Grouping

The Chatham-Lee-Moore-Randolph-Richmond House county group contains 5 districts. In the Enacted Map these are Districts 51, 52, 54, 70, and 78. The county cluster has an overall partisan index of .38, which is strongly Republican. After conducting 50,000 initial simulations to create five districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 1,868 simulations. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 939 simulated maps, each containing five districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 74. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 75.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 76. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 18% of the simulations there are 0 Democratic leaning districts. In 82% of the simulations there is 1 Democratic leaning district. The Enacted Map creates 1 Democratic district. The Duchin Map also generates 1 Democratic district.

Table 26 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded

number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In all of the 11 individual elections the Enacted Map generates 1 Democratic district and is in agreement with the majority of the simulations results in all 11 individual elections considered.

Figure 74: Map of Chatham, Lee, Moore, Randolph, and Richmond House County Cluster

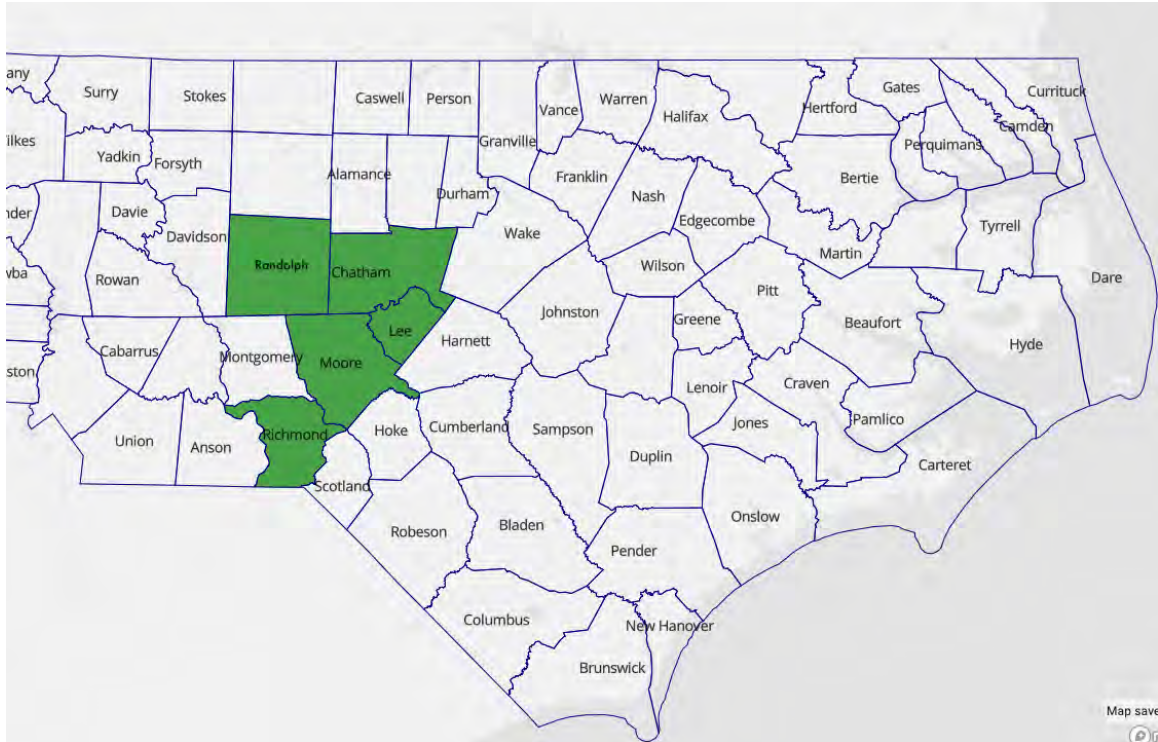
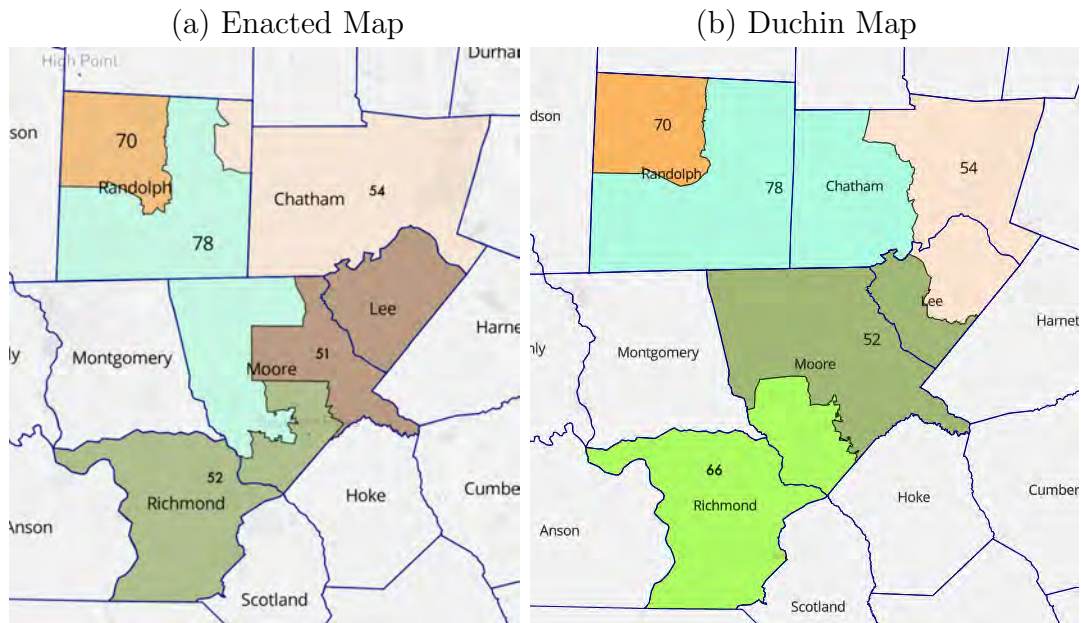


Figure 75: **Map of House Enacted Plan in Chatham, Lee, Moore, Randolph, and Richmond County Cluster**

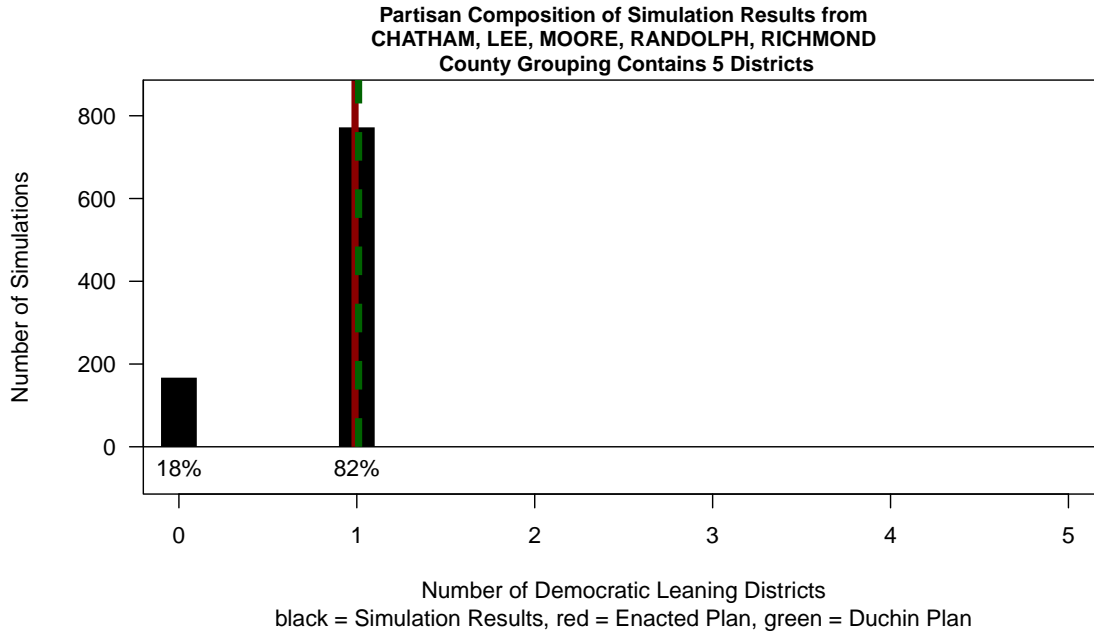


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
51(66 in Duchin)	0.41	0.42
52	0.44	0.35
54	0.54	0.58
70	0.25	0.24
78	0.26	0.27

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 76: Distribution of Partisan Districts from Simulations in Chatham, Lee, Moore, Randolph, and Richmond House County Cluster



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 26: Simulation Results by Individual Elections

Chatham, Lee, Moore, Randolph, and Richmond House County Cluster

	Number of Democratic Leaning Districts:					
	0	1	2	3	4	5
Individual Elections:						
2020 President	17%	83%	0%	0%	0%	0%
2020 Senate	18%	82%	0%	0%	0%	0%
2020 Governor	0%	100%	0%	0%	0%	0%
2020 Lt. Governor	18%	82%	0%	0%	0%	0%
2020 Attorney General	15%	85%	0%	0%	0%	0%
2016 President	18%	82%	0%	0%	0%	0%
2016 Senate	19%	81%	0%	0%	0%	0%
2016 Governor	15%	85%	0%	0%	0%	0%
2016 Lt. Governor	29%	71%	0%	0%	0%	0%
2016 Attorney General	14%	86%	0%	0%	0%	0%
2014 Senate	15%	85%	0%	0%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 83% of the simulations produce 1 Democratic leaning district. The Enacted Plan does as well, as the ‘1 District’ cell is bolded in that row.

6.24 Guilford House County Grouping

The Guilford House county group contains 6 districts. In the Enacted Map these are Districts 57, 58, 59, 60, 61, and 62. The county cluster has an overall partisan index of .61, which is strongly Democratic. After conducting 50,000 initial simulations to create six districts in this cluster, I would normally discard any simulations that contain more county traversals than the Enacted Plan. However, this grouping contains only one county, and thus the Enacted Plan will contain as many traversals as all of the simulations. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 15,489 simulated maps, each containing six districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 77. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 78. I also include the map of districts in this county from the 2020 plan for comparison here.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 79. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 1% of the simulations there are 4 Democratic leaning districts. In 79% of the simulations there is 5 Democratic leaning district. in 21% of the simulations there are 6 Democratic districts. The Enacted Map creates 4 Democratic districts. The Duchin Map generates 5 Democratic districts.

Table 27 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Demo-

cratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In 10 of the 11 individual elections the Enacted Map generates 4 Democratic districts and in 1 election (2020 Governor) the map contains 5 Democratic leaning districts.

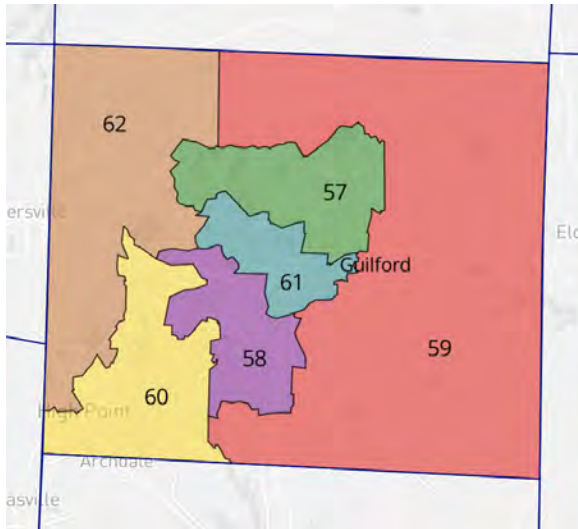
An important point to consider when looking at the Enacted Map is that it closely adheres to the map used in Guilford County the 2020 election, which was approved by a court in 2019. The Enacted Plan is different by only four precincts. District 57 is identical across the two plans. Districts 59, 61, and 62 differ from the 2020 map by only 1 precinct each. District 60 differs from the 2020 map by 2 precincts and District 58 differs by only 3 precincts.

Figure 77: Map of Guilford House County Cluster

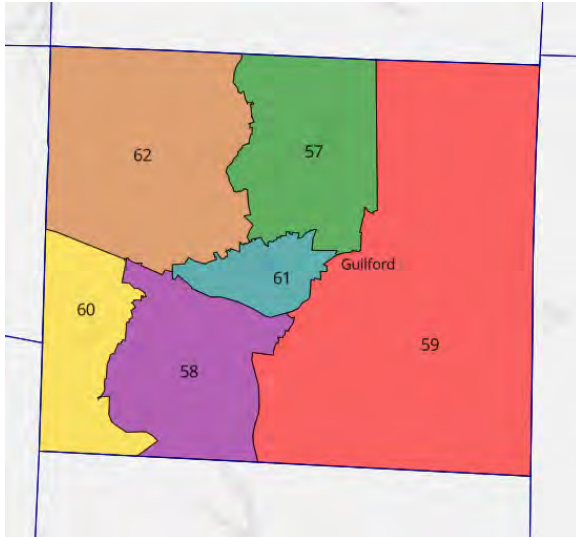


Figure 78: Map of House Enacted Plan in Guilford County Cluster

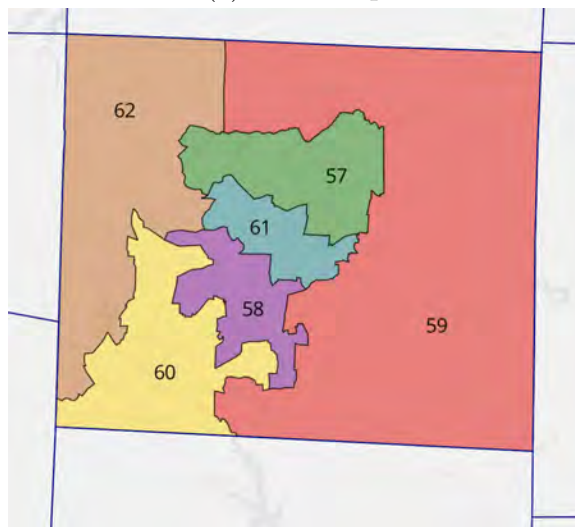
(a) Enacted Map



(b) Duchin Map



(c) 2020 Map

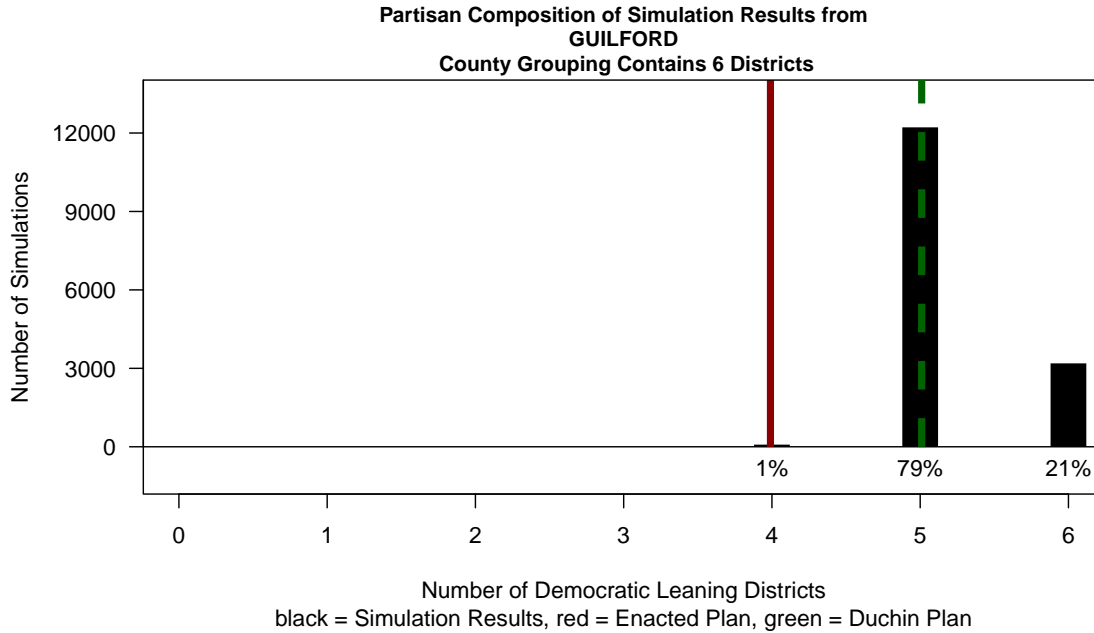


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
57	0.68	0.65
58	0.74	0.65
59	0.46	0.54
60	0.64	0.57
61	0.74	0.80
62	0.43	0.48

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 79: **Distribution of Partisan Districts from Simulations in Guilford House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 27: Simulation Results by Individual Elections

Guilford HouseCounty Cluster

	Number of Democratic Leaning Districts:						
	0	1	2	3	4	5	6
Individual Elections:							
2020 President	0%	0%	0%	0%	0%	41%	59%
2020 Senate	0%	0%	0%	0%	0%	73%	27%
2020 Governor	0%	0%	0%	0%	0%	1%	99%
2020 Lt. Governor	0%	0%	0%	0%	1%	80%	19%
2020 Attorney General	0%	0%	0%	0%	0%	53%	47%
2016 President	0%	0%	0%	0%	2%	84%	13%
2016 Senate	0%	0%	0%	0%	7%	90%	3%
2016 Governor	0%	0%	0%	0%	0%	44%	56%
2016 Lt. Governor	0%	0%	0%	0%	8%	90%	3%
2016 Attorney General	0%	0%	0%	0%	1%	82%	17%
2014 Senate	0%	0%	0%	0%	21%	78%	1%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 0% of the simulations produce 4 Democratic leaning districts. The Enacted Plan does, as the ‘1 District’ cell is bolded in that row.

6.25 Avery, Cleveland, Gaston, Henderson, McDowell, Mitchell, Polk, Rutherford, and Yancey House County Grouping

The Avery-Cleveland-Gaston-Henderson-McDowell-Mitchell-Polk-Rutherford-Yancey House county group contains 7 districts. In the Enacted Map these are Districts 85, 108, 109, 110, 111, 113, and 117. The county cluster has an overall partisan index of .35, which is strongly Republican. After conducting 50,000 initial simulations to create seven districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 14,667 simulated plans. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 11,815 simulated maps, each containing seven districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 80. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 81.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 82. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 0 Democratic leaning districts. The Enacted Map creates 0 Democratic leaning districts. The Duchin Map generates 0 Democratic leaning districts.

Table 28 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded

number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In all 11 of the individual elections the Enacted Map generates 0 Democratic districts and is in agreement with all of the simulated results across all 11 elections.

Figure 80: Map of Avery, Cleveland, Gaston, Henderson, McDowell, Mitchell, Polk, Rutherford, and Yancey House County Cluster

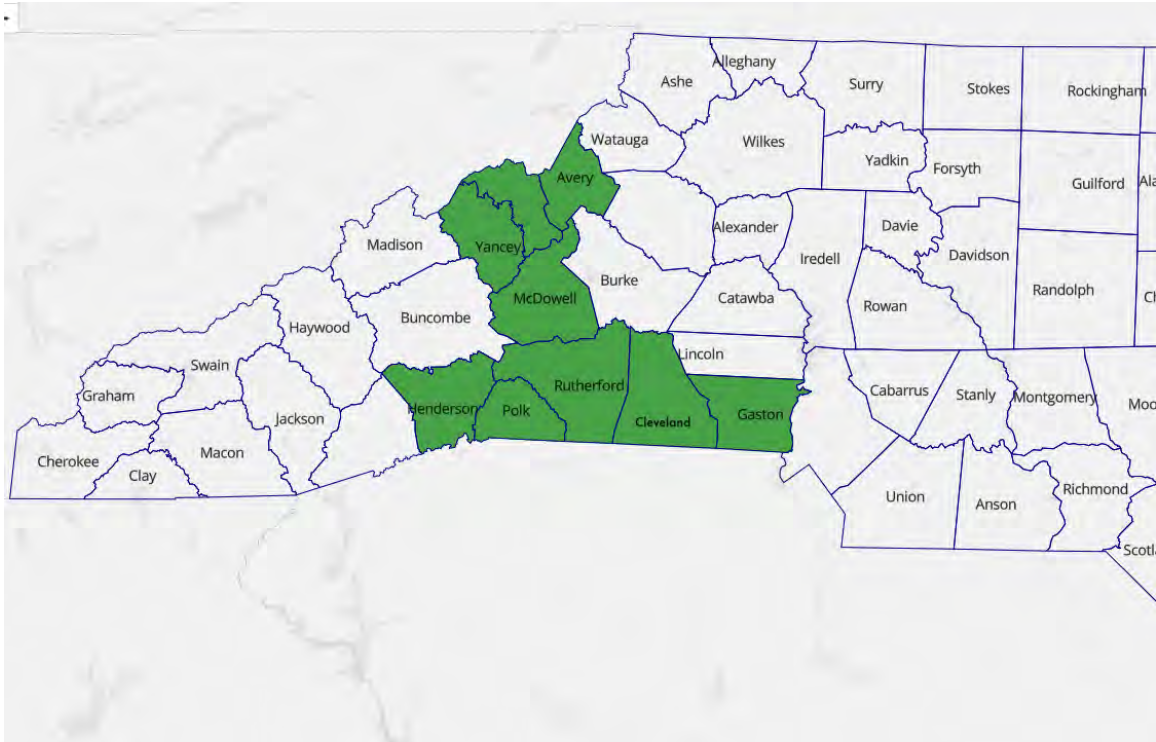
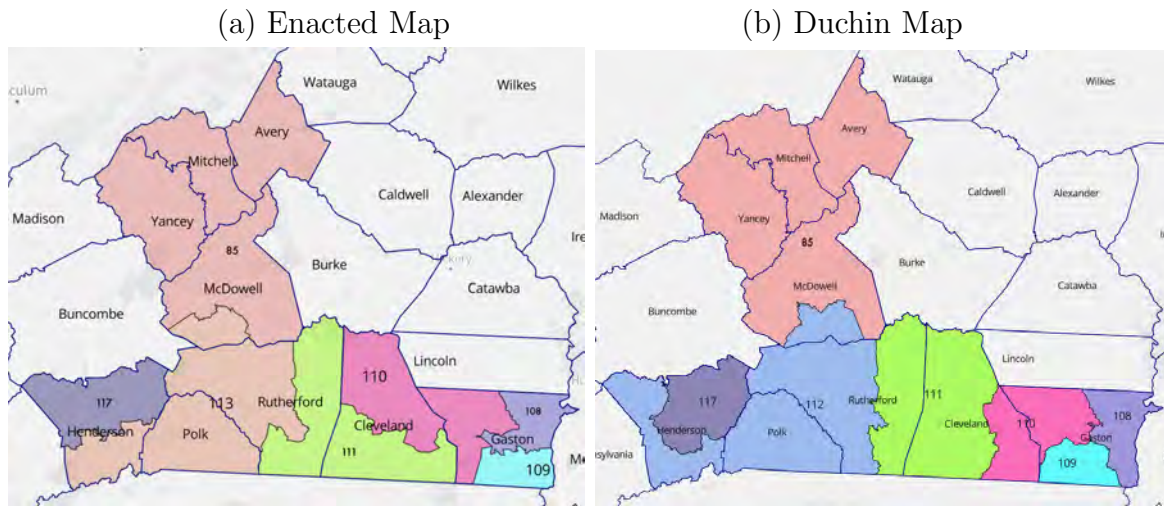


Figure 81: Map of House Enacted Plan in Avery, Cleveland, Gaston, Henderson, McDowell, Mitchell, Polk, Rutherford, and Yancey County Cluster

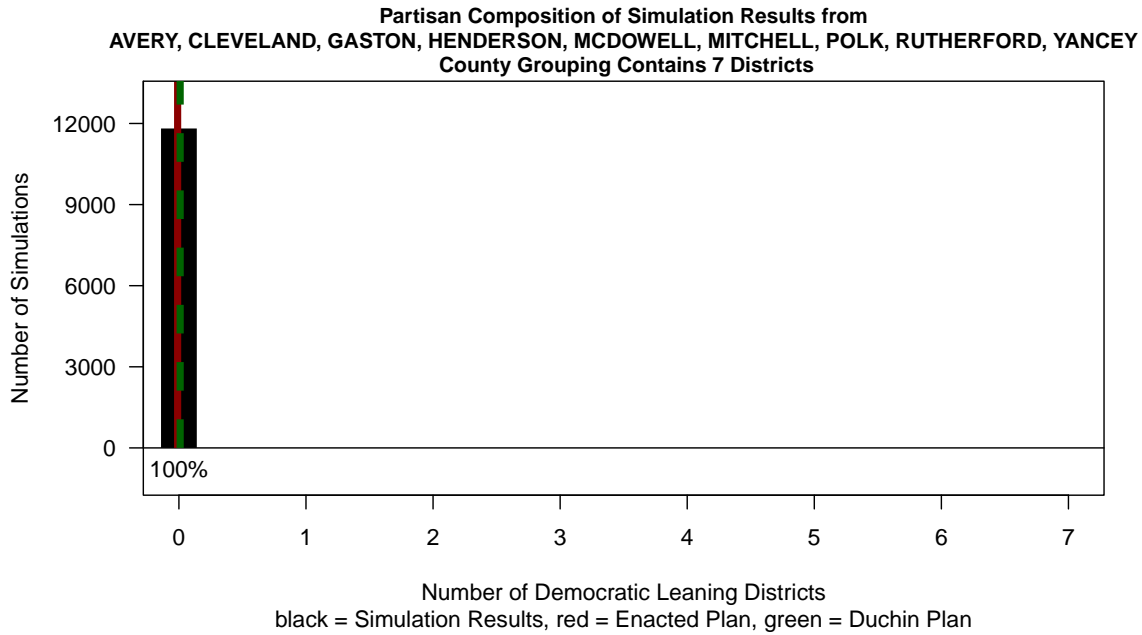


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
85	0.28	0.28
108	0.38	0.32
109	0.38	0.43
110	0.31	0.32
111	0.32	0.34
113	0.35	0.33
117	0.40	0.40

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 82: **Distribution of Partisan Districts from Simulations in Avery, Cleveland, Gaston, Henderson, McDowell, Mitchell, Polk, Rutherford, and Yancey House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 28: Simulation Results by Individual Elections

Avery, Cleveland, Gaston, Henderson, McDowell, Mitchell, Polk, Rutherford, and Yancey House County Cluster

Number of Democratic Leaning Districts:			
	0	1	2-7
Individual Elections:			
2020 President	100%	0%	0%
2020 Senate	100%	0%	0%
2020 Governor	99%	1%	0%
2020 Lt. Governor	100%	0%	0%
2020 Attorney General	100%	0%	0%
2016 President	100%	0%	0%
2016 Senate	100%	0%	0%
2016 Governor	100%	0%	0%
2016 Lt. Governor	100%	0%	0%
2016 Attorney General	100%	0%	0%
2014 Senate	100%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 0 Democratic leaning districts. The Enacted Plan does as well, as the ‘0 District’ cell is bolded in that row.

6.26 Mecklenburg House County Grouping

The Mecklenburg House county group contains 13 districts. In the Enacted Map these are Districts 88, 92, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, and 112. The county cluster has an overall partisan index of .65, which is strongly Democratic. After conducting 50,000 initial simulations to create 13 districts in this cluster, I would normally discard any simulations that contain more county traversals than the Enacted Plan. However, this cluster is a single county, and thus, there are no traversals. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 3,161 simulated maps, each containing 13 districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 83. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 84.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 85. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 1% of the simulations there are 10 Democratic leaning districts. In 56% of the simulations there are 11 Democratic leaning districts, and in 44% of the simulations there are 12 Democratic leaning districts. The Enacted Map aligns with the majority of simulations and creates 11 Democratic leaning districts. The Duchin Map generates 11 Democratic leaning districts as well.

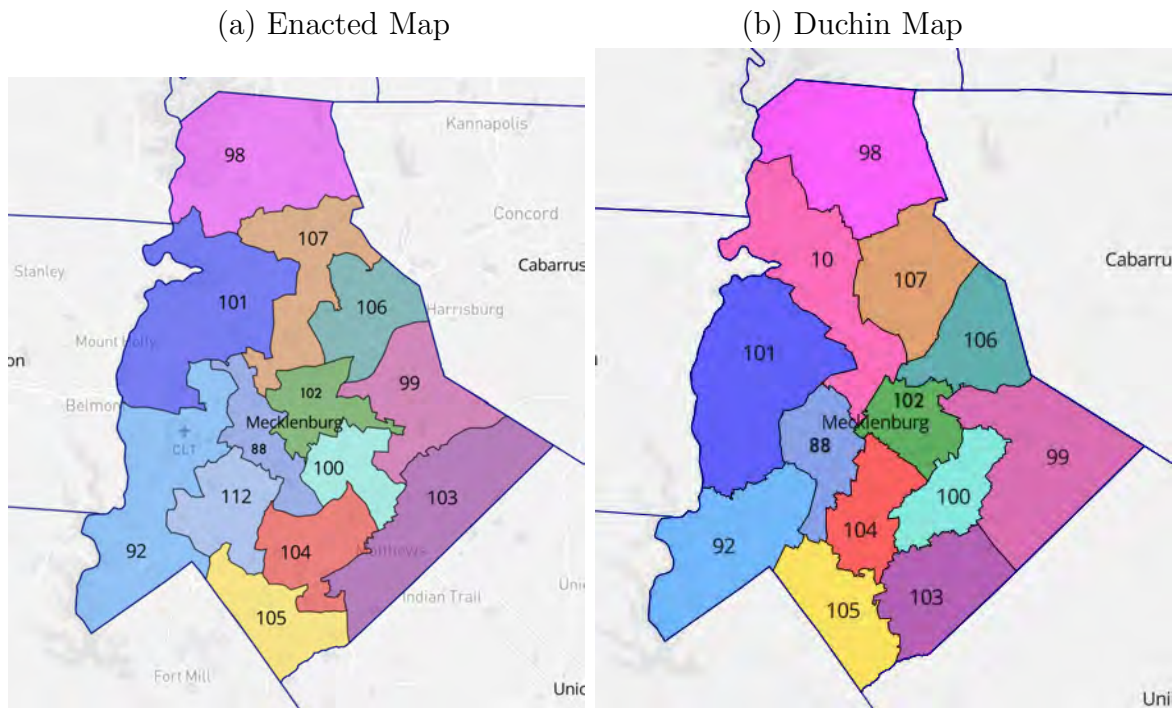
Table 29 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Demo-

cratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. Across the 11 individual elections the Enacted Map generates between 9-13 Democratic districts and is in agreement with the majority of the simulated results in 7 of the 11 elections. In 10 of the 11 elections the Enacted Plan is within the middle 50% of the simulation results.

Figure 83: **Map of Mecklenburg House County Cluster**



Figure 84: Map of House Enacted Plan in Mecklenburg County Cluster

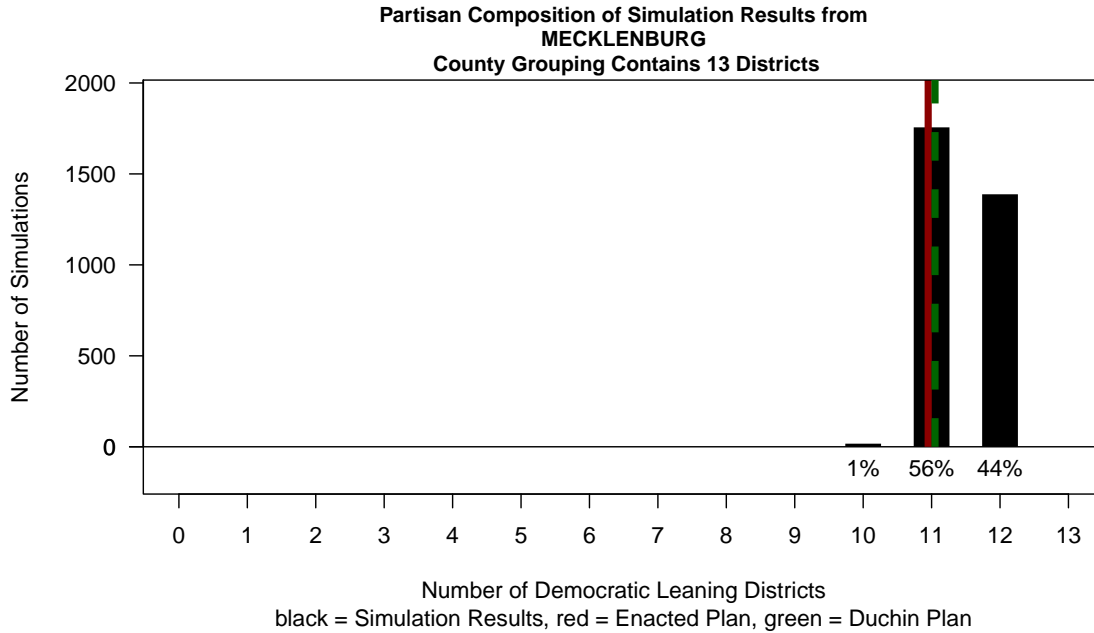


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
88	0.65	0.75
92	0.70	0.69
98	0.47	0.47
99	0.78	0.59
100	0.73	0.68
101	0.72	0.74
102	0.82	0.80
103	0.47	0.49
104	0.51	0.55
105	0.54	0.55
106	0.80	0.82
107	0.74	0.75
112 (10 in Duchin)	0.72	0.75

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 85: **Distribution of Partisan Districts from Simulations in Mecklenburg House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 29: Simulation Results by Individual Elections

Mecklenburg House County Cluster

	Number of Democratic Leaning Districts:						
	0-7	8	9	10	11	12	13
Individual Elections:							
2020 President	0%	0%	0%	0%	0%	0%	100%
2020 Senate	0%	0%	0%	0%	39%	61%	0%
2020 Governor	0%	0%	0%	0%	0%	0%	100%
2020 Lt. Governor	0%	0%	0%	0%	36%	64%	0%
2020 Attorney General	0%	0%	0%	0%	9%	91%	0%
2016 President	0%	0%	0%	3%	69%	28%	0%
2016 Senate	0%	3%	50%	45%	2%	0%	0%
2016 Governor	0%	0%	0%	0%	11%	76%	13%
2016 Lt. Governor	0%	4%	58%	38%	0%	0%	0%
2016 Attorney General	0%	0%	5%	34%	57%	4%	0%
2014 Senate	0%	4%	60%	35%	0%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 13 Democratic leaning districts. The Enacted Plan does as well, as the ‘13 District’ cell is bolded in that row.

6.27 Wake House County Grouping

The Wake House county group contains 13 districts. In the Enacted Map these are Districts 11, 21, 33, 34, 35, 36, 37, 38, 39, 40, 41, 49, and 66. The county cluster has an overall partisan index of .61, which is strongly Democratic. After conducting 50,000 initial simulations to create 13 districts in this cluster, I would normally discard any simulations that contain more county traversals than the Enacted Plan. However, this cluster is a single county, and thus, there are no traversals. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 14,305 simulated maps, each containing 13 districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 86. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 87.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 88. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 2% of the simulations there are 10 Democratic leaning districts. In 32% of the simulations there are 11 Democratic leaning districts, and in 66% of the simulations there are 12 Democratic leaning districts. The Enacted Map creates 11 Democratic leaning districts. The Duchin Map generates 11 Democratic leaning districts as well.

Table 30 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Demo-

cratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. Across the 11 individual elections the Enacted Map generates between 9-13 Democratic districts and is in agreement with the majority of the simulated results in 7 of the 11 elections.

Figure 86: Map of Wake House County Cluster

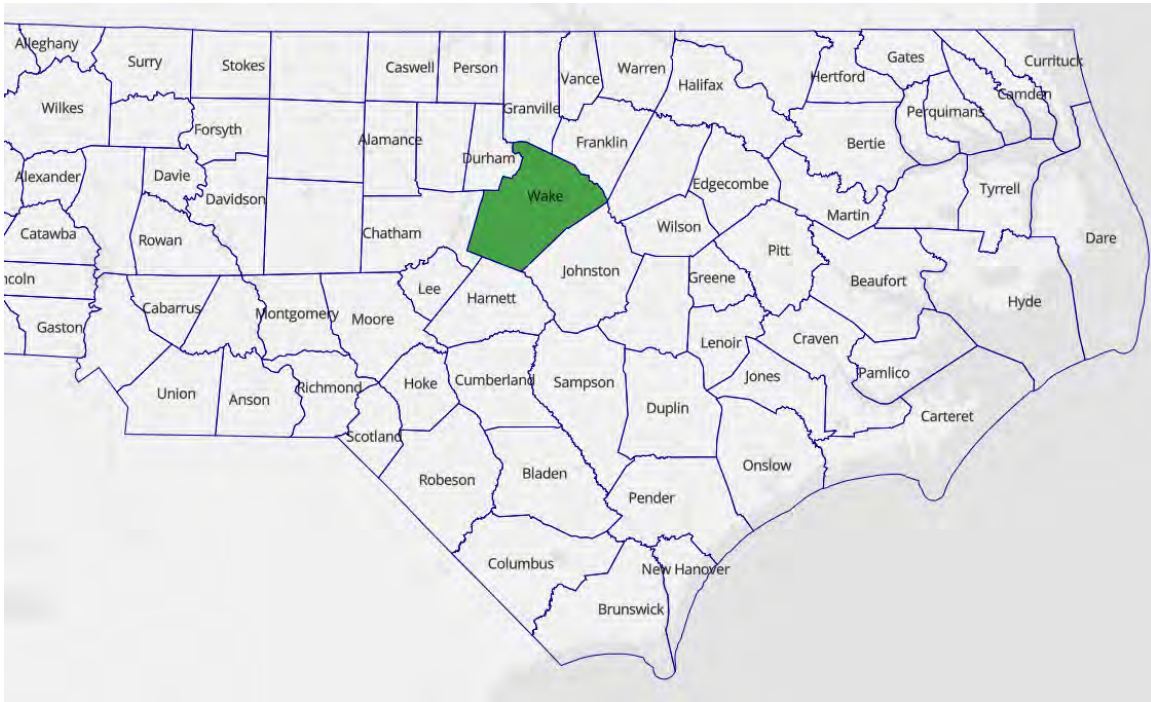
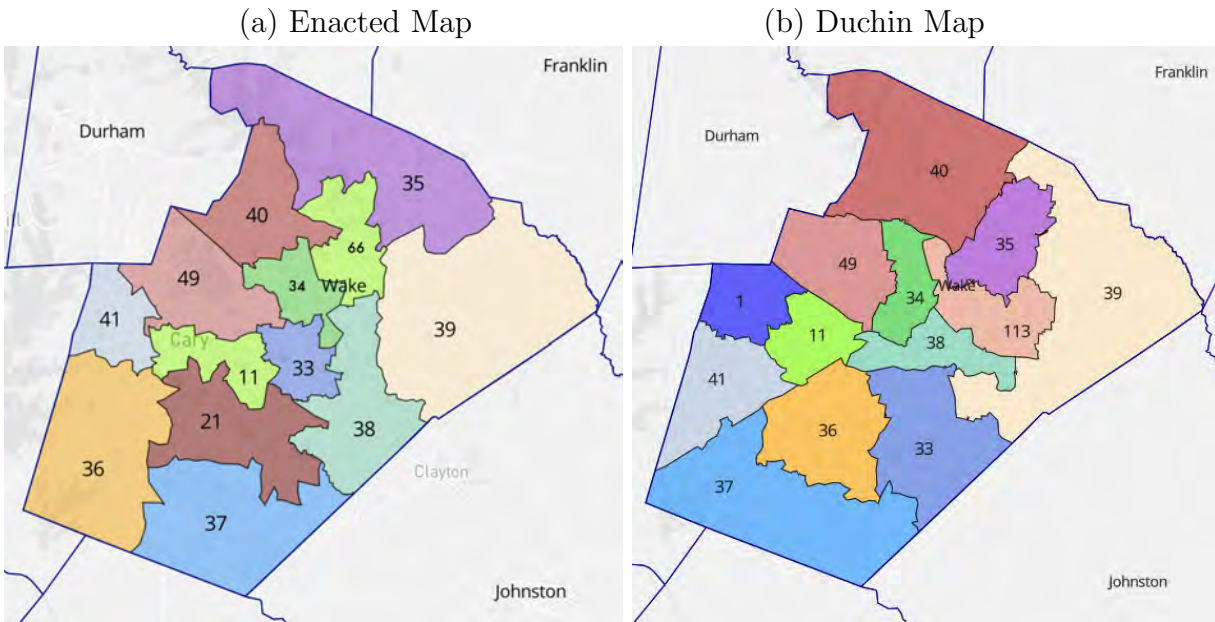


Figure 87: Map of House Enacted Plan in Wake County Cluster

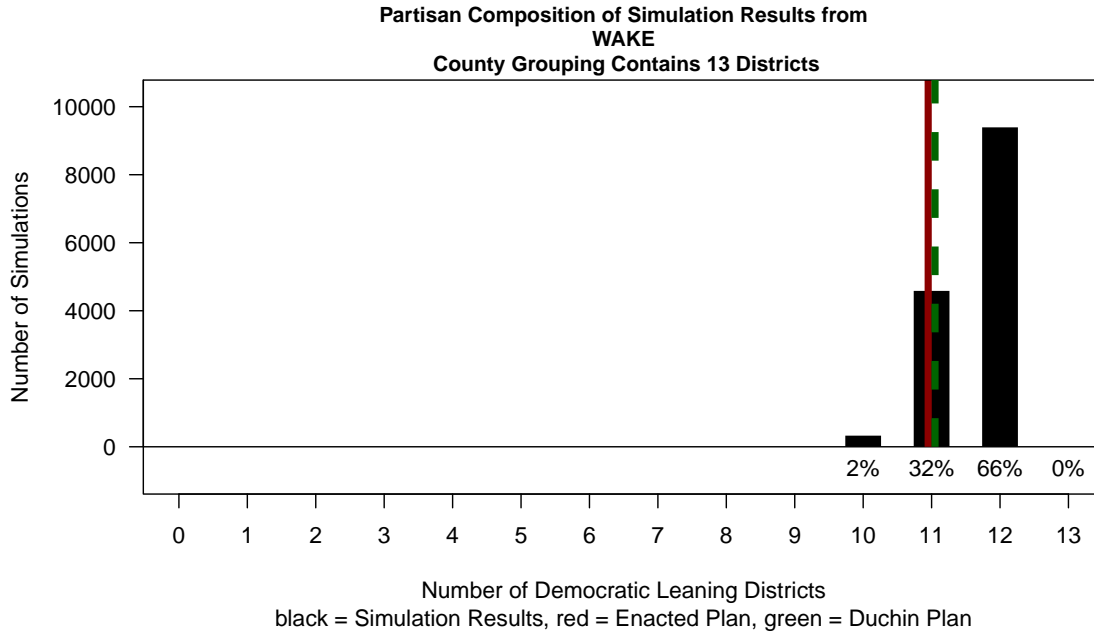


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
11	0.69	0.65
21 (1 in Duchin)	0.53	0.65
33	0.83	0.65
34	0.65	0.62
35	0.47	0.63
36	0.55	0.53
37	0.45	0.46
38	0.75	0.84
39	0.59	0.59
40	0.56	0.49
41	0.64	0.58
49	0.65	0.64
66 (113 in Duchin)	0.65	0.69

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 88: **Distribution of Partisan Districts from Simulations in Wake House County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 30: Simulation Results by Individual Elections

Wake House County Cluster

	Number of Democratic Leaning Districts:						
	0-7	8	9	10	11	12	13
Individual Elections:							
2020 President	0%	0%	0%	0%	2%	81%	17%
2020 Senate	0%	0%	0%	0%	9%	88%	2%
2020 Governor	0%	0%	0%	0%	0%	0%	100%
2020 Lt. Governor	0%	0%	0%	0%	14%	85%	0%
2020 Attorney General	0%	0%	0%	0%	2%	78%	20%
2016 President	0%	0%	2%	21%	58%	19%	0%
2016 Senate	0%	21%	57%	21%	1%	0%	0%
2016 Governor	0%	0%	0%	6%	60%	34%	0%
2016 Lt. Governor	0%	33%	57%	9%	0%	0%	0%
2016 Attorney General	0%	0%	2%	19%	62%	18%	0%
2014 Senate	0%	28%	61%	12%	0%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 2% of the simulations produce 11 Democratic leaning districts. The Enacted Plan does as well, as the ‘11 District’ cell is bolded in that row.

7 NC Senate Analysis

7.1 Senate Groupings with only 1 District

In the state Senate, there are 26 county clusters. 17 clusters containing 36 of the 50 districts are fixed based on the optimal county clusters determined by Cooper et al. (2021, ‘Duke Study’). The remaining 9 clusters were selected by the General Assembly from four sets of choices between clusters as presented by the Duke Study.

In the Enacted Plan there are 14 county clusters composed of 48 counties in which the cluster contains only 1 Senate district. In these clusters there is no discretion for any map maker. The district is simply the boundaries of the county group. These counties collectively have a population of 2,906,456, or approximately 28% of the state’s total population and account for 14 of the 50 seats in the state senate.

Figure 89 shows a map of the counties that constitute these single-district clusters in the Enacted Plan. Figure 90 shows a map of the counties that constitute these single-district clusters chosen in the Duchin Plan. Table 31 below shows each cluster, the counties included in the cluster, and the corresponding districts in the Senate Enacted Plan. The final two columns of the table show the partisan lean of the cluster using the 11 statewide partisan elections index discussed above and whether or not, based on that index, the cluster leans Democratic (or Republican). I classify a district (in the Enacted Plan and in the simulations as well) as being Democratic leaning if the partisan index for that district is greater than 0.50. In other words, if more than fifty percent of the ballots cast for the two major parties were for Democratic candidates, that district is classified as a Democratic leaning district. Obviously, districts with numbers much larger than (smaller than) 0.50 will be more likely to elect a Democrat (Republican) than districts that are very close to 0.50.

The bottom row of Table 31 shows the results for all 14 clusters together. Collectively these counties have a partisan index of 0.43, meaning roughly four in ten voters in these counties cast ballots for Democratic candidates in the 11 statewide races I consider here.

However, the location of voters for the different parties is not uniformly distributed across these counties. Given this spatial distribution of voters across the counties, 4 of the 14 clusters lean Democratic, or roughly 30 percent. In this case, the proportion of Democratic leaning districts is lower than the proportion of voters in these counties who favor Democratic candidates. However, this is not due to any district boundaries. It is again purely a function of the political geography of the state since all of these districts are entire county units and are, as such, fixed.

In some cases the Enacted Plan and the Duchin Plan use different county groupings from one another. This occurs in 4 cases and is shown in Table 31 below. This results in a net change of 3 counties included in single district groupings.²⁶

In the Duchin Plan 5 of the 14 clusters lean Democratic, or approximately 36% of the districts. As in the Enacted Plan, the proportion of Democratic leaning districts is lower than the proportion of voters in these counties who favor Democratic candidates. However, this is not due to any district boundaries. It is again purely a function of the political geography of the state since all of these districts are entire county units and are, as such, fixed.

²⁶Stokes replaces Yadkin, Henderson and Polk are replaced by McDowell and Cleveland.

Table 31: County Clusters Containing 1 Senate District

County Cluster	# Counties	District #	County Cluster Democratic Partisan Index	Democratic District
Clusters Used by Both Enacted and Duchin Plans				
Johnston	1	10	0.37	0
Onslow	1	6	0.34	0
Rowan-Stanly	2	33	0.31	0
Edgecombe-Pitt	2	5	0.57	1
Davidson-Davie	2	30	0.27	0
Caswell-Orange-Person	3	23	0.66	1
Franklin-Nash-Vance	3	11	0.51	1
Beaufort-Craven-Lenoir	3	3	0.42	0
Hoke-Robeson-Scotland	3	24	0.51	1
Greene-Wayne-Wilson	3	4	0.48	0
Clusters Used by Enacted Plan				
Henderson-Polk-Rutherford	3	48	0.36	0
Alexander-Surry- Wilkes-Yadkin	4	36	0.24	0
Carteret-Chowan-Halifax- Hyde-Martin-Pamlico- Warren-Washington	8	2	0.46	0
Bertie-Camden-Currituck- Dare-Gates-Hertford- Northampton-Pasquotank- Perquimans-Tyrrell	10	1	0.47	0
Alternative Clusters Used by Duchin Plan				
Cleveland-McDowell-Rutherford	3	47	0.32	0
Alexander-Stokes- Surry-Wilkes	4	45	0.25	0
Carteret-Chowan-Dare- Hyde-Pamlico-Pasquotank- Perquimans-Washington	8	2	0.39	0
Bertie-Camden-Currituck- Gates-Halifax-Hertford- Martin- Northampton- Tyrrell-Warren	10	1	0.54	1
Total Enacted:	48		0.43	4

Figure 89: Map of Counties and County Clusters with only 1 Senate District in Enacted Plan

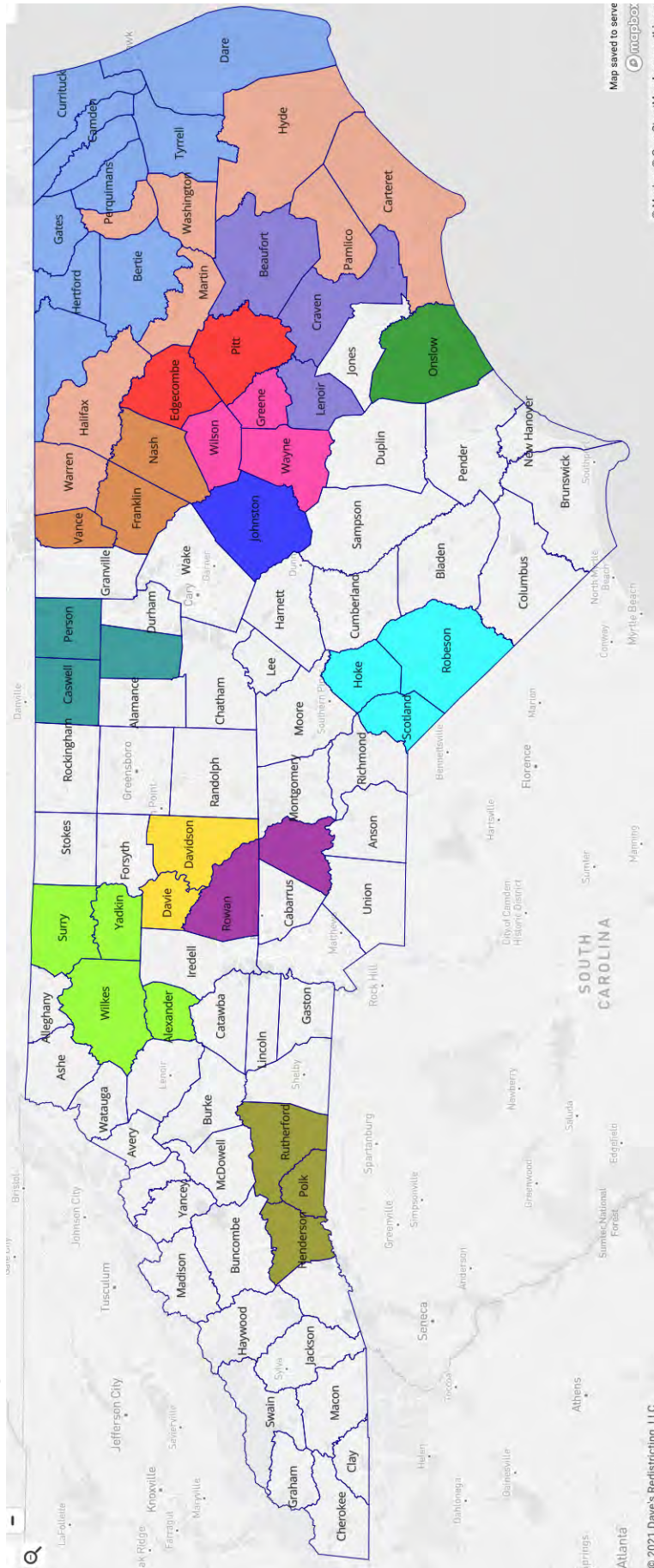
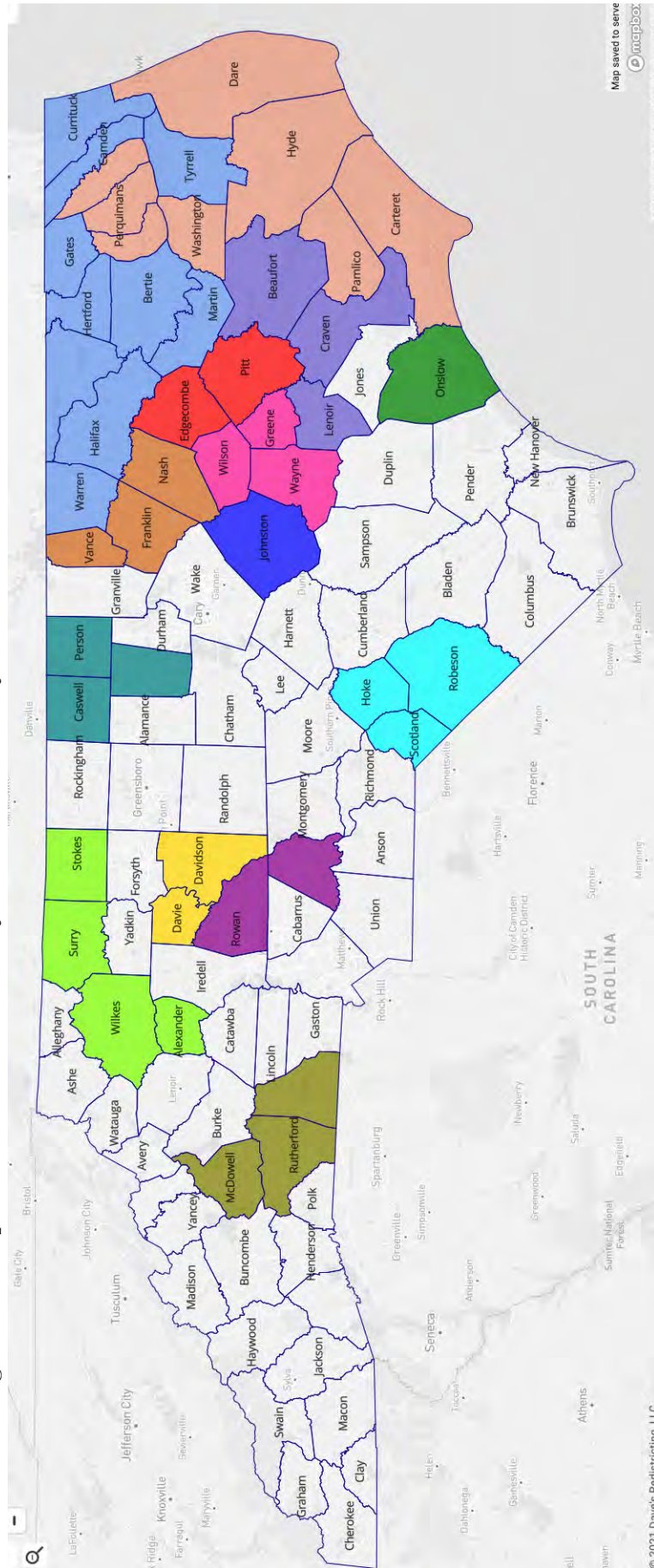


Figure 90: Map of Counties and County Clusters with only 1 Senate District in Duchin Plan



8 Senate Groupings with More than 1 District:

There are 12 county groups with more than 1 district where a map drawer has some discretion to draw districts. I consider each cluster separately because the districts are constrained to remain within the county cluster as the redistricting process in North Carolina is a series of discrete redistricting problems within each county cluster.

I conduct simulations in the 12 clusters that contain more than one Senate district. These clusters collectively account for 36 of the 50 districts in the North Carolina Senate. In the Enacted Plan, 20 of these districts lean Republican and 16 lean Democratic according to the statewide partisan elections index. In addition to calculating the number of Democratic leaning districts for the Enacted Plan, I also compute the same partisan index for the plaintiffs’ Duchin Plan and compare how the Enacted Plan and the Duchin Plan perform on this same metric. The Duchin Plan creates 17 districts that lean Republican and 19 districts that lean Democratic according to the statewide partisan elections index in these districts.

I then place both maps in relation to the distribution of partisan outcomes from the simulated districts. In each cluster I consider the number of Democratic districts generated by each plan in comparison to the distribution of results from the simulations. I consider a plan to be a partisan outlier if the number of Democratic districts generated by the plan falls outside the middle 50% of simulation results. This is a conservative definition of an outlier. In the social sciences, medicine, and other disciplines it is traditional to consider something an outlier if it falls outside the middle 95% or 90% of the comparison distribution.

In the Senate, the Duchin Map chooses a different set of county clusters from those that have an alternative option presented in the Cooper et al. (2021, ‘Duke Study’) report. This occurs in three different county groupings. As a result, in these three different clusters the Duchin Senate Map and the Enacted Senate Map are not comparable because they use different groupings of counties. I compare the remaining nine clusters that are common between the two proposals. An overview of the results are as follows.

In 10 of the 12 clusters, the Enacted Map produces a number of Democratic districts

that falls within the middle 50% of simulation results and are not partisan outliers. Furthermore, the Enacted Map produces the same number of Democratic leaning districts as the modal (most common) number of Democratic leaning districts in the simulations in 10 of the 12 clusters.

In 10 of the 12 clusters, the Duchin Map produces a number of Democratic districts that fall within the middle 50% of simulation results and are not partisan outliers. Furthermore, the Duchin Map produces the same number of Democratic leaning districts as the modal (most common) number of Democratic leaning districts in the simulations in 10 of the 12 clusters.

In 6 of the 9 clusters that are common between the Enacted Map and the Duchin Map there is agreement between the two plans on the number of Democratic leaning districts.²⁷ This means there is disagreement in 4 of the 26 total clusters. Table 32 summarizes the results of the simulation analysis for the 12 Senate clusters with multiple districts. Figure 91 shows a map of the counties where the Enacted Plan and the Duchin Plan are in agreement on the number of Democratic leaning seats. Figure 92 shows a map of the counties where the Enacted Plan and the Duchin Plan disagree on the number of Democratic leaning seats.

Thereafter, I present the results cluster-by-cluster.

²⁷These groupings are: Cumberland-Moore, Chatham-Durham, Alleghany et al., Brunswick-Columbus-New Hanover, Bladen et al., Alamance et al., and the combination of Buncombe, Burke, McDowell, Cleveland, Gaston, Lincoln, Henderson, Polk, Forsyth, Stokes, and Yadkin into four different groupings.

Table 32: Senate County Grouping Analysis Summary

			# of Districts that are Democratic Leaning		
County Cluster	Cluster Democratic Partisan Index	# Districts	Enacted Map	Duchin Map	Simulations
Clusters Used by both Enacted and Duchin Plans					
Cumberland-Moore	0.52	2	1	1	1
Chatham-Durham	0.75	2	2	2	2
Alleghany-Ashe-Avery-Caldwell-Catawba-Cherokee-Clay-Graham-Haywood-Jackson-Macon-Madison-Mitchell-Swain-Transylvania-Watauga-Yancy	0.36	2	0	0	0
Brunswick-Columbus-New Hanover	0.45	2	1	1	1
Bladen-Duplin-Harnett-Jones-Lee-Pender-Sampson	0.41	2	0	0	0
Guilford-Rockingham	0.57	3	2	3	2
Alamance-Anson-Cabarrus-Montgomery-Randolph-Richmond-Union	0.38	4	0	0	0
Granville-Wake	0.61	6	4	5	6
Iredell-Mecklenburg	0.60	6	4	5	5
Clusters Used by Enacted Plan					
Buncombe-Burke-McDowell	0.51	2	1		1
Cleveland-Gaston-Lincoln	0.34	2	0		0
Forsyth-Stokes	0.52	2	1		1
Alternative Clusters Used by Duchin Plan					
Buncombe-Henderson-Polk	0.54	2		1	1
Burke-Gaston-Lincoln	0.34	2		0	0
Forsyth-Yadkin	0.54	2		1	1
Total:		35	16	19	19

Note: Number of Democratic leaning districts is measured using the average two-party vote share in each district from the 11 statewide races noted earlier. Simulations range represents the middle 50% of outcomes from the simulations results. Clusters that fall outside of the simulation range are bolded.

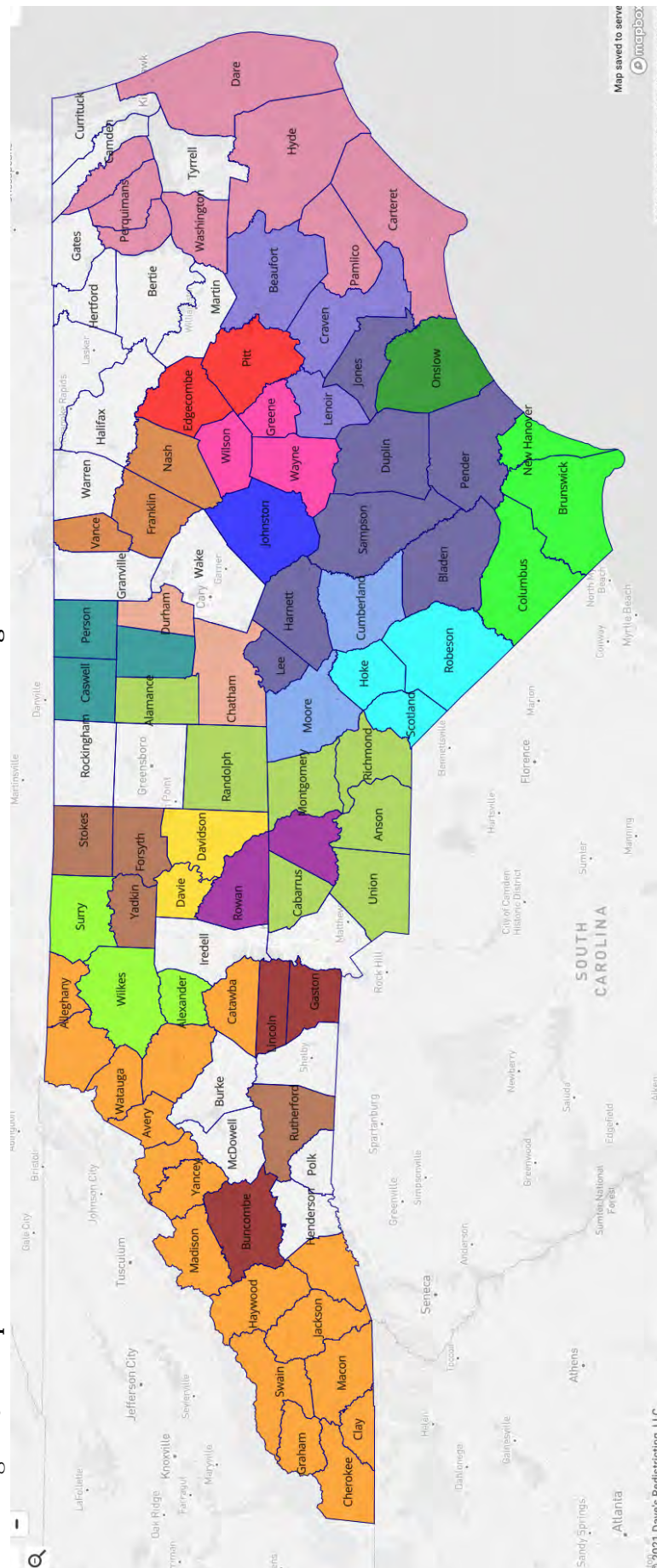
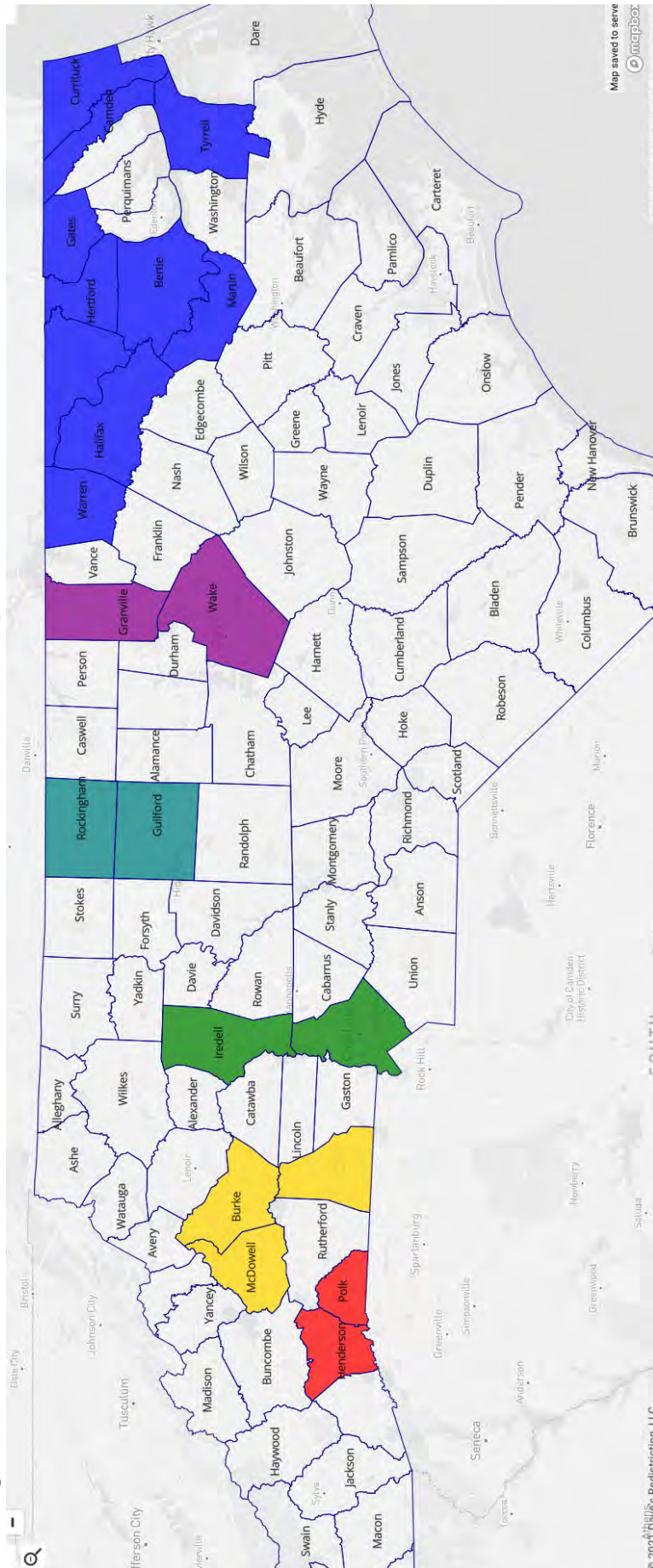


Figure 92: Map of Senate Counties Where Enacted and Duchin Plans Disagree on Partisan Lean of Districts



8.1 Cumberland and Moore Senate County Grouping

The Cumberland-Moore Senate county group contains 2 districts. In the Enacted Map these are Districts 19 and 21. The county cluster has an overall partisan index of .52, which is slightly Democratic. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. All 50,000 simulations meet this criteria. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 42,625 simulated maps, each containing two districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 93. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 94.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 95. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 77% of the simulations there is 1 Democratic leaning district. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 1 Democratic district. The Duchin Map also generates 1 Democratic district.

Table 33 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In 10 of the 11 individual elections there is agreement

between the modal outcome in the simulations and the Enacted Map.

Figure 93: Map of Cumberland and Moore Senate County Cluster

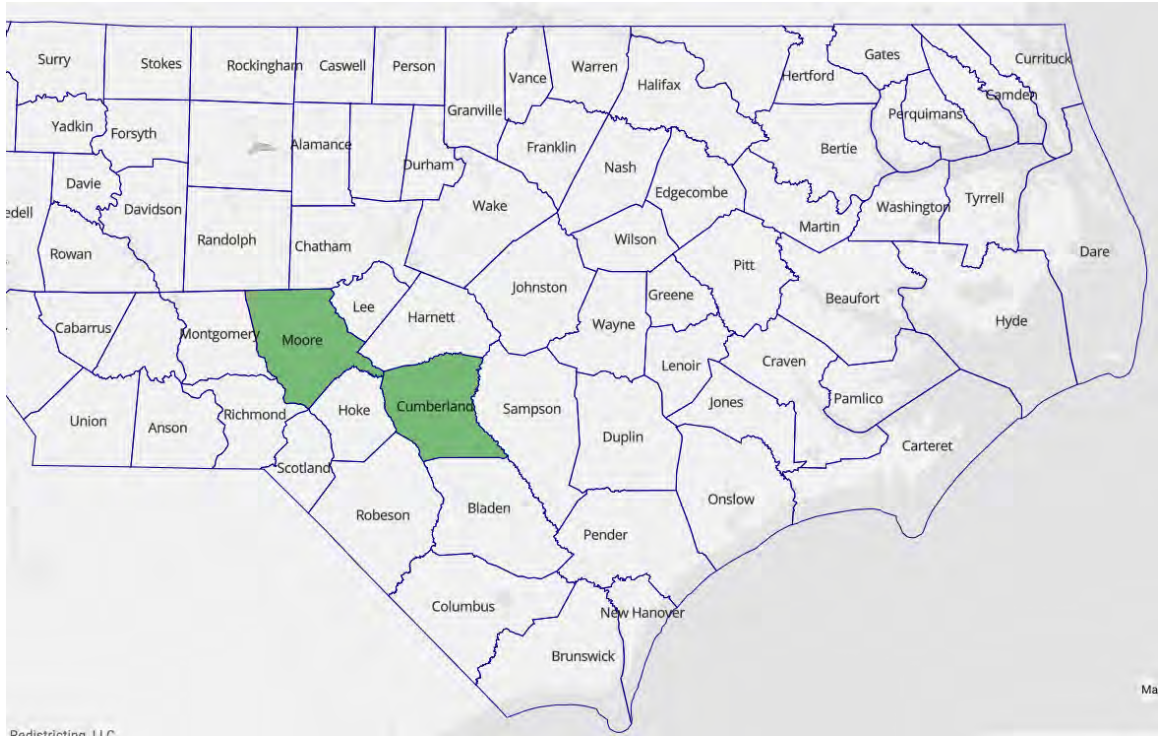
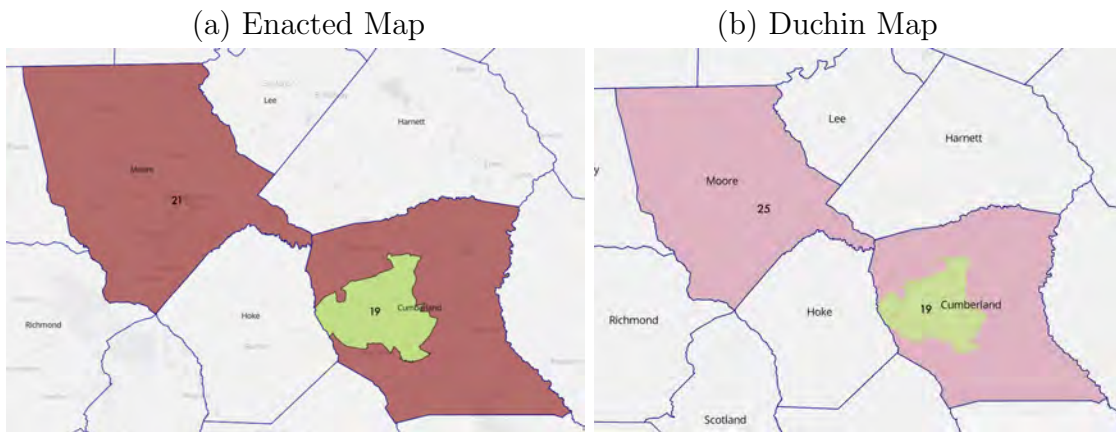


Figure 94: **Map of Enacted Plan in Cumberland and Moore Senate County Cluster**

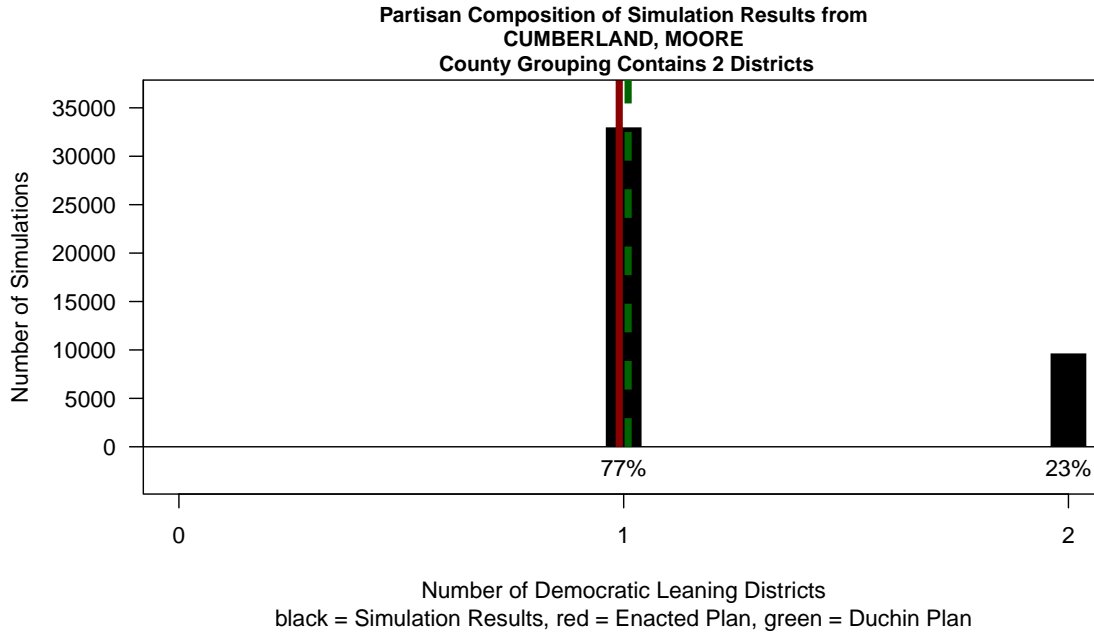


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
19	0.66	0.66
25 (21 in Duchin)	0.40	0.40

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 95: **Distribution of Partisan Districts from Simulations in Cumberland and Moore Senate County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 33: Simulation Results by Individual Elections

Cumberland and Moore Senate County Cluster

Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	0%	82%	18%
2020 Senate	0%	91%	9%
2020 Governor	0%	7%	93%
2020 Lt. Governor	0%	94%	6%
2020 Attorney General	0%	58%	42%
2016 President	0%	84%	16%
2016 Senate	0%	97%	3%
2016 Governor	0%	71%	29%
2016 Lt. Governor	0%	99%	1%
2016 Attorney General	0%	57%	43%
2014 Senate	0%	96%	4%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 82% of the simulations produce 1 Democratic leaning district. The Enacted Plan does as well, as the ‘1 District’ cell is bolded in that row.

8.2 Chatham and Durham Senate County Grouping

The Chatham-Durham Senate county group contains 2 districts. In the Enacted Map these are Districts 20 and 22. The county cluster has an overall partisan index of .75, which is strongly Democratic. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 49,721 simulations that meet this criteria. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 1,750 simulated maps, each containing two districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 96. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 97.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 98. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 2 Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 2 Democratic leaning districts. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 2 Democratic leaning districts. The Duchin Map also generates 2 Democratic leaning districts.

Table 34 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted

Plan using the equivalent election. In all 11 of the 11 individual elections there is agreement between the modal outcome in the simulations and the Enacted Map.

Figure 96: Map of Chatham and Durham Senate County Cluster

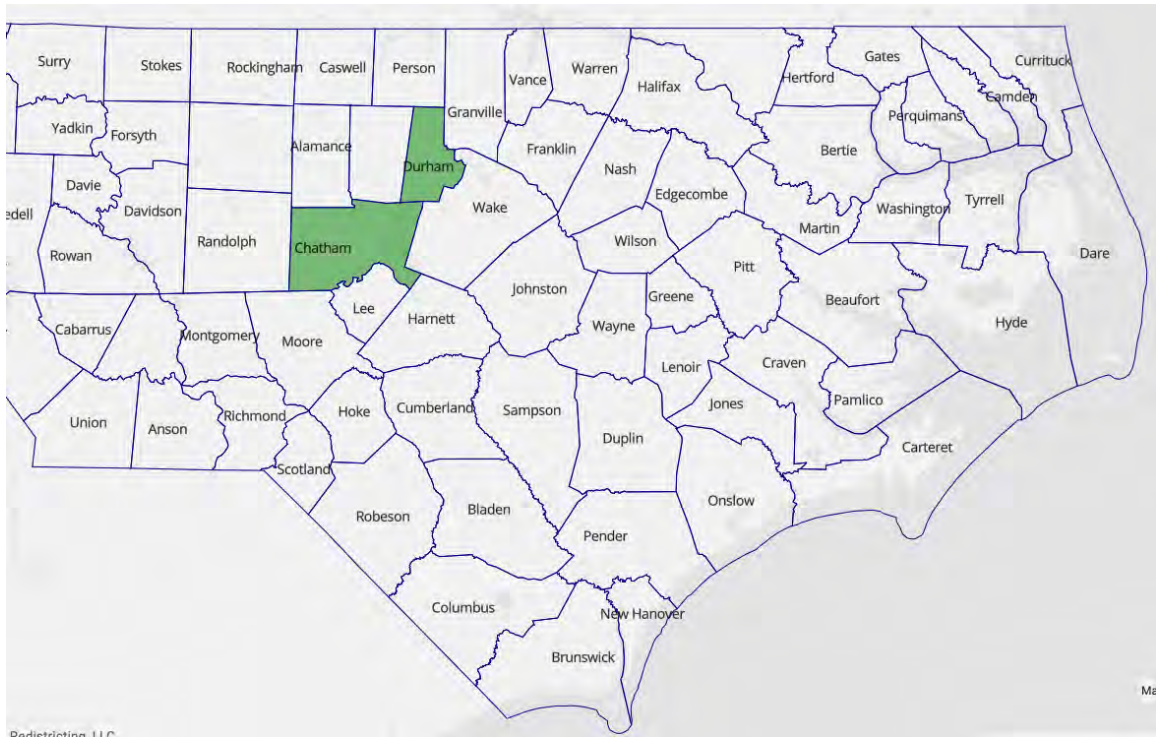
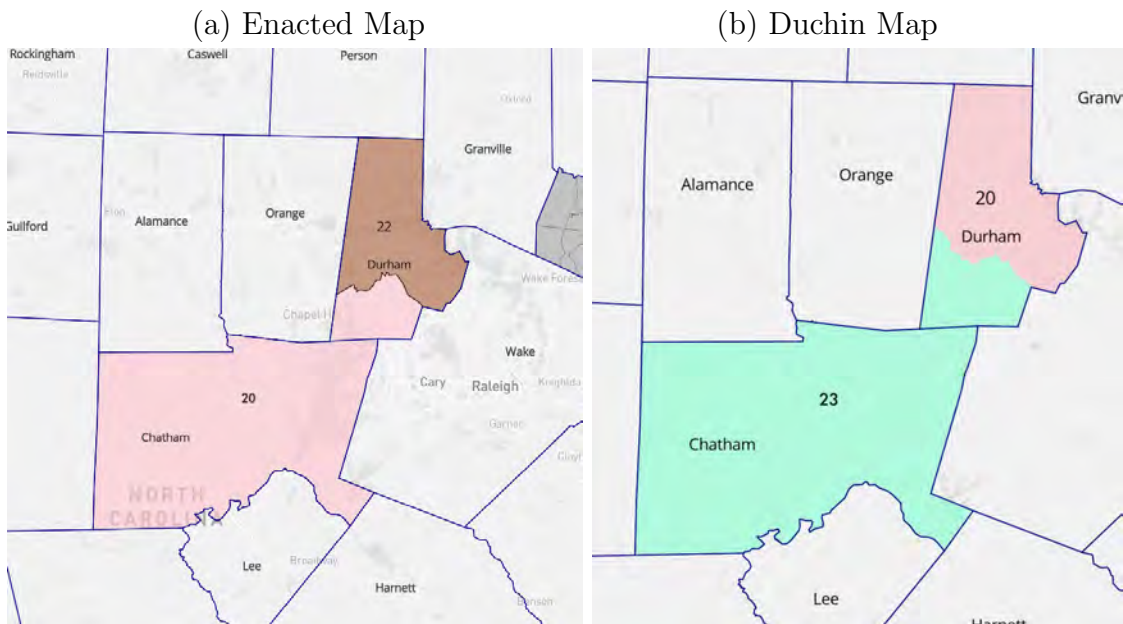


Figure 97: Map of Enacted Plan in Chatham and Durham Senate County Cluster

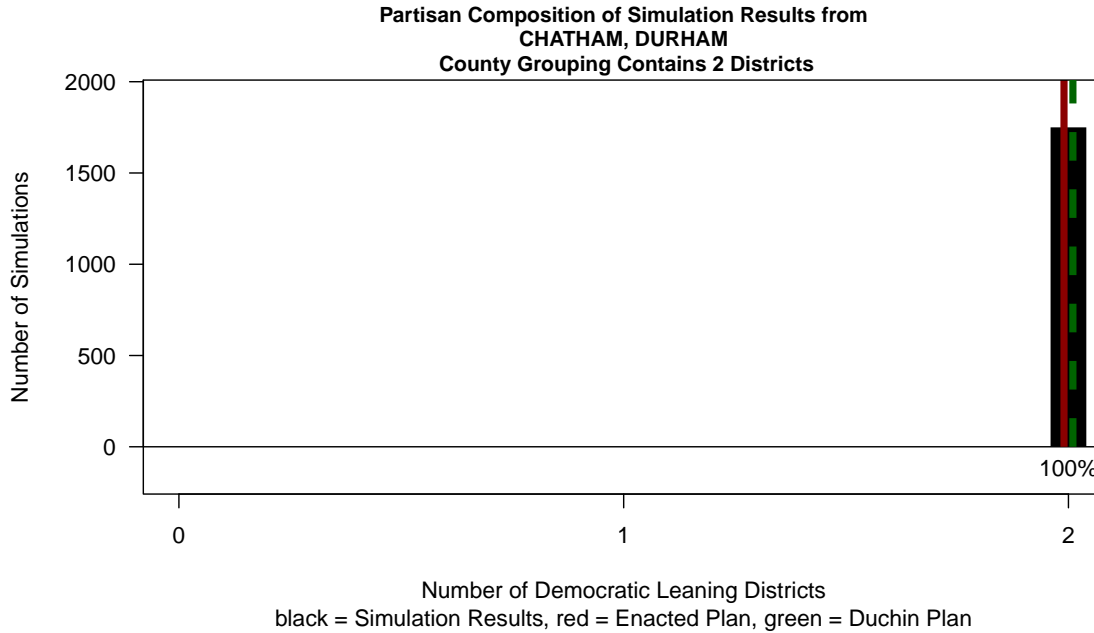


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
20 (23 in Duchin)	0.72	0.71
22 (20 in Duchin)	0.79	0.79

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 98: **Distribution of Partisan Districts from Simulations in Chatham and Durham Senate County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 34: Simulation Results by Individual Elections

Chatham and Durham Senate County Cluster

Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	0%	0%	100%
2020 Senate	0%	0%	100%
2020 Governor	0%	0%	100%
2020 Lt. Governor	0%	0%	100%
2020 Attorney General	0%	0%	100%
2016 President	0%	0%	100%
2016 Senate	0%	0%	100%
2016 Governor	0%	0%	100%
2016 Lt. Governor	0%	0%	100%
2016 Attorney General	0%	0%	100%
2014 Senate	0%	0%	100%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 2 Democratic leaning districts. The Enacted Plan does as well, as the ‘2 Districts’ cell is bolded in that row.

8.3 Bladen, Duplin, Harnett, Jones, Lee, Pender, and Sampson Senate County Grouping

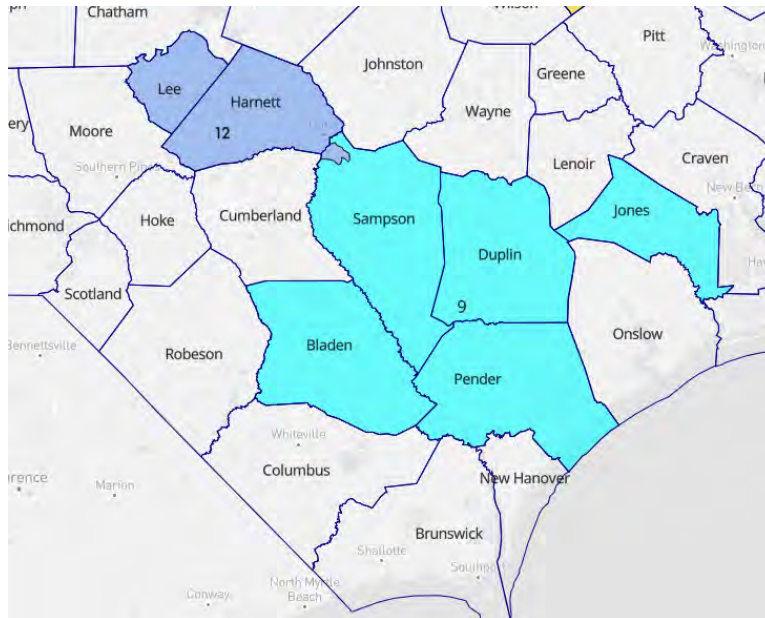
The Bladen-Duplin-Harnett-Jones-Lee-Pender-Sampson Senate county grouping contains 2 districts. In the Enacted Map these are Districts 9 and 12. The county cluster has an overall partisan index of 0.41, which is strongly Republican. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. All 50,000 simulated maps meet this criteria. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves only one unique map that is as compact as the Enacted Plan.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 99. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 100.

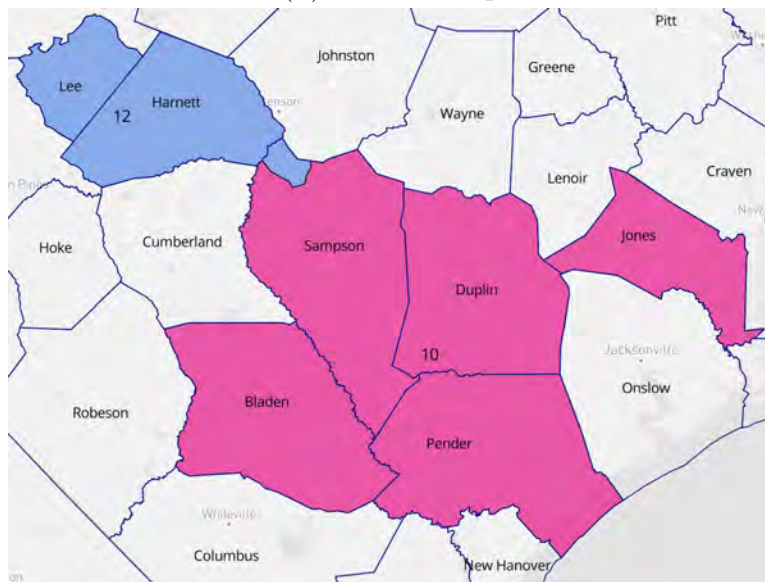
Because there is only 1 map that fits the criteria I use of equal population, county traversals, and compactness equal to or better than the Enacted Map, I do not present the distribution of district partisanship for the simulations here. It is sufficient to say that in the Enacted Map, the Duchin map, and the remaining simulated map all create 2 Republican districts and 0 Democratic leaning districts, regardless of the index or election used. Table 35 shows this below.

Figure 100: Map of Enacted Plan in Bladen, Duplin, Harnett, Jones, Lee, Pender, and Sampson Senate County Cluster

(a) Enacted Map



(b) Duchin Map



Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
9 (10 in Duchin)	0.40	0.41
12	0.41	0.41

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Table 35: Simulation Results by Individual Elections

Bladen, Duplin, Harnett, Jones, Lee, Pender, and Sampson Senate County Cluster

Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	100%	0%	0%
2020 Senate	100%	0%	0%
2020 Governor	100%	0%	0%
2020 Lt. Governor	100%	0%	0%
2020 Attorney General	100%	0%	0%
2016 President	100%	0%	0%
2016 Senate	100%	0%	0%
2016 Governor	100%	0%	0%
2016 Lt. Governor	100%	0%	0%
2016 Attorney General	100%	0%	0%
2014 Senate	100%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 0 Democratic leaning districts. The Enacted Plan does as well, as the ‘0 District’ cell is bolded in that row.

8.4 Brunswick, Columbus, and New Hanover Senate County Grouping

The Brunswick-Columbus-New Hanover Senate county group contains 2 districts. In the Enacted Map these are Districts 7 and 8. The county cluster has an overall partisan index of .45, which is Republican leaning. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 31,037 simulations that meet this criteria. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 30,499 simulated maps, each containing two districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 101. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 102.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 103. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 77% of the simulations there is 1 Democratic leaning districts. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 1 Democratic leaning district. The Duchin Map also generates 1 Democratic leaning district.

Table 36 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded

number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In 9 of the 11 individual elections there is agreement between the modal outcome in the simulations and the Enacted Map. In all 11 of the 11 individual elections the Enacted Plan falls within the middle 50% of the simulation results.

Figure 101: Map of Brunswick, Columbus, and New Hanover Senate County Cluster

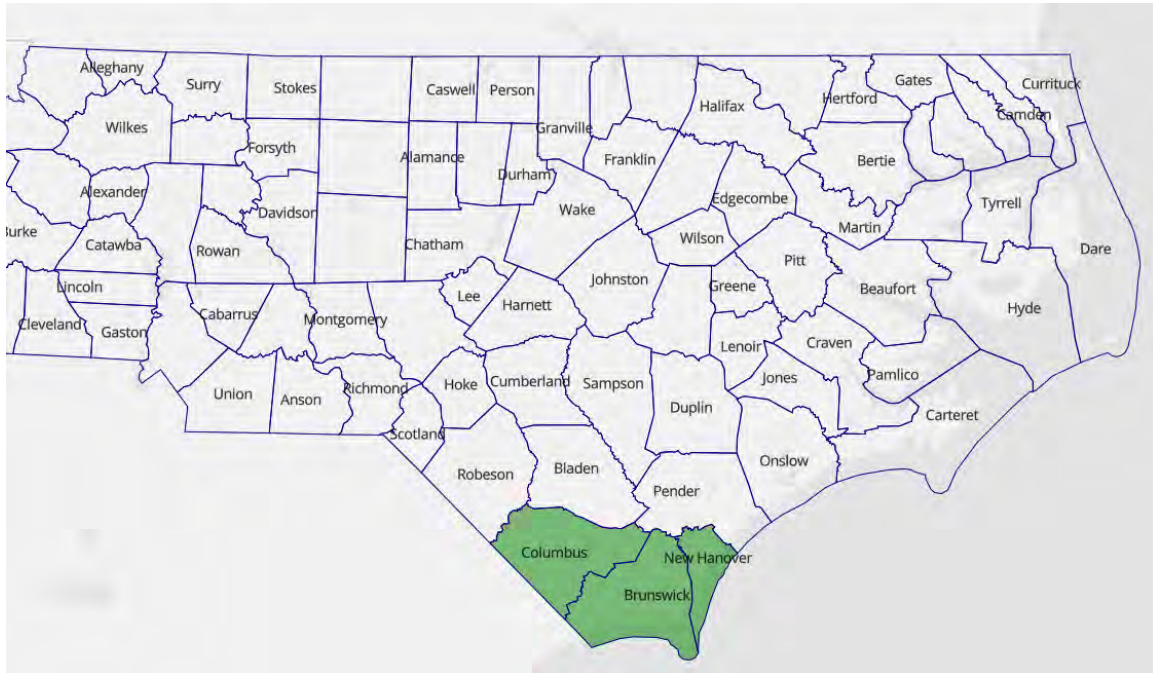
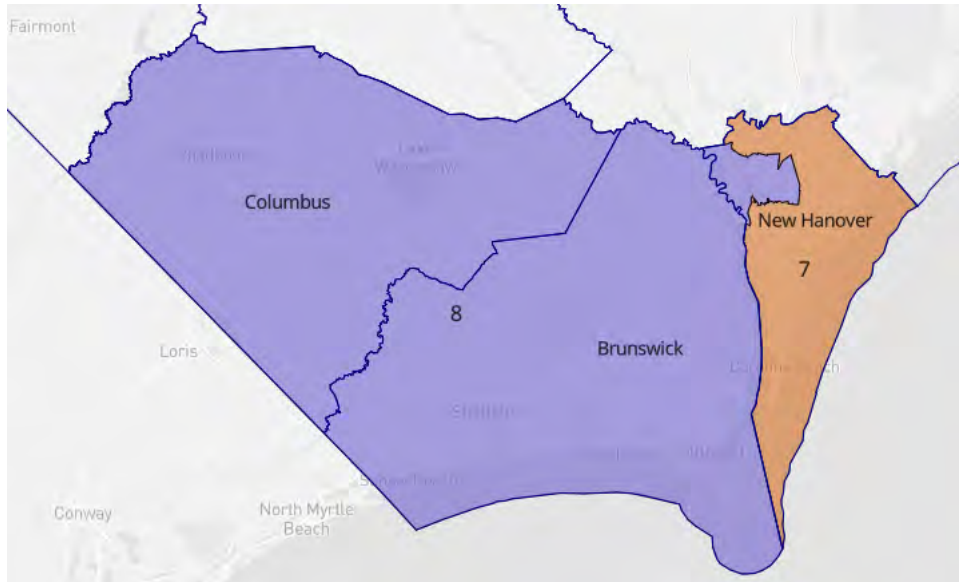
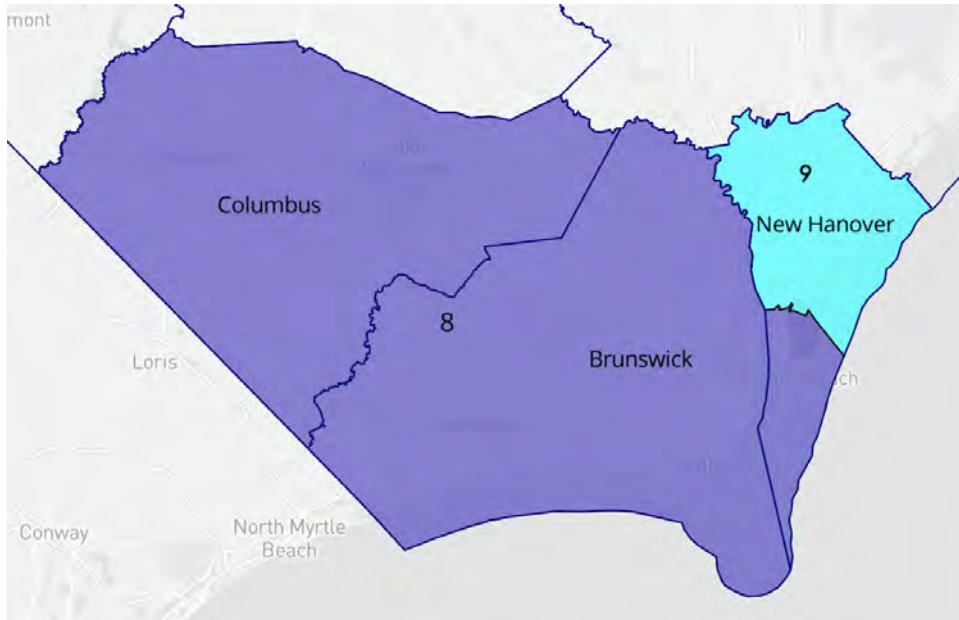


Figure 102: Map of Enacted Plan in Brunswick, Columbus, and New Hanover Senate County Cluster

(a) Enacted Map



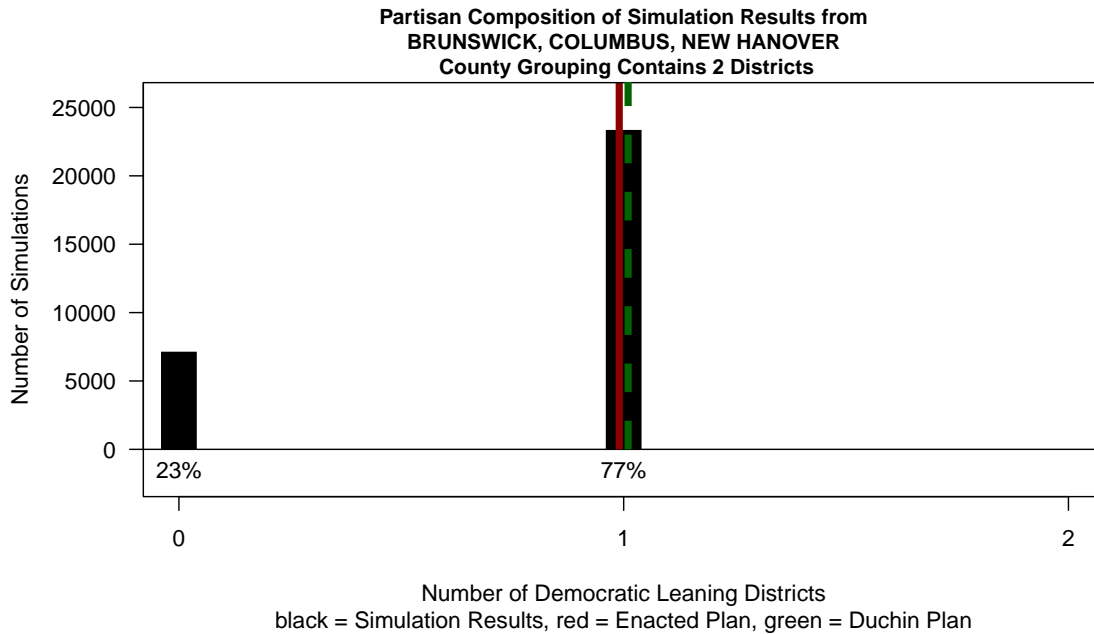
(b) Duchin Map



Partisan Lean of Districts		
District:	Enacted Plan	Duchin Plan
7 (9 in Duchin)	0.50	0.52
8	0.39	0.39

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 103: **Distribution of Partisan Districts from Simulations in Brunswick, Columbus, and New Hanover Senate County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 36: Simulation Results by Individual Elections

Brunswick, Columbus, and New Hanover County Senate Cluster

Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	13%	87%	0%
2020 Senate	24%	76%	0%
2020 Governor	0%	100%	0%
2020 Lt. Governor	28%	72%	0%
2020 Attorney General	7%	93%	0%
2016 President	100%	0%	0%
2016 Senate	100%	0%	0%
2016 Governor	3%	97%	0%
2016 Lt. Governor	100%	0%	0%
2016 Attorney General	16%	84%	0%
2014 Senate	26%	74%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 87% of the simulations produce 1 Democratic leaning district. The Enacted Plan does as well, as the ‘1 District’ cell is bolded in that row.

8.5 Alleghany, Ashe, Avery, Caldwell, Catawba, Cherokee, Clay, Graham, Haywood, Jackson, Macon, Madison, Mitchell, Swain, Transylvania, Watauga, and Yancey Senate County Grouping

The Alleghany-et al. Senate county group contains 3 districts. In the Enacted Map these are Districts 47, 45, and 50. The county cluster has an overall partisan index of .35, which is strongly Republican. After conducting 50,000 initial simulations to create three districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 37,454 simulations that meet this criteria. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 22,065 simulated maps, each containing three districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 104. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 105.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 106. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 0 Democratic leaning seats in the Duchin Map in the cluster. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 0 Democratic leaning districts. The Duchin Map also generates 0 Democratic leaning districts.

Table 37 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election

separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In all 11 of the 11 individual elections there is agreement between the modal outcome in the simulations and the Enacted Map.

Figure 104: Map of Alleghany, Ashe, Avery, Caldwell, Catawba, Cherokee, Clay, Graham, Haywood, Jackson, Macon, Madison, Mitchell, Swain, Transylvania, Watauga, and Yancey Senate County Cluster

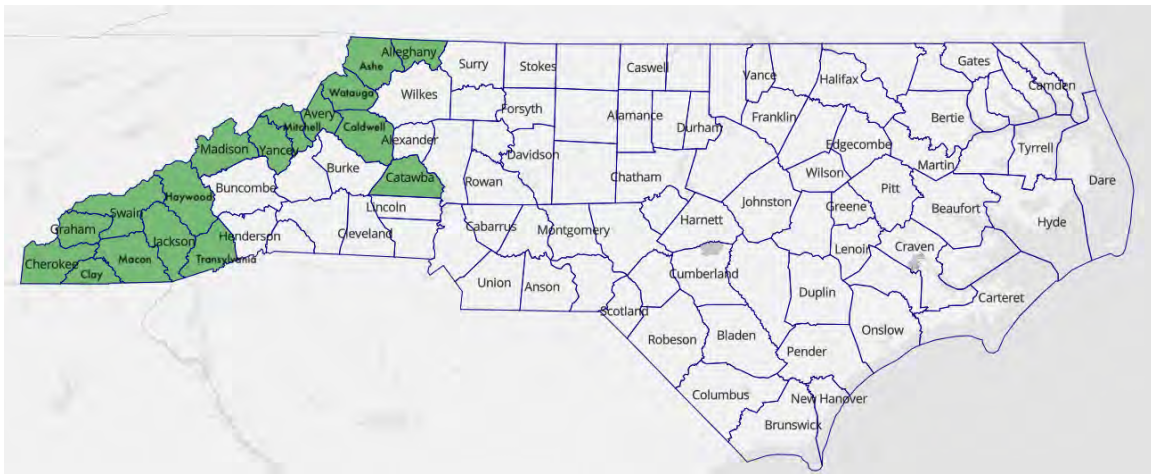
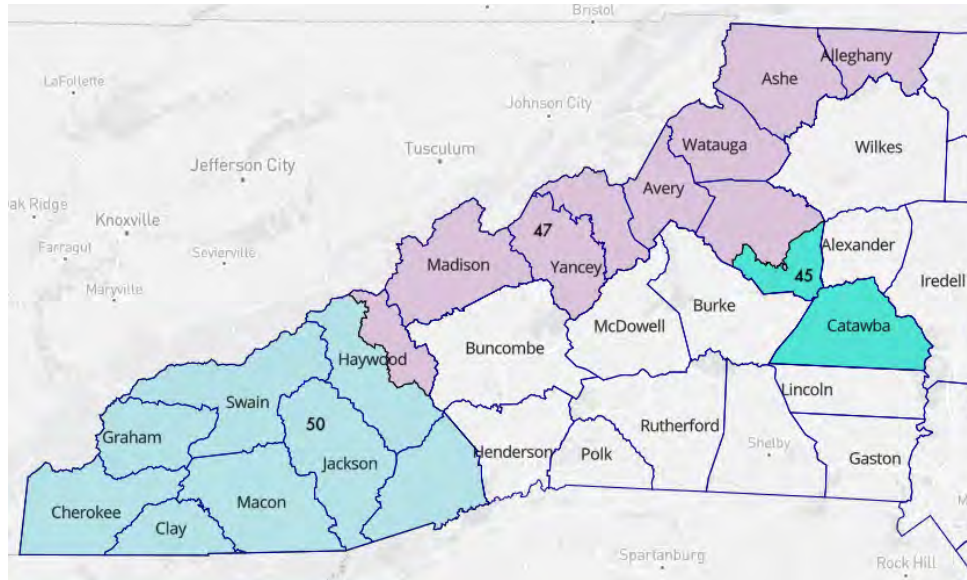
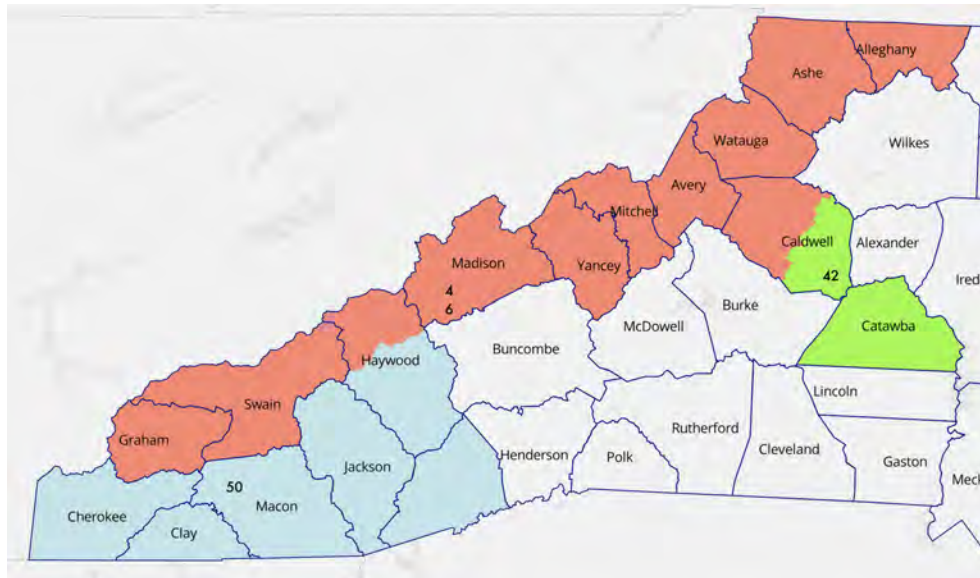


Figure 105: Map of Enacted Plan in Alleghany, Ashe, Avery, Caldwell, Catawba, Cherokee, Clay, Graham, Haywood, Jackson, Macon, Madison, Mitchell, Swain, Transylvania, Watauga, and Yancey Senate County Cluster

(a) Enacted Map



(b) Duchin Map

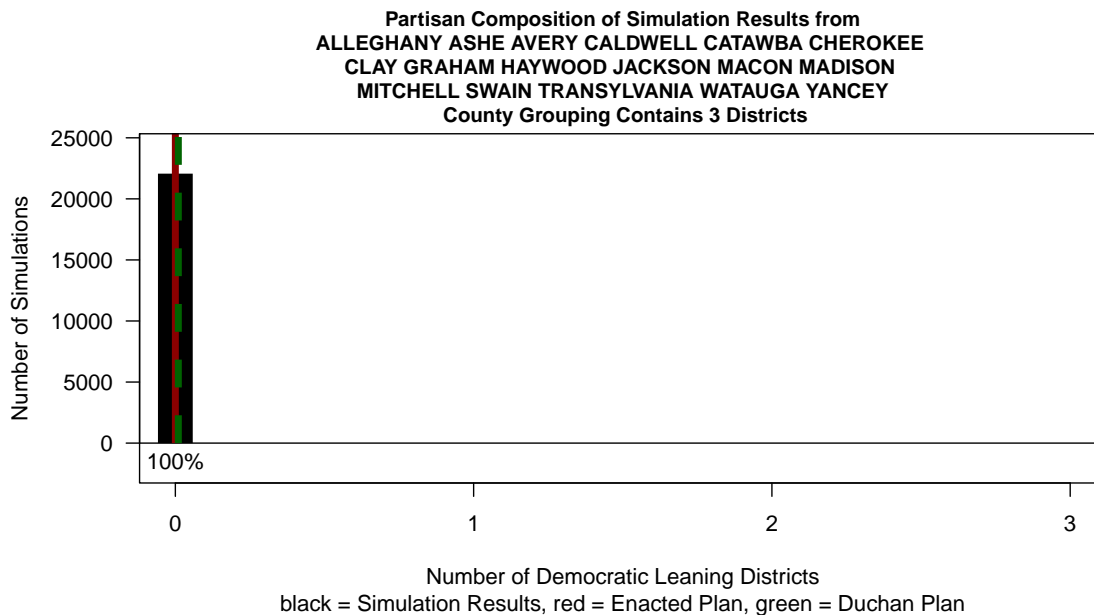


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
45 (42 in Duchin)	0.30	0.30
47 (46 in Duchin)	0.37	0.38
50	0.37	0.37

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 106: **Distribution of Partisan Districts from Simulations in Alleghany, Ashe, Avery, Caldwell, Catawba, Cherokee, Clay, Graham, Haywood, Jackson, Macon, Madison, Mitchell, Swain, Transylvania, Watauga, and Yancey Senate County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 37: Simulation Results by Individual Elections

Alleghany, Ashe, Avery, Caldwell, Catawba, Cherokee, Clay, Graham, Haywood, Jackson, Macon, Madison, Mitchell, Swain, Transylvania, Watauga, and Yancey Senate County Cluster

	Percentage of Simulations			
Number of Democratic Leaning Districts:	0	1	2	3
Individual Elections:				
2020 President	100%	0%	0%	0%
2020 Senate	100%	0%	0%	0%
2020 Governor	100%	0%	0%	0%
2020 Lt. Governor	100%	0%	0%	0%
2020 Attorney General	100%	0%	0%	0%
2016 President	100%	0%	0%	0%
2016 Senate	100%	0%	0%	0%
2016 Governor	100%	0%	0%	0%
2016 Lt. Governor	100%	0%	0%	0%
2016 Attorney General	100%	0%	0%	0%
2014 Senate	100%	0%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 0 Democratic leaning districts. The Enacted Plan does as well, as the ‘0 Districts’ cell is bolded in that row.

8.6 Guilford and Rockingham Senate County Grouping

The Guilford-Rockingham Senate county group contains 3 districts. In the Enacted Map these are Districts 26, 27, and 28. The county cluster has an overall partisan index of .57, which is solidly Democratic. After conducting 50,000 initial simulations to create three districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 37,148 simulations that meet this criteria. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 24,667 simulated maps, each containing three districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 107. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 108.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 110. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 94% of the simulations there are 2 Democratic leaning districts. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 2 Democratic leaning districts. The Duchin Map generates 3 Democratic leaning districts, which only occurs in 6% of the simulations. This is outside the middle 50% of simulations and is a partisan outlier.

Table 39 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded

number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In all 11 of the 11 individual elections there is agreement between the modal (most common) outcome in the simulations and the Enacted Map.

The Duchin Plan creates three Democratic leaning district by dividing the city of Greensboro, the county seat and largest city in Guilford County, into three relatively equal pieces. The Enacted Plan does not and instead keeps the vast majority of Greensboro in two districts. Most of the Democratic leaning voting in this cluster reside in Greensboro. This “pie” division of Greensboro by the Duchin Plan therefore spread Democratic voters more equally across the three districts. However, it comes at the expense of dividing a city into more districts than necessary. Table 38 shows the division of Greensboro residents across the districts in the two plans. Figure 109 shows a map of the divisions.

Table 38: Division of Greensboro in Enacted Plan and Duchin Plan

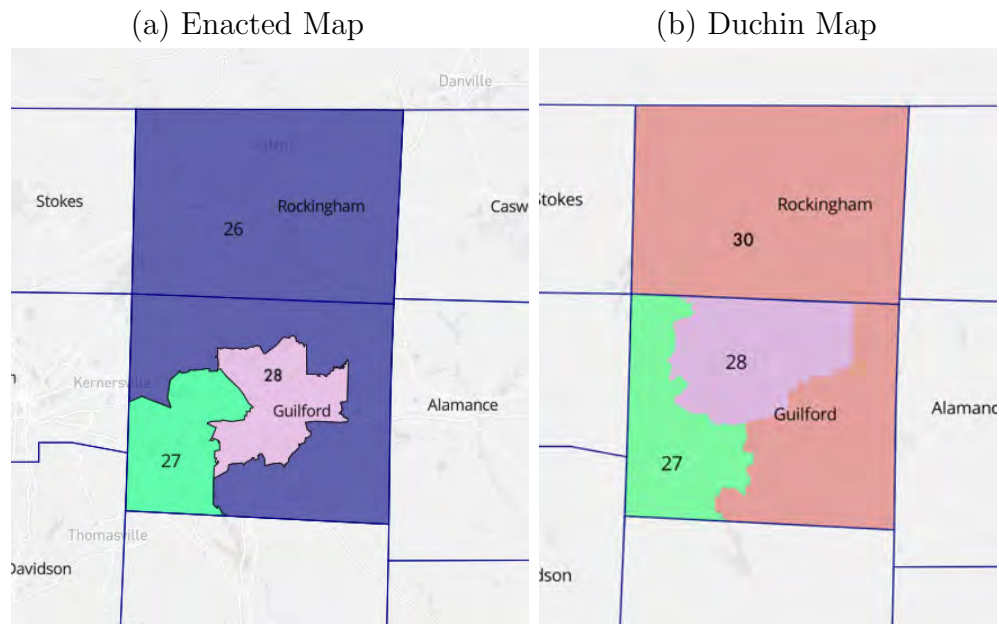
	Percent of Greensboro in district	
District:	Enacted Plan	Duchin Plan
26 (30 in Duchin)	4.3	19.6
27	30.8	20.4
28	64.9	60.0
Total:	100%	100%

Note: Population number for city by district for Enacted Plan from: https://ncleg.gov/Files/GIS/Plans_Main/Senate_2021/SL%202021-173%20Senate%20-%20StatPack%20Report.pdf Population numbers for city by district for Duchin Plan from Dave’s Redistricting online. <https://davesredistricting.org/>

Figure 107: Map of Guilford and Rockingham Senate County Cluster



Figure 108: **Map of Enacted Plan in Guilford and Rockingham Senate County Cluster**



Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
26 (30 in Duchin)	0.37	0.52
27	0.60	0.58
28	0.77	0.62

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 109: Map of Greensboro Divisions in Guilford-Rockingham Senate County Cluster

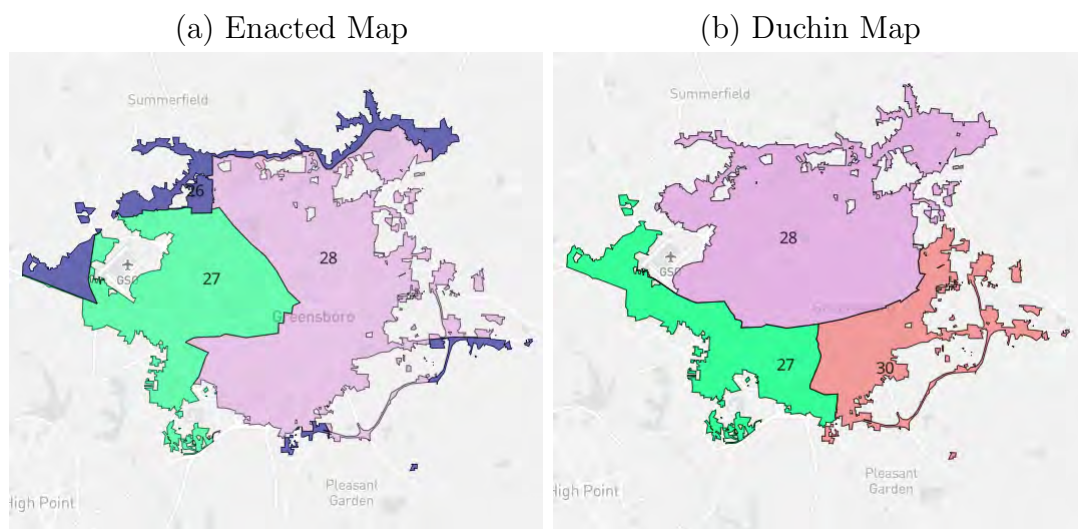
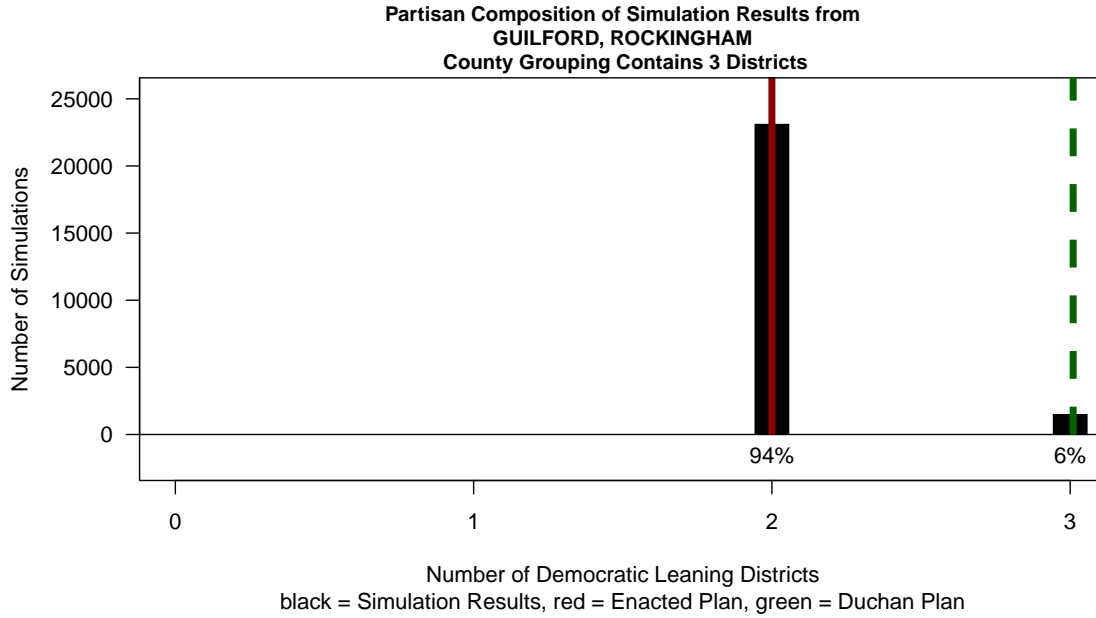


Figure 110: **Distribution of Partisan Districts from Simulations in Guilford and Rockingham Senate County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 39: Simulation Results by Individual Elections

Guilford and Rockingham County Cluster

Number of Democratic Leaning Districts:				
	0	1	2	3
Individual Elections:				
2020 President	0%	0%	95%	5%
2020 Senate	0%	0%	94%	6%
2020 Governor	0%	0%	57%	43%
2020 Lt. Governor	0%	0%	96%	4%
2020 Attorney General	0%	0%	93%	7%
2016 President	0%	0%	96%	4%
2016 Senate	0%	1%	96%	3%
2016 Governor	0%	0%	83%	17%
2016 Lt. Governor	0%	1%	96%	3%
2016 Attorney General	0%	0%	91%	9%
2014 Senate	0%	1%	94%	5%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 95% of the simulations produce 2 Democratic leaning districts. The Enacted Plan does as well, as the ‘2 Districts’ cell is bolded in that row.

8.7 Alamance, Anson, Cabarrus, Montgomery, Randolph, Richmond, and Union Senate County Grouping

The Alamance-Anson-Cabarrus-Montgomery-Randolph-Richmond-Union Senate county group contains 4 districts. In the Enacted Map these are Districts 25, 29, 34, and 35. The county cluster has an overall partisan index of .38, which is solidly Republican. After conducting 50,000 initial simulations to create four districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 35,298 simulations that meet this criteria. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 25,747 simulated maps, each containing four districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 111. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 112.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 113. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 0 Democratic leaning districts. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 0 Democratic leaning districts. The Duchin Map also generates 0 Democratic leaning districts.

Table 40 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Demo-

cratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In all 11 of the 11 individual elections there is agreement between the modal (most common) outcome in the simulations and the Enacted Map.

Figure 111: **Alamance, Anson, Cabarrus, Montgomery, Randolph, Richmond, and Union Senate County Cluster**

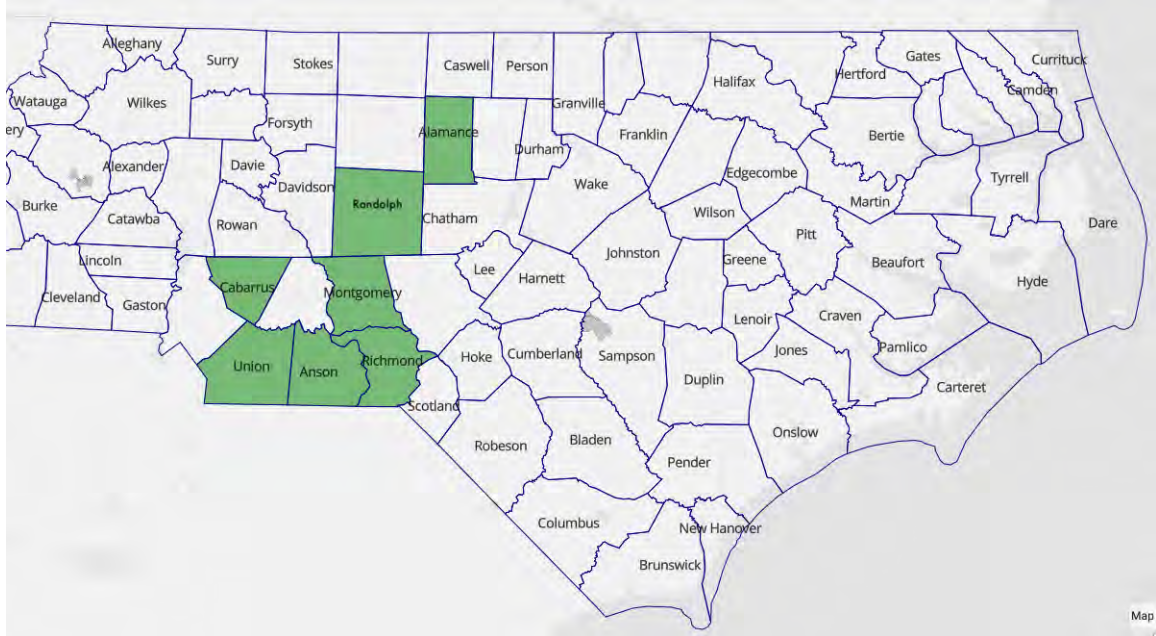
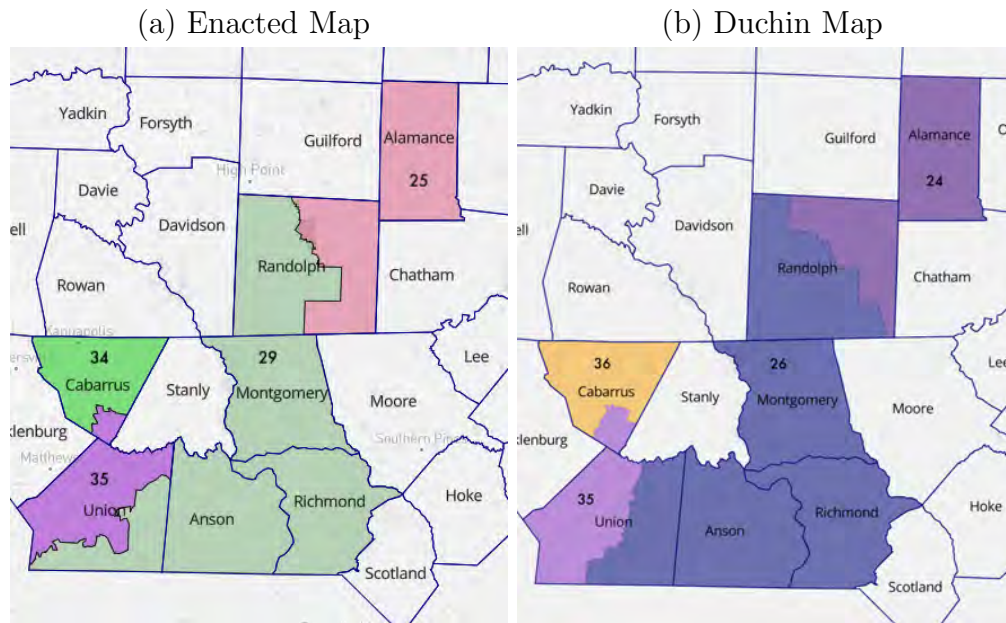


Figure 112: Map of Enacted Plan in Alamance, Anson, Cabarrus, Montgomery, Randolph, Richmond, and Union Senate County Cluster

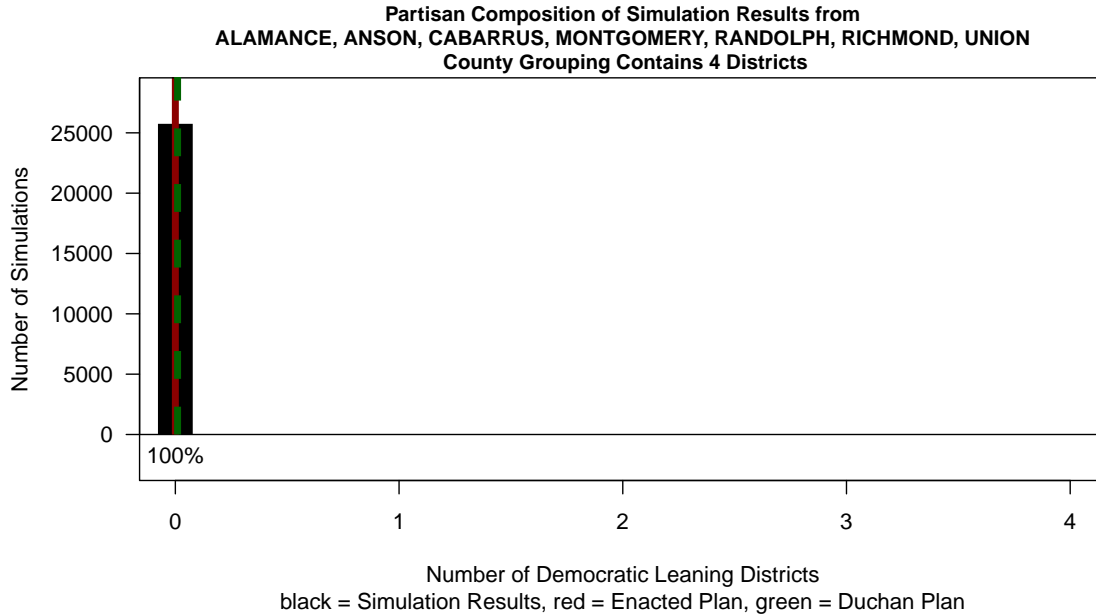


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
25 (24 in Duchin)	0.40	0.40
29 (26 in Duchin)	0.34	0.34
34 (36 in Duchin)	0.44	0.44
35	0.36	0.36

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 113: Distribution of Partisan Districts from Simulations in Alamance, Anson, Cabarrus, Montgomery, Randolph, Richmond, and Union Senate County Cluster



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 40: Simulation Results by Individual Elections

Alamance, Anson, Cabarrus, Montgomery, Randolph, Richmond, and Union Senate County Cluster

Number of Democratic Leaning Districts:					
	0	1	2	3	4
Individual Elections:					
2020 President	100%	0%	0%	0%	0%
2020 Senate	100%	0%	0%	0%	0%
2020 Governor	100%	0%	0%	0%	0%
2020 Lt. Governor	100%	0%	0%	0%	0%
2020 Attorney General	100%	0%	0%	0%	0%
2016 President	100%	0%	0%	0%	0%
2016 Senate	100%	0%	0%	0%	0%
2016 Governor	100%	0%	0%	0%	0%
2016 Lt. Governor	100%	0%	0%	0%	0%
2016 Attorney General	100%	0%	0%	0%	0%
2014 Senate	100%	0%	0%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 0 Democratic leaning districts. The Enacted Plan does as well, as the ‘0 Districts’ cell is bolded in that row.

8.8 Granville and Wake Senate County Grouping

The Granville-Wake Senate county group contains 6 districts. In the Enacted Map these are Districts 13, 14, 15, 16, 17, and 18. The county cluster has an overall partisan index of .61, which is solidly Democratic. After conducting 50,000 initial simulations to create six districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 45,850 simulations that meet this criteria. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 2,835 simulated maps, each containing six districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 114. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 115.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 117. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 1% of the simulations there are 4 Democratic leaning districts. In 24% of the simulations there are 5 Democratic leaning districts, and in 75% of the simulations there are 6 Democratic leaning districts. The Enacted Map generates 4 Democratic leaning districts, which is an outlier from middle 50% of the simulations. The Duchin Map generates 5 Democratic leaning districts and is also classified as a partisan outlier.

Table 42 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Demo-

cratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In 10 of the 11 individual elections the Enacted Plan is not in alignment with the middle 50% of the simulation results and is therefore classified as an outlier.

Why is the Enacted Plan such an outlier in this county grouping? There are two factors to consider in explaining this divergence. First, while the Enacted Plan generates 4 solidly Democratic leaning districts, the remaining two districts are not solidly Republican. Instead, they would be best classified as highly competitive. District 13 has a partisan index of 0.481 and District 17 has a partisan index of 0.489. These two districts will likely be very closely decided with candidates from both parties winning them with some regularity, given their narrow margins. This is actually quite close to the partisan lean of the Duchin Plan. While the Duchin Plan creates 5 Democratic leaning districts in the county group, there are also two very competitive districts (District 22 - partisan index of 0.499 and District 17 - partisan index of 0.505). It just happens that one of the competitive districts is just over the .50 line and is classified as Democratic leaning. Thus, both plans generate 4 solidly Democratic districts and 2 highly competitive districts. The Duchin Plan's competitive districts are just slightly more Democratic by roughly 1.7 percentage points.

The second factor to consider is that the Enacted Plan divides the city of Raleigh and groups other municipalities differently from the Duchin Plan, which has the impact of placing a greater share of its residents in fewer districts. For example, District 13 keeps the cities of Wake Forest, Rolesville, and Zebulon together in one district. Additionally, the Enacted Plan places more of Raleigh into fewer districts. This is ideal if one is trying to keep municipalities together and spread across as few districts as possible. However, because the bulk of Democratic leaning voters in this county cluster are also in the city of Raleigh, this will have the effect of creating districts that are more heavily Democratic. This, of course, has the spillover effect of making the districts that do not contain portions of Raleigh to

likewise become more Republican. Figure 116 shows how the two different plans divide the city of Raleigh, and Table 41 shows that it is the case the the Duchin Plan spreads the resident of Raleigh out across more districts than does the Enacted Plan. The tactic of dividing Democratic cities in a ‘pinwheel’ or ‘pizza’ shape and grouping those ‘slices’ with more Republican suburban and exurban areas is a classic tactic to generate more Democratic districts and overcome the geographic clustering that is common among Democratic voters. The Enacted Plan keeps much more of Fayetteville within three districts.

Table 41: Division of Raleigh in Enacted Plan and Duchin Plan

District:	Percent of Raleigh in district	
	Enacted Plan	Duchin Plan
13 (22 in Duchin)	1.7	12.3
14	21.1	27.0
15	35.8	39.6
16	0	0
17	0	0
18	41.0	20.8
Total:	100%	100%

Note: Population number for city by district for Enacted Plan from: https://ncleg.gov/Files/GIS/Plans_Main/Senate_2021/SL%202021-173%20Senate%20-%20StatPack%20Report.pdf Population numbers for city by district for Duchin Plan from Dave’s Redistricting online. <https://davesredistricting.org/>

Figure 114: **Granville and Wake Senate County Cluster**

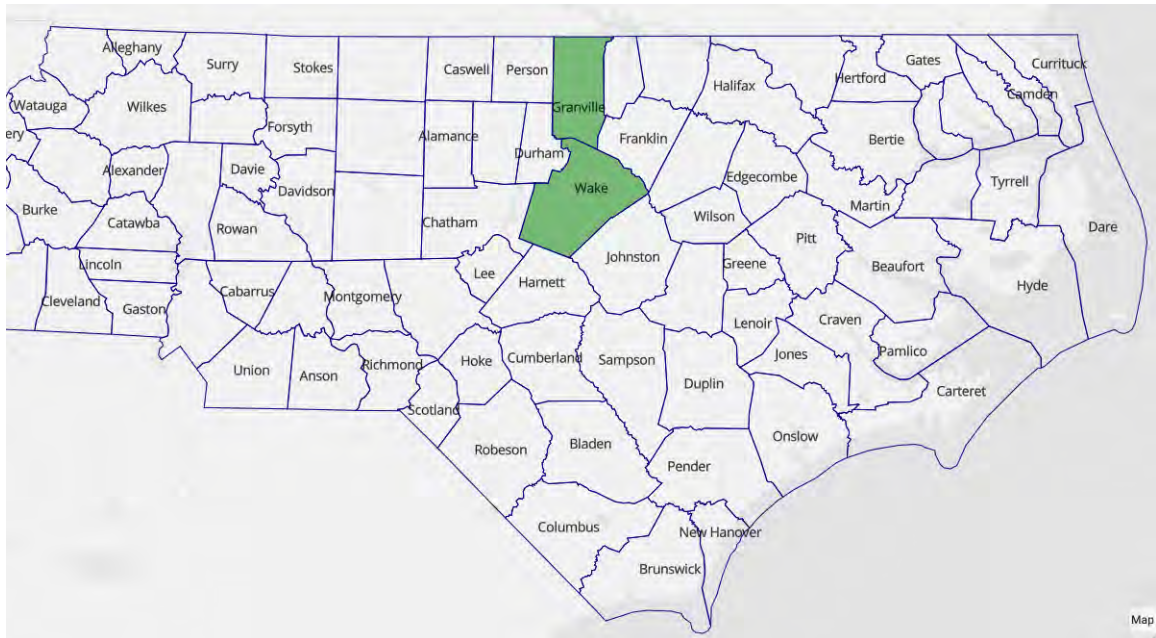
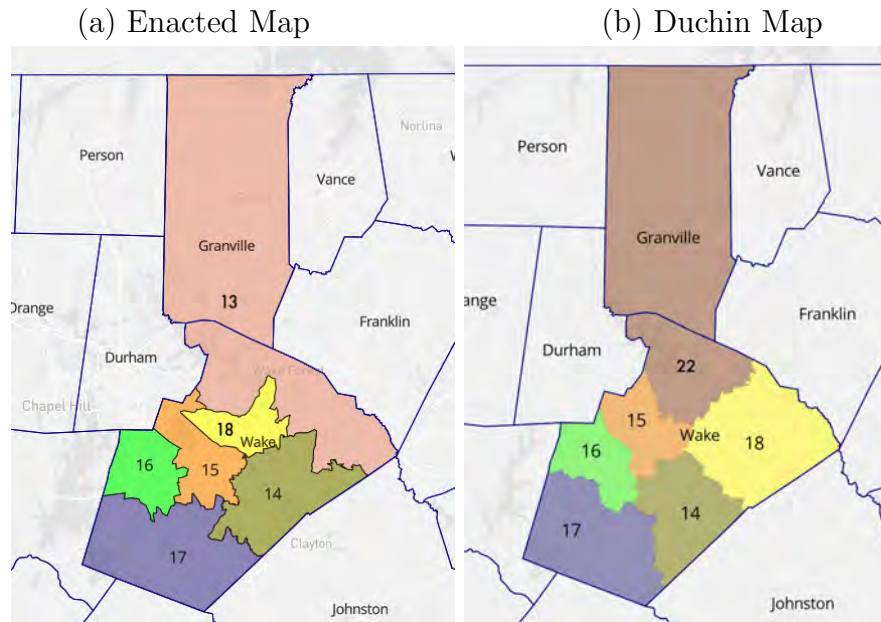


Figure 115: Map of Enacted Plan in Granville and Wake Senate County Cluster



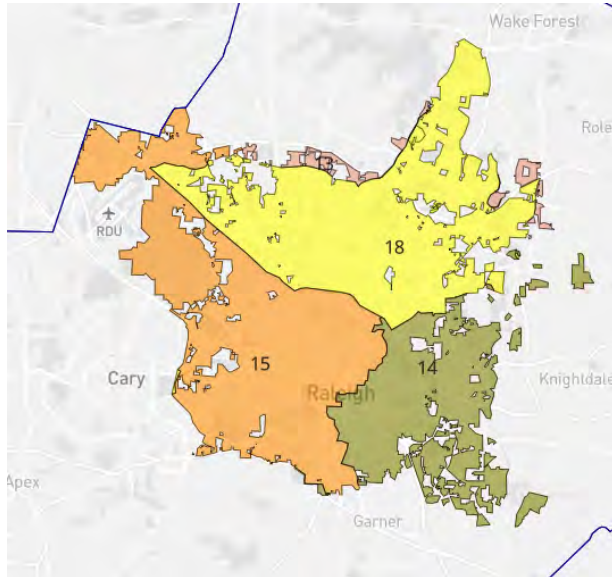
Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
13 (22 in Duchin)	0.48	0.50
14	0.73	0.73
15	0.68	0.64
16	0.63	0.63
17	0.49	0.51
18	0.65	0.65

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 116: Map of Raleigh Divisions in Wake Senate County Cluster

(a) Enacted Map



(b) Duchin Map

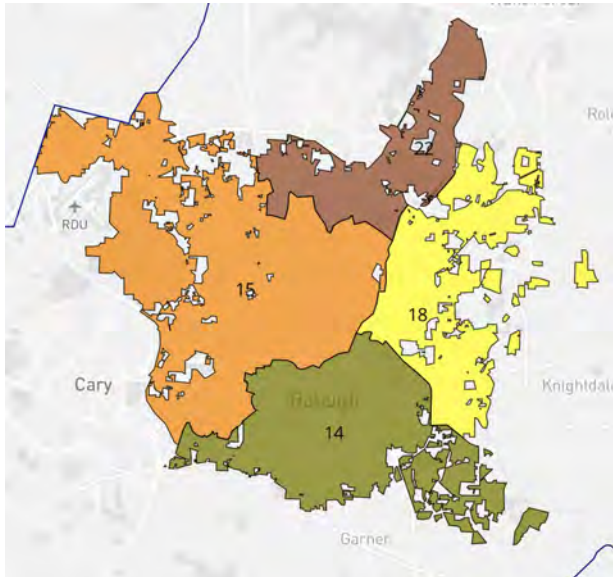
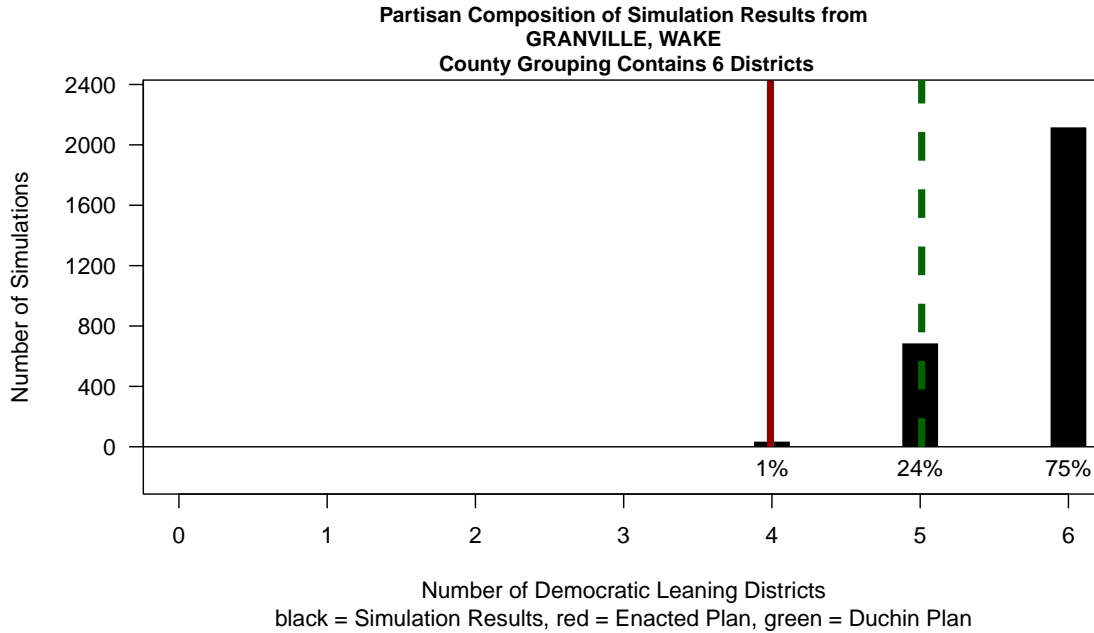


Figure 117: **Distribution of Partisan Districts from Simulations in Granville and Wake Senate County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 42: Simulation Results by Individual Elections

Granville and Wake Senate County Cluster

	Number of Democratic Leaning Districts:						
	0	1	2	3	4	5	6
Individual Elections:							
2020 President	0%	0%	0%	0%	0%	0%	100%
2020 Senate	0%	0%	0%	0%	1%	24%	75%
2020 Governor	0%	0%	0%	0%	0%	0%	100%
2020 Lt. Governor	0%	0%	0%	0%	1%	25%	74%
2020 Attorney General	0%	0%	0%	0%	0%	0%	100%
2016 President	0%	0%	0%	0%	4%	35%	61%
2016 Senate	0%	0%	0%	0%	19%	70%	12%
2016 Governor	0%	0%	0%	0%	1%	24%	75%
2016 Lt. Governor	0%	0%	0%	11%	13%	71%	5%
2016 Attorney General	0%	0%	0%	0%	1%	26%	73%
2014 Senate	0%	0%	0%	0%	9%	63%	27%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 0% of the simulations produce 5 Democratic leaning districts. The Enacted Plan does, as the ‘5 Districts’ cell is bolded in that row.

8.9 Iredell and Mecklenburg Senate County Grouping

The Iredell-Mecklenburg Senate county group contains 6 districts. In the Enacted Map these are Districts 37, 38, 39, 40, 41, and 42. The county cluster has an overall partisan index of .60, which is solidly Democratic. After conducting 50,000 initial simulations to create six districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. All 50,000 simulations meet this criteria. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 7,700 simulated maps, each containing six districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 118. A map of the Enacted Map’s district boundaries and the Duchin Map’s district boundaries within this county grouping are shown in Figure 119.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 120. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 5% of the simulations there are 4 Democratic leaning districts. In 95% of the simulations there are 5 Democratic leaning districts. The Enacted Map generates 4 Democratic leaning districts, which is an outlier from middle 50% of the simulations. The Duchin Map also generates 5 Democratic leaning districts.

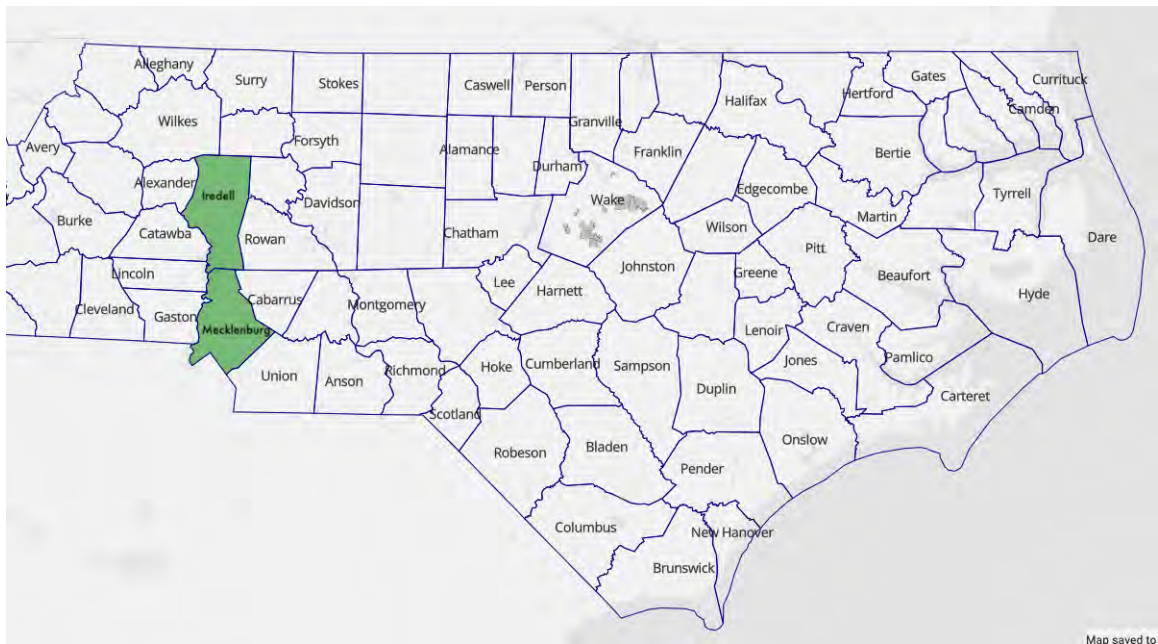
Table 43 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted

Plan using the equivalent election. In 9 of the 11 individual elections the Enacted Plan is in alignment with the majority outcome of the simulation results.

Why is the Enacted Plan an outlier in this county grouping? There are two factors to consider in explaining this divergence. First, while the Enacted Plan generates 4 solidly Democratic leaning districts, the remaining two districts are not solidly Republican. Instead, one is solidly Republican. District 37 in Iredell County has a partisan index of 0.36. The other would be best classified as highly competitive. District 41 has a partisan index of 0.490. This district will likely be very closely decided with candidates from both parties winning them with some regularity, given their narrow margins. This is actually quite close to the partisan lean of the Duchin Plan. While the Duchin Plan creates 5 Democratic leaning districts in the county group, there is also one solidly Republican district. District 34 in Iredell County has a partisan index of 0.36. The other would be best classified as highly competitive. District 37 has a partisan index of 0.526. Thus, both plans generate 4 solidly Democratic districts, 1 solidly Republican district and 1 competitive districts. The Duchin Plan's competitive districts are just slightly more Democratic by roughly 3.6 percentage points.

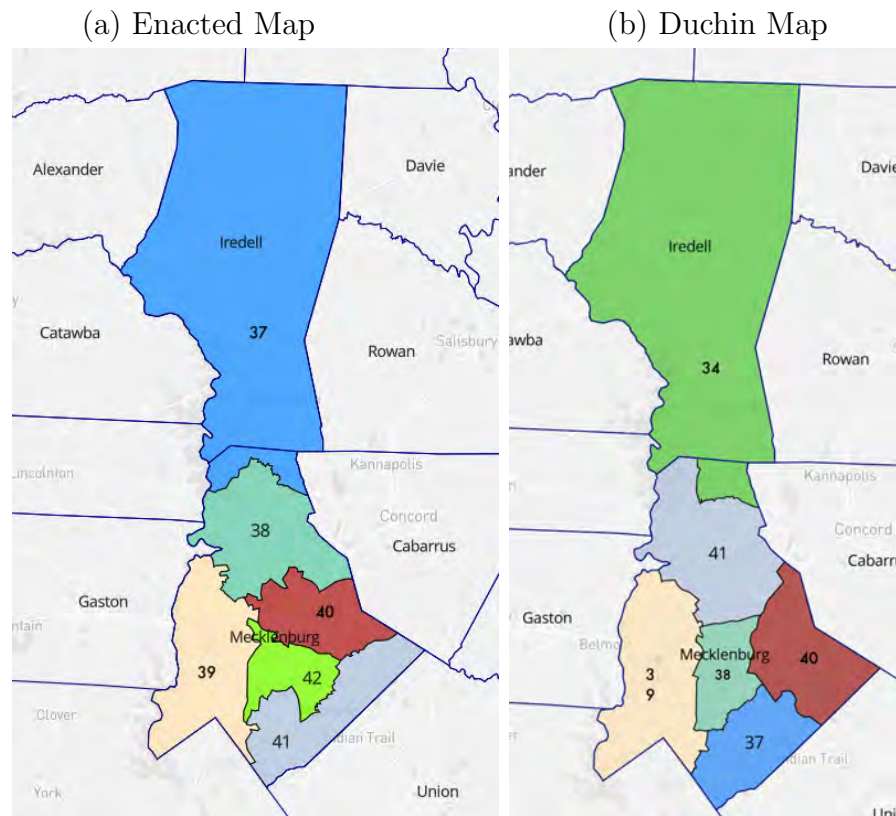
The second factor to consider is that the partisan index is calculated using elections from 2014-2020. Looking at Table 43 we see that the Enacted Plan is in agreement with 100% of the simulations in the five elections from the most recent election cycle. Given the trend in Mecklenburg towards more support for Democratic candidates, elections conducted under the Enacted Plan will align more consistently with the more recent elections in the index. That is, the Enacted Plan will more often generate 5 Democratic districts as is the case in 2020 than it will generate 4 Democratic districts as it did in the elections in 2016 and earlier.

Figure 118: Iredell and Mecklenburg County Senate Cluster



Map saved to

Figure 119: Map of Enacted Plan in Iredell and Mecklenburg Senate County Cluster

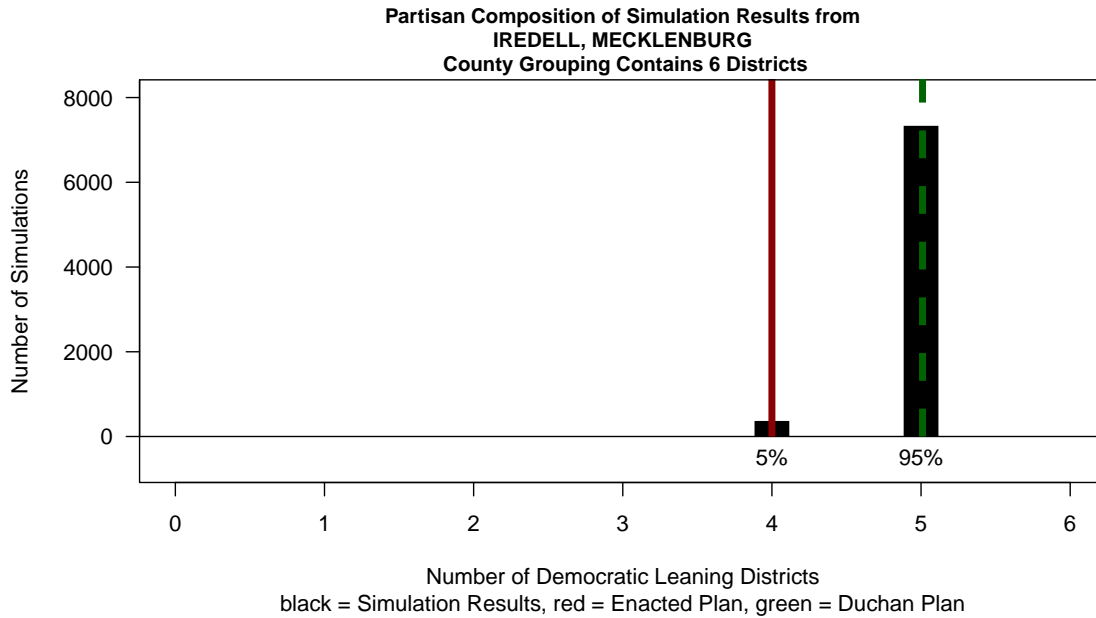


Partisan Lean of Districts

District:	Enacted Plan	Duchin Plan
37 (34 in Duchin)	0.36	0.36
38 (41 in Duchin)	0.65	0.66
39	0.73	0.73
40	0.83	0.72
41 (37 in Duchin)	0.49	0.53
42 (38 in Duchin)	0.65	0.68

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 120: **Distribution of Partisan Districts from Simulations in Iredell and Mecklenburg Senate County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster.

Table 43: Simulation Results by Individual Elections

Iredell and Mecklenburg Senate County Cluster

	Number of Democratic Leaning Districts:						
	0	1	2	3	4	5	6
Individual Elections:							
2020 President	0%	0%	0%	0%	0%	100%	0%
2020 Senate	0%	0%	0%	0%	0%	100%	0%
2020 Governor	0%	0%	0%	0%	0%	100%	0%
2020 Lt. Governor	0%	0%	0%	0%	0%	100%	0%
2020 Attorney General	0%	0%	0%	0%	0%	100%	0%
2016 President	0%	0%	0%	0%	5%	95%	0%
2016 Senate	0%	0%	0%	0%	96%	4%	0%
2016 Governor	0%	0%	0%	0%	7%	93%	0%
2016 Lt. Governor	0%	0%	0%	0%	99%	1%	0%
2016 Attorney General	0%	0%	0%	0%	51%	49%	0%
2014 Senate	0%	0%	0%	0%	99%	1%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 5 Democratic leaning districts. The Enacted Plan does as well, as the ‘5 Districts’ cell is bolded in that row.

8.10 Buncombe, Burke, and McDowell Senate County Grouping

The Buncombe-Burke-McDowell Senate county group contains 2 districts. In the Enacted Map these are Districts 46 and 49. The county cluster has an overall partisan index of .51, which is very slightly Democratic. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 49,161 simulations that meet this criteria. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 18,137 simulated maps, each containing two districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 121. A map of the Enacted Map’s district boundaries is shown in Figure 122. The Duchin Plan uses an alternative county grouping and is therefore not comparable to this cluster in the Enacted Plan. I analyze the Duchin Plan and the alternative cluster in a later section of this report.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 123. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there is 1 Democratic leaning district. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 1 Democratic leaning district.

Table 44 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded

number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In all 11 of the 11 individual elections there is agreement between the modal (most common) outcome in the simulations and the Enacted Map.

Figure 121: **Map of Buncombe, Burke, and McDowell Senate County Cluster**

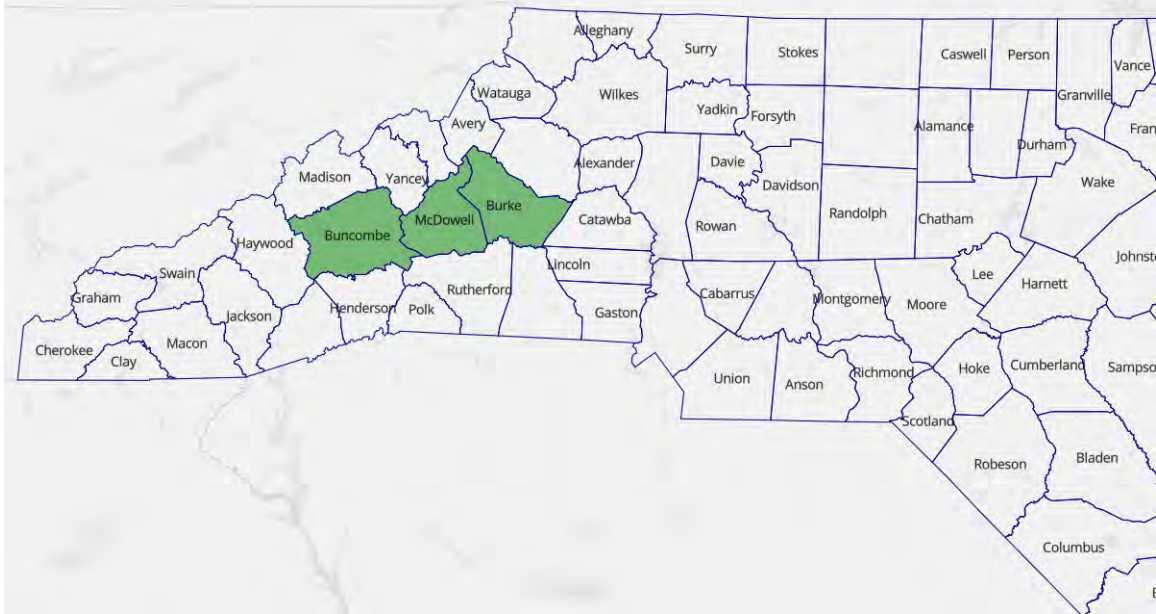
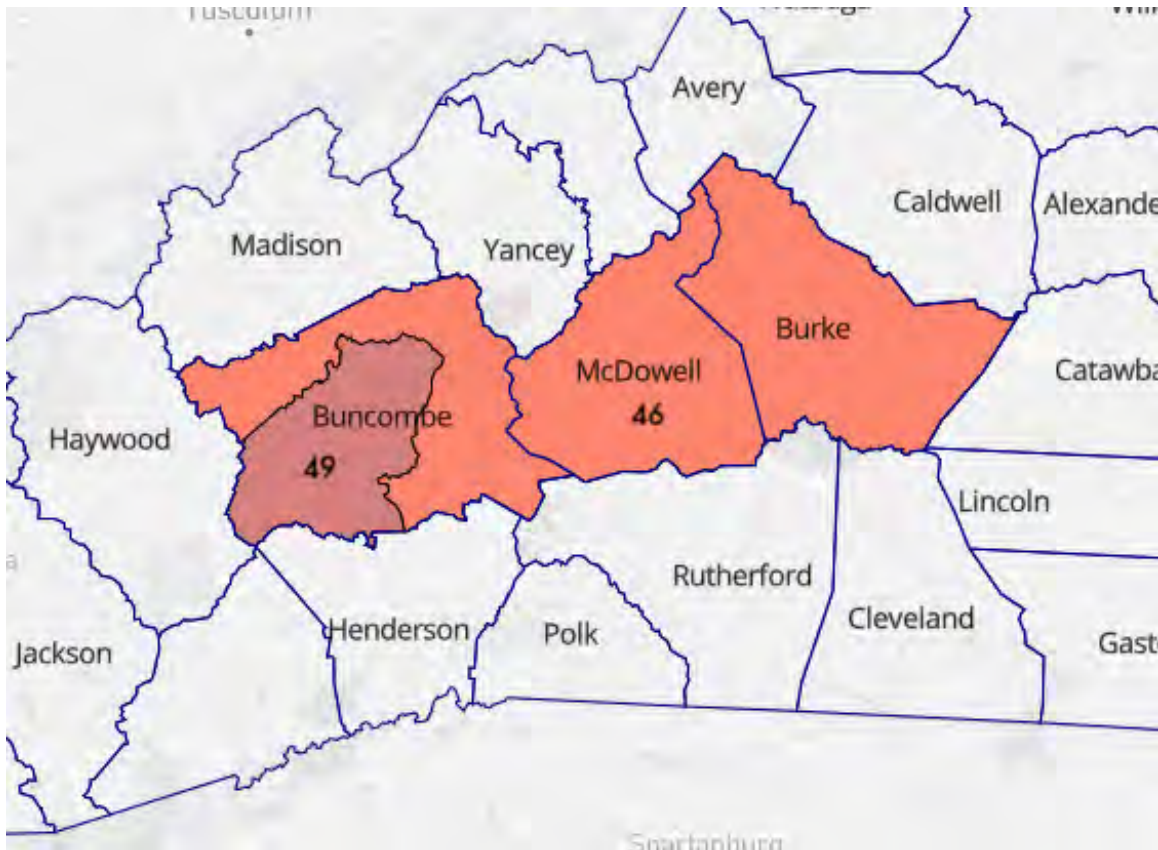


Figure 122: Map of Enacted Plan in Buncombe, Burke, and McDowell Senate County Cluster

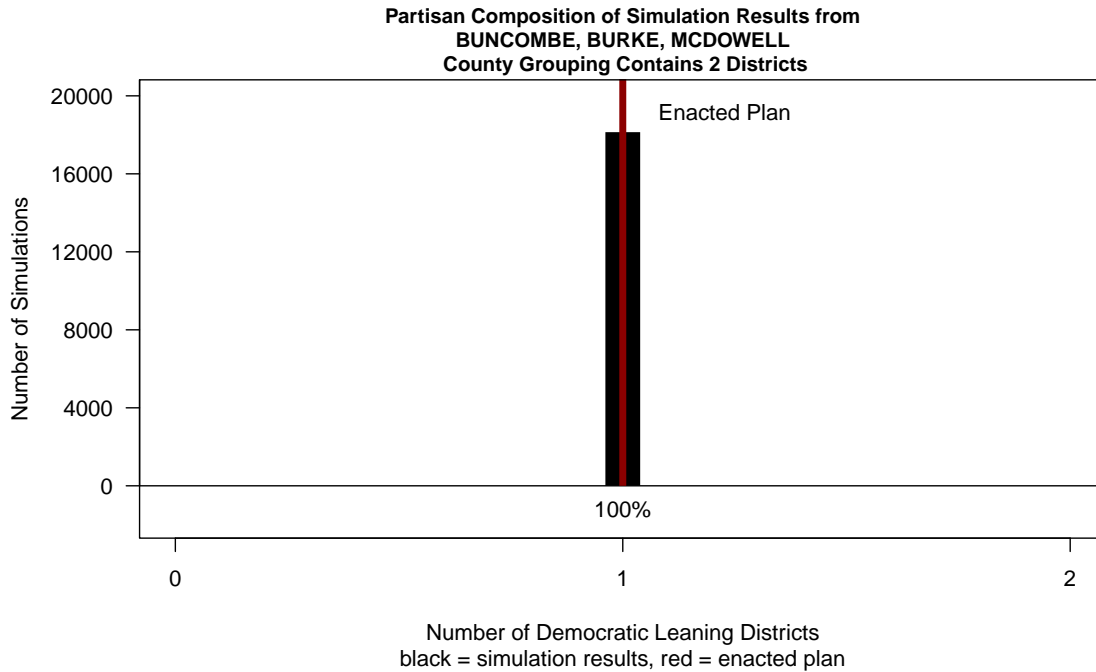


Partisan Lean of Districts

District:	Enacted Plan
46	0.37
49	0.65

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 123: Distribution of Partisan Districts from Simulations in Buncombe, Burke, and McDowell Senate County Cluster



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster.

Table 44: Simulation Results by Individual Elections

Buncombe, Burke, and McDowell County Cluster

Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	0%	100%	0%
2020 Senate	0%	100%	0%
2020 Governor	0%	100%	0%
2020 Lt. Governor	0%	100%	0%
2020 Attorney General	0%	100%	0%
2016 President	0%	100%	0%
2016 Senate	0%	100%	0%
2016 Governor	0%	100%	0%
2016 Lt. Governor	0%	100%	0%
2016 Attorney General	0%	100%	0%
2014 Senate	0%	100%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 1 Democratic leaning district. The Enacted Plan does as well, as the ‘1 District’ cell is bolded in that row.

8.11 Cleveland, Gaston, and Lincoln Senate County Grouping

The Cleveland-Gaston-Lincoln Senate county group contains 2 districts. In the Enacted Map these are Districts 43 and 44. The county cluster has an overall partisan index of .34, which is strongly Republican. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 4,074 simulations that meet this criteria. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves only four unique maps that are as compact as the Enacted Plan.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 124. A map of the Enacted Map’s district boundaries is shown in Figure 125. The Duchin Plan uses an alternative county grouping and is therefore not comparable to this cluster in the Enacted Plan. I analyze the Duchin Plan and the alternative cluster in a later section of this report.

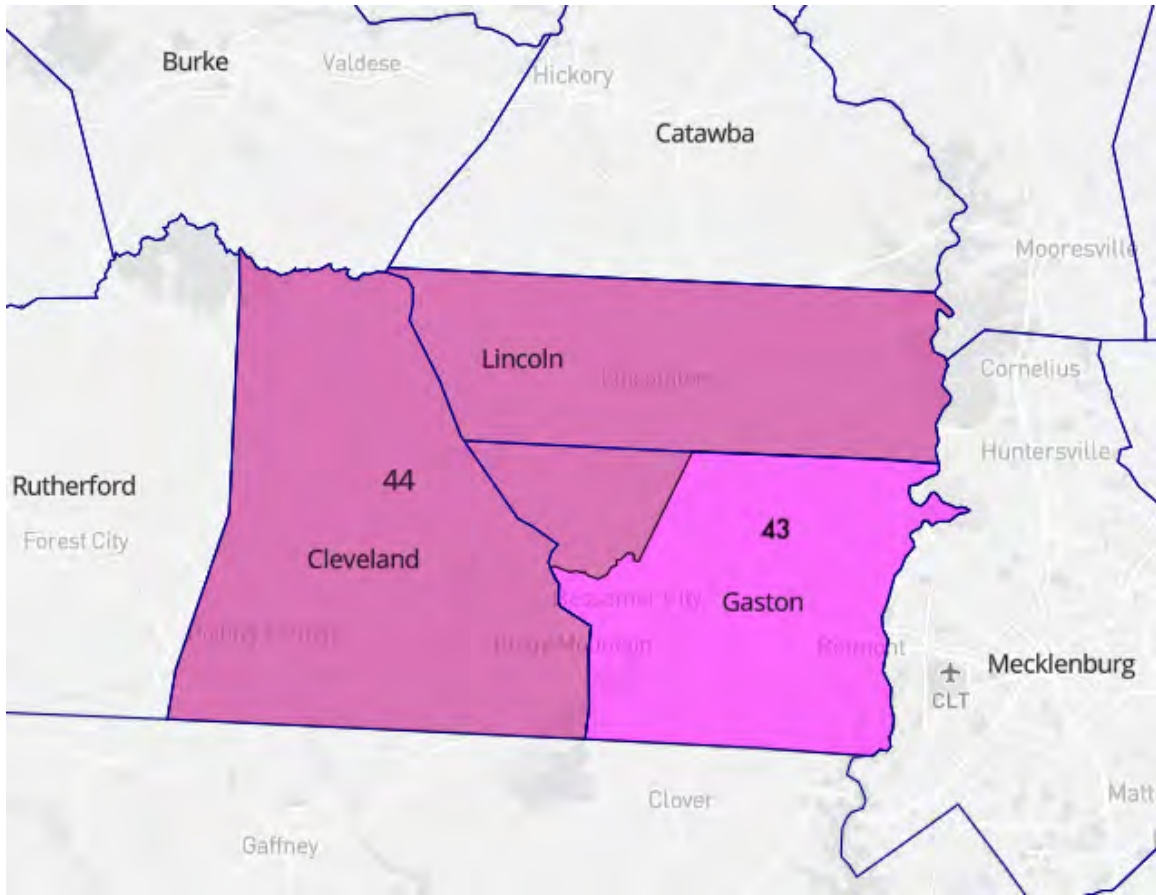
Because there are only four maps that fit the criteria I use of equal population, county traversals, and compactness equal to or better than the Enacted Map, I do not present the distribution of district partisanship for the simulations here. It is sufficient to say that in the Enacted Map and the four remaining simulations, all create 2 Republican districts and 0 Democratic leaning districts, regardless of the index or election used. Table 45 shows this below.

Table 45 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In all 11 of the 11 individual elections there is unanimous agreement between the simulations and the Enacted Map.

Figure 124: Map of Cleveland, Gaston, and Lincoln Senate County Cluster



Figure 125: Map of Enacted Plan in Cleveland, Gaston, and Lincoln Senate County Cluster



Partisan Lean of Districts

District:	Enacted Plan
43	0.37
44	0.31

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Table 45: Simulation Results by Individual Elections

Cleveland, Gaston, and Lincoln Senate County Cluster

Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	100%	0%	0%
2020 Senate	100%	0%	0%
2020 Governor	100%	0%	0%
2020 Lt. Governor	100%	0%	0%
2020 Attorney General	100%	0%	0%
2016 President	100%	0%	0%
2016 Senate	100%	0%	0%
2016 Governor	100%	0%	0%
2016 Lt. Governor	100%	0%	0%
2016 Attorney General	100%	0%	0%
2014 Senate	100%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 0 Democratic leaning districts. The Enacted Plan does as well, as the ‘0 District’ cell is bolded in that row.

8.12 Forsyth and Stokes Senate County Grouping

The Forsyth-Stokes Senate county group contains 2 districts. In the Enacted Map these are Districts 31 and 32. The county cluster has an overall partisan index of .52, which is slightly Democratic. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any simulations that contain more county traversals than the Enacted Plan. This leaves 35,085 simulations that meet this criteria. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Enacted Map. This leaves 9,601 simulated maps, each containing two districts.

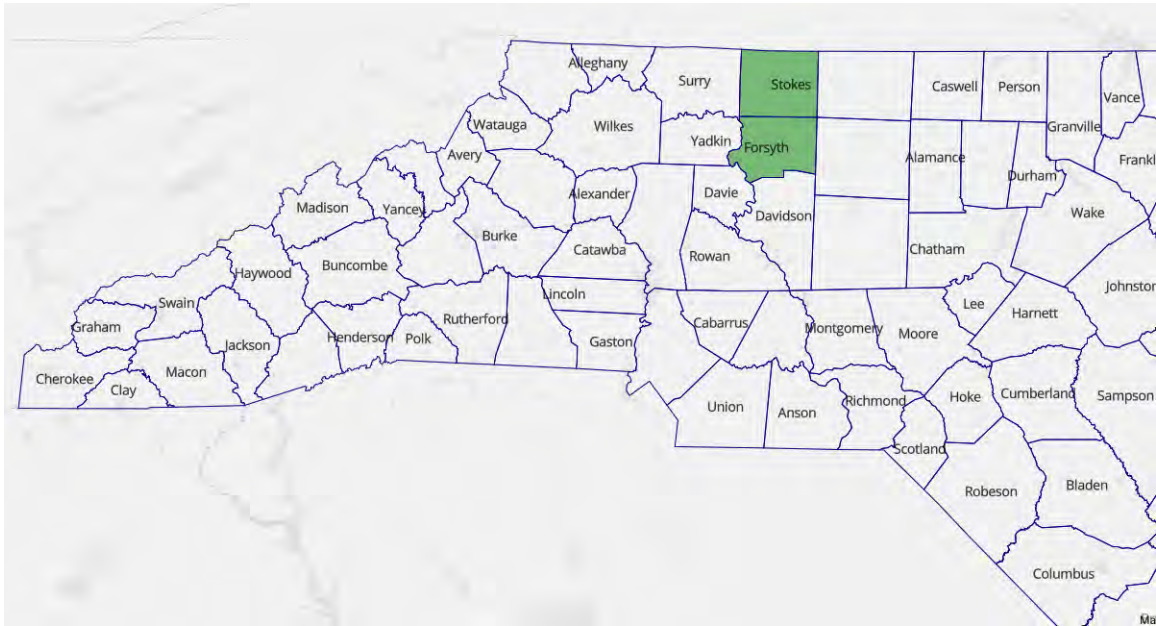
A map of the location of this county cluster in relation to the rest of the state is shown in Figure 126. A map of the Enacted Map’s district boundaries is shown in Figure 127. The Duchin Plan uses an alternative county grouping and is therefore not comparable to this cluster in the Enacted Plan. I analyze the Duchin Plan and the alternative cluster in a later section of this report.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 128. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster, and the vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there is 1 Democratic leaning district. The Enacted Map is in alignment with the modal outcome of the simulations by also creating 1 Democratic leaning district.

Table 46 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded

number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. In 8 of the 11 individual elections there is agreement between the modal (most common) outcome in the simulations and the Enacted Map. In 9 of the 11 individual elections the Enacted Map falls inside the middle 50% of simulation results.

Figure 126: Map of Forsyth and Stokes Senate County Cluster



Partisan Lean of Districts

District:	Enacted Plan
31	0.38
32	0.69

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 127: Map of Enacted Plan in Forsyth and Stokes Senate County Cluster

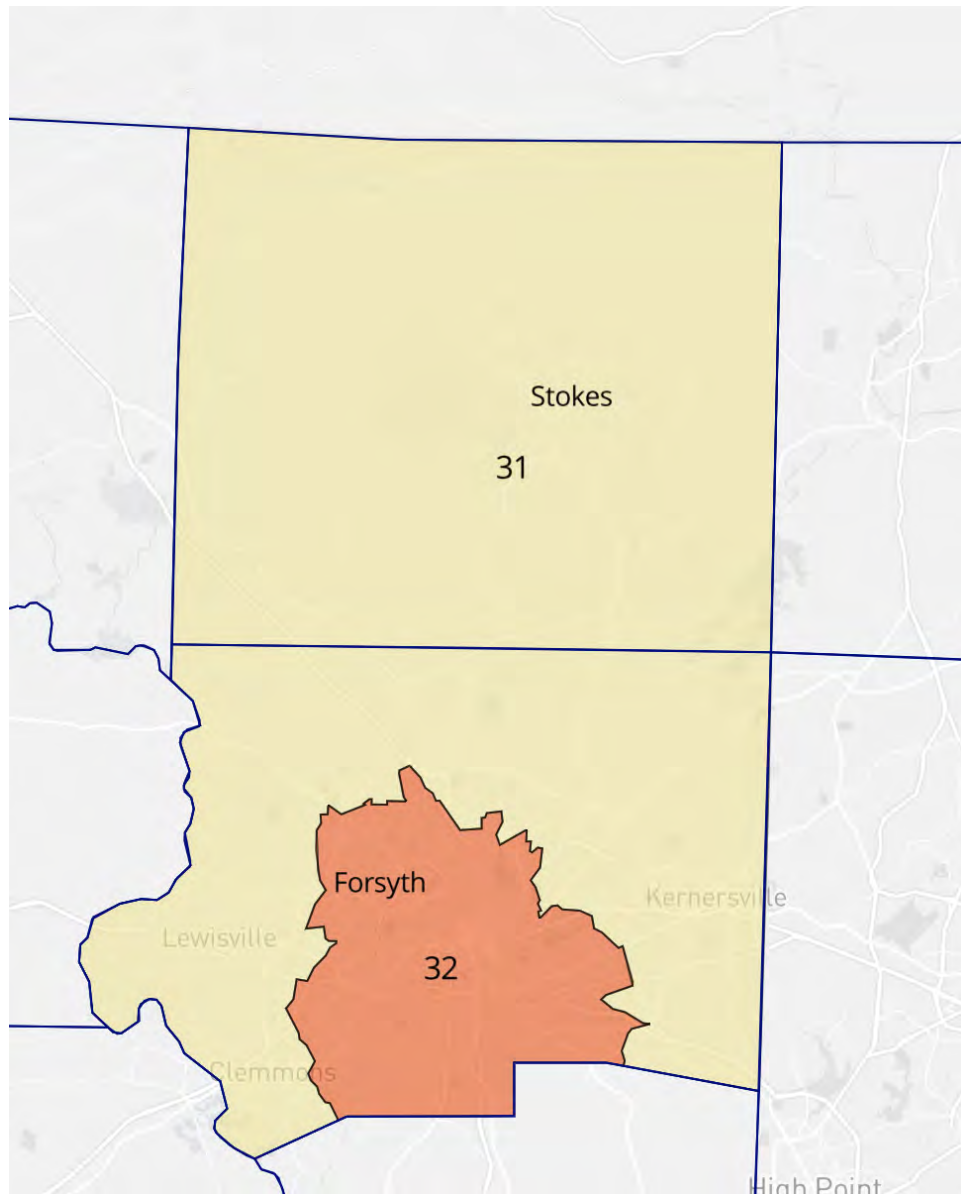
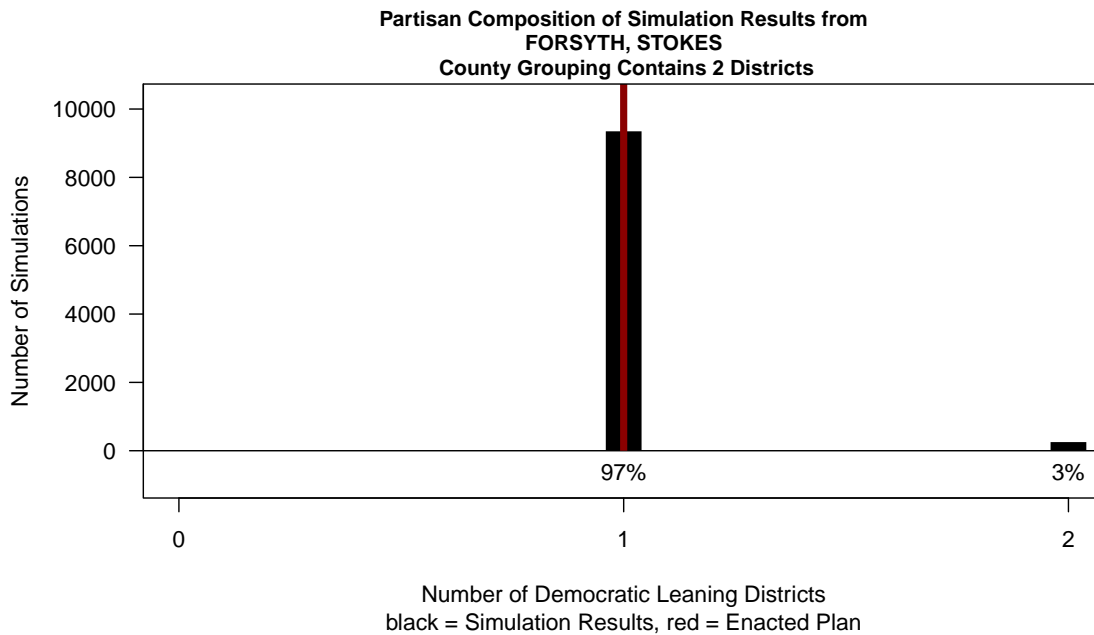


Figure 128: **Distribution of Partisan Districts from Simulations in Forsyth and Stokes Senate County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The red vertical line shows the number of Democratic leaning seats in the Enacted Map in the same cluster.

Table 46: Simulation Results by Individual Elections

Forsyth and Stokes Senate County Cluster			
Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	0%	98%	2%
2020 Senate	0%	99%	1%
2020 Governor	0%	48%	52%
2020 Lt. Governor	0%	99%	1%
2020 Attorney General	0%	99%	1%
2016 President	0%	98%	2%
2016 Senate	0%	6%	94%
2016 Governor	0%	51%	49%
2016 Lt. Governor	0%	2%	98%
2016 Attorney General	0%	72%	28%
2014 Senate	0%	94%	6%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Enacted Plan using the equivalent election. For example, using the 2020 Presidential election 98% of the simulations produce 1 Democratic leaning district. The Enacted Plan does as well, as the ‘1 District’ cell is bolded in that row.

9 Comparison of Alternative Clusters to Those Chosen by the Legislature

In this section I compare the partisan index and simulations for the three alternative clusters chosen by the Duchin Plan and compare them to simulations in those same counties. The alternative clusters are very similar in their partisan indices as well as the partisan lean of the districts that are generated by the Enacted Map and the Duchin Map. This can be seen below in Table 47

Table 47: Senate Alternative County Grouping Analysis Summary

			# of Districts that are Democratic Leaning		
County Cluster	Cluster Democratic Partisan Index	# Districts	Enacted Map	Duchin Map	Simulations
Clusters Used by Enacted Plan					
Buncombe-Burke-McDowell	0.51	2	1		1
Cleveland-Gaston-Lincoln	0.34	2	0		0
Forsyth-Stokes	0.52	2	1		1
Alternative Clusters Used by Duchin Plan					
Buncombe-Henderson-Polk	0.54	2		1	1
Burke-Gaston-Lincoln	0.34	2		0	0
Forsyth-Yadkin	0.54	2		1	1
Total Enacted:		6	2	2	2
Total Duchin:		6	2	2	2

Note: Number of Democratic leaning districts is measured using the average two-party vote share in each district from the 11 statewide races noted earlier. Simulations range represents the middle 50% of outcomes from the simulations results. Clusters that fall outside of the simulation range are bolded.

9.1 Buncombe, Henderson, and Polk Senate Alternative County Grouping

The Buncombe-Henderson-Polk Senate alternative county group contains 2 districts. In the Duchin Map these are Districts 48 and 49. The county cluster has an overall partisan index of .53, which is slightly Democratic. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any simulations that contain more county traversals than the Duchin Plan. This leaves 25,911 simulations that meet this criteria. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Duchin Map. This leaves 17,474 simulated maps, each containing two districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 129. A map of the Duchin Map’s district boundaries is shown in Figure 130.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 132. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there is 1 Democratic leaning district. The Duchin Map is in alignment with the modal outcome of the simulations by creating 1 Democratic leaning district.

Table 49 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Duchin Plan using the equivalent election. In 7 of the 11 individual elections there is agreement between the modal (most common) outcome in the simulations and the Duchin Map. In 4

of the 11 individual elections the Duchin Map falls outside the middle 50% of simulation results and would be considered a statistical partisan outlier in these elections.

The Duchin Plan creates a solidly Democratic district and an additional very competitive district by dividing the city of Asheville. The Duchin Plan splits Asheville nearly equally across both districts while the Enacted Plan keeps the entirety of Asheville in one district. The tactic of dividing Democratic cities in a ‘pinwheel’ or ‘pizza’ shape and grouping those ‘slices’ with more Republican suburban and exurban areas is a classic tactic to generate more Democratic districts and overcome the geographic clustering that is common among Democratic voters. The Enacted Plan keeps the entirety of Asheville within one district. Table 48 shows the percent of Asheville voters in each district in each plan. It is clear that the Duchin plan splits Asheville into 2 roughly equal parts while the Enacted Plan places a much larger majority of Asheville into only 1 district. Figure 131 shows this division.

Table 48: Division of Asheville in Enacted Plan and Duchin Plan

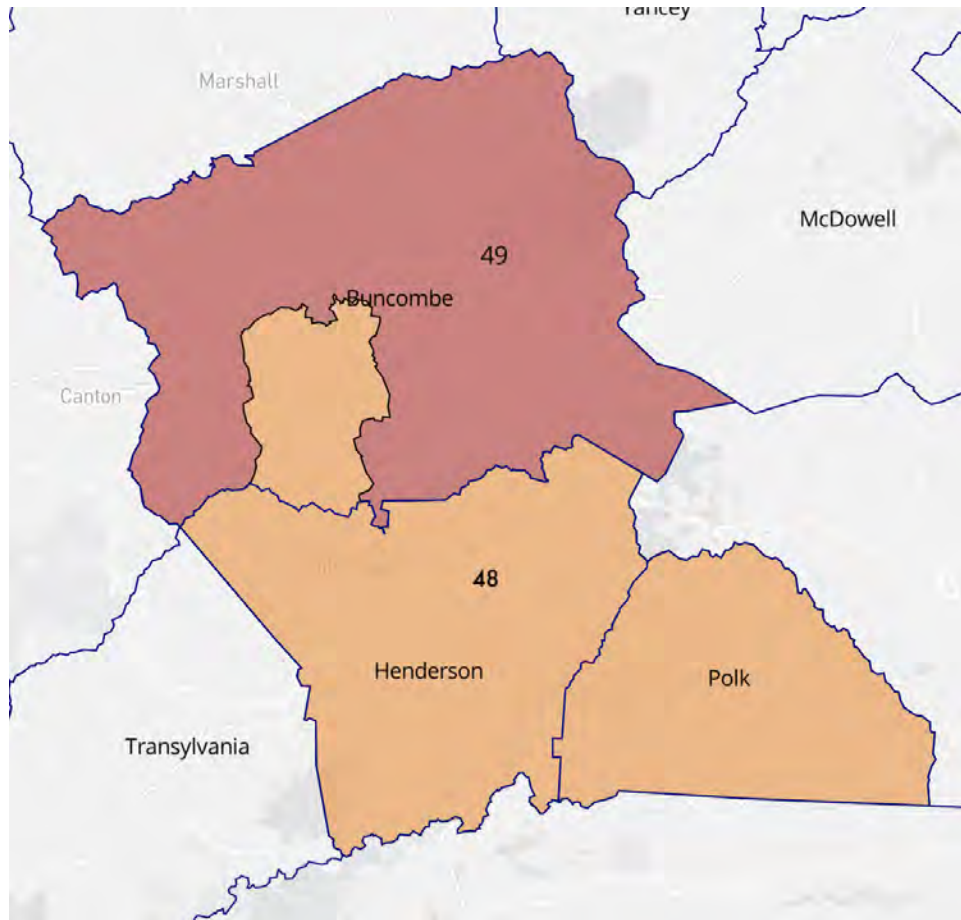
	Percent of Asheville in district	
District:	Enacted Plan	Duchin Plan
46 (48 in Duchin)	0	42.8
49	100	57.2
Total:	100%	100%

Note: Population number for city by district for Enacted Plan from: https://ncleg.gov/Files/GIS/Plans_Main/Senate_2021/SL%202021-173%20Senate%20-%20StatPack%20Report.pdf Population numbers for city by district for Duchin Plan from Dave’s Redistricting online. <https://davesredistricting.org/>

Figure 129: Map of Buncombe, Henderson, and Polk Alternative Senate County Cluster



Figure 130: Map of Duchin Plan in Buncombe, Henderson, and Polk Alternative Senate County Cluster



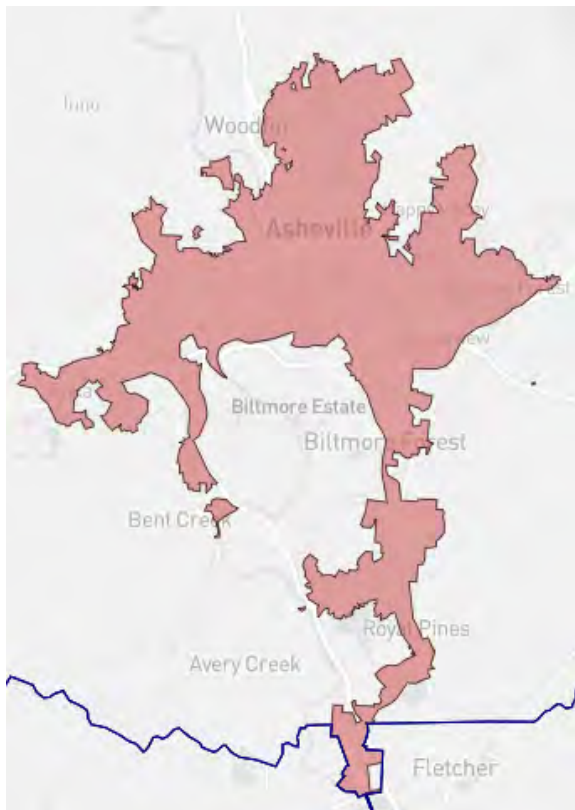
Partisan Lean of Districts

District:	Enacted Plan
48	0.49
49	0.56

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 131: **Map of Division of Asheville in Enacted and Duchin Senate Plans**

(a) Enacted Map



(b) Duchin Map

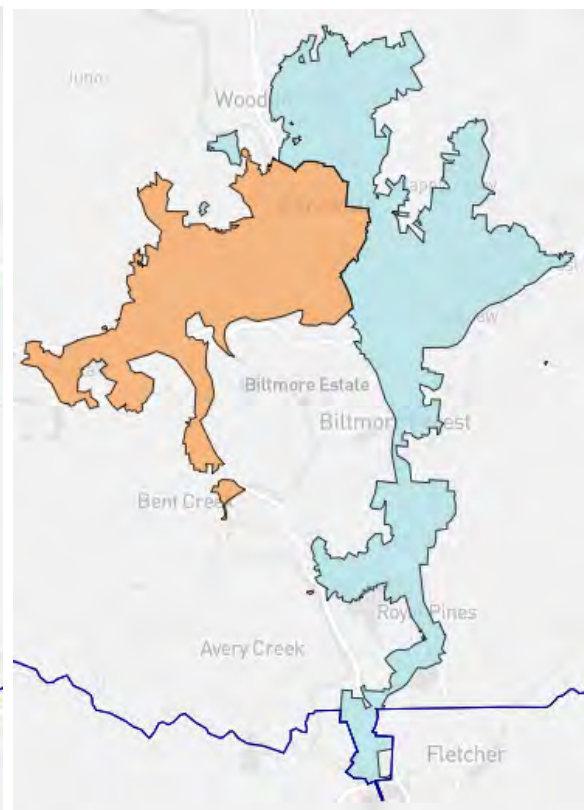
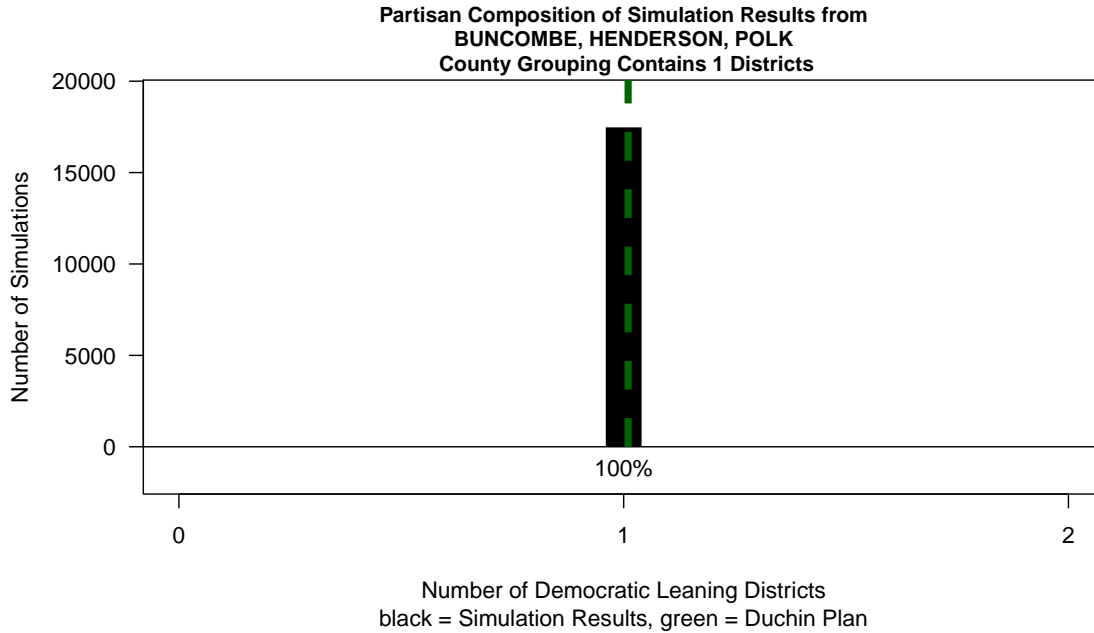


Figure 132: **Distribution of Partisan Districts from Simulations in Buncombe, Henderson, and Polk Alternative Senate County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The green vertical line shows the number of Democratic leaning seats in the Duchin Map in the same cluster.

Table 49: Simulation Results by Individual Elections

Buncombe, Henderson, and Polk Alternative Senate County Cluster

Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	0%	100%	0%
2020 Senate	0%	100%	0%
2020 Governor	0%	93%	7%
2020 Lt. Governor	0%	100%	0%
2020 Attorney General	0%	100%	0%
2016 President	0%	100%	0%
2016 Senate	0%	100%	0%
2016 Governor	0%	100%	0%
2016 Lt. Governor	0%	100%	0%
2016 Attorney General	0%	100%	0%
2014 Senate	0%	100%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Duchin Plan using the equivalent election. For example, using the 2020 Presidential election 0% of the simulations produce 2 Democratic leaning district. The Duchin Plan does, as the ‘2 District’ cell is bolded in that row.

9.2 Burke, Gaston, and Lincoln Senate Alternative County Grouping

The Burke-Gaston-Lincoln Senate alternative county group contains 2 districts. In the Duchin Map these are Districts 43 and 44. The county cluster has an overall partisan index of .33, which is strongly Republican. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any simulations that contain more county traversals than the Duchin Plan. This leaves 15,719 simulations that meet this criteria. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Duchin Map. This leaves 13,370 simulated maps, each containing two districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 133. A map of the Duchin Map’s district boundaries is shown in Figure 134.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 135. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 0 Democratic leaning districts. The Duchin Map is in alignment with the modal outcome of the simulations by also creating 0 Democratic leaning districts.

Table 50 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Duchin Plan using the equivalent election. In all of the 11 individual elections there is agreement between the modal (most common) outcome in the simulations and the Duchin Map.

Figure 133: Map of Burke, Gaston, and Lincoln Alternative Senate County Cluster

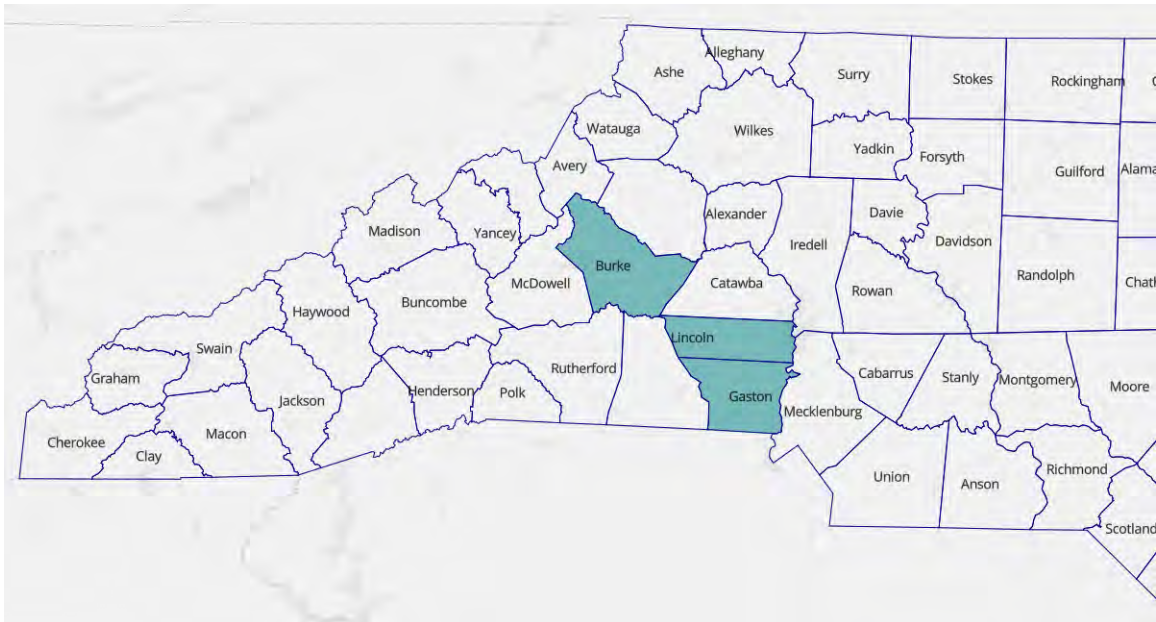
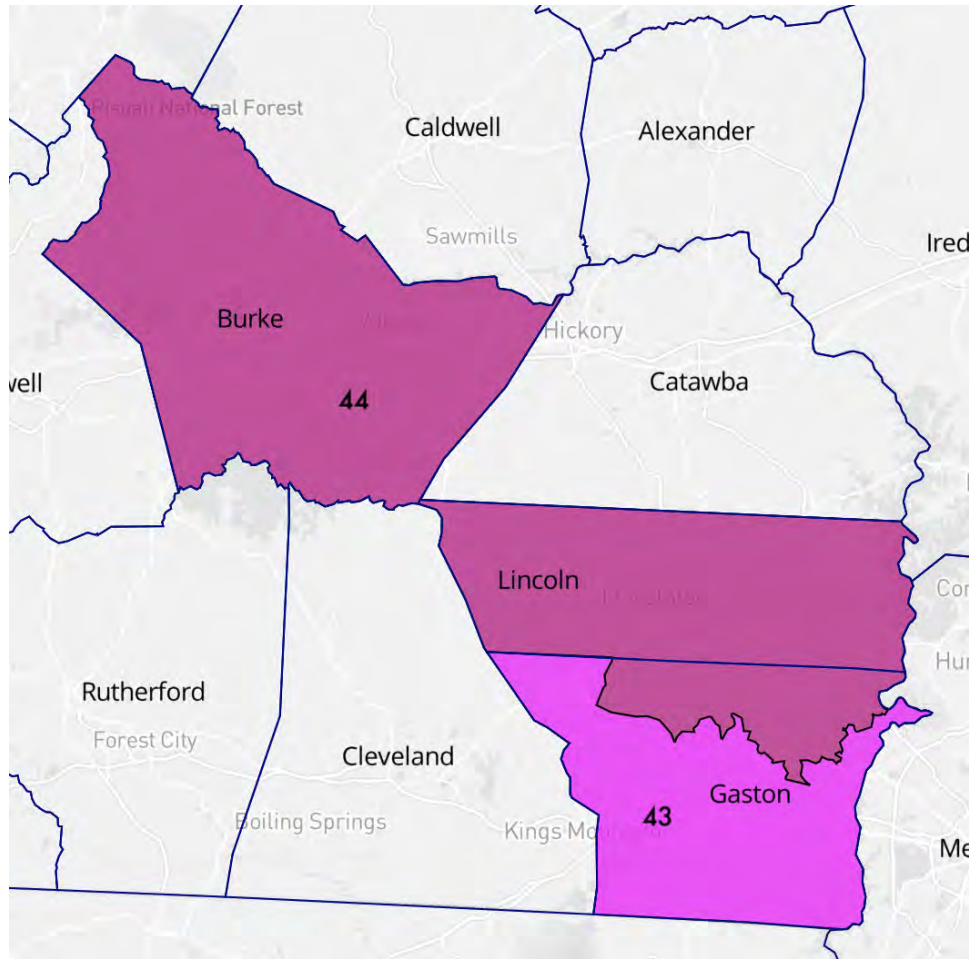


Figure 134: Map of Duchin Plan in Burke, Gaston, and Lincoln Alternative Senate County Cluster

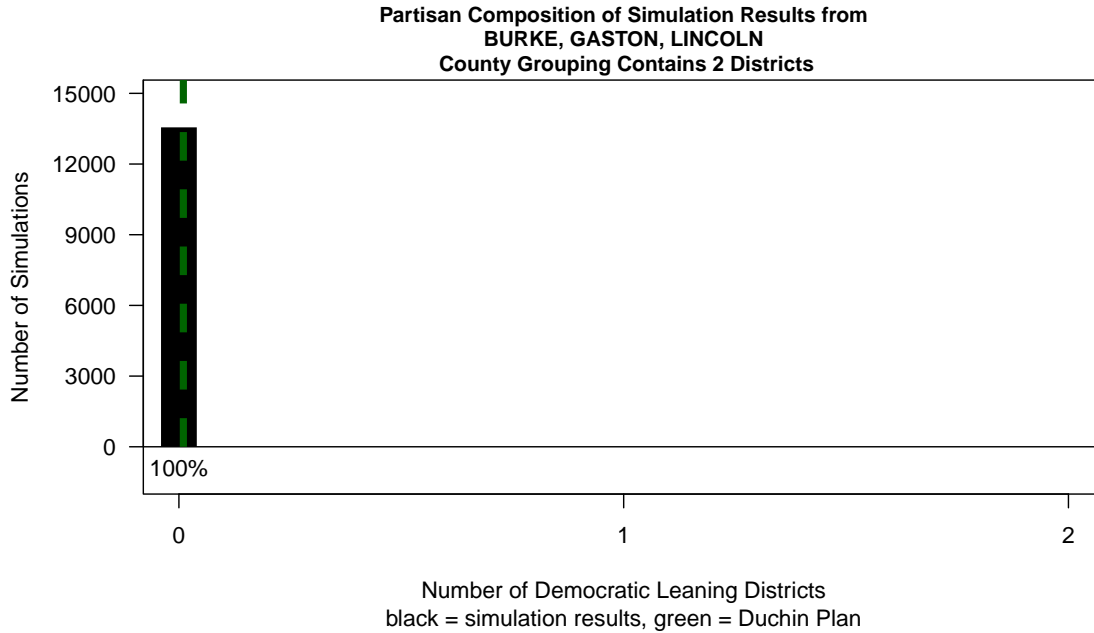


Partisan Lean of Districts

District:	Enacted Plan
43	0.38
44	0.29

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 135: **Distribution of Partisan Districts from Simulations in Burke, Gaston, and Lincoln Alternative Senate County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The green vertical line shows the number of Democratic leaning seats in the Duchin Map in the same cluster.

Table 50: Simulation Results by Individual Elections

Burke, Gaston, and Lincoln Alternative Senate County Cluster

Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	100%	0%	0%
2020 Senate	100%	0%	0%
2020 Governor	100%	0%	0%
2020 Lt. Governor	100%	0%	0%
2020 Attorney General	100%	0%	0%
2016 President	100%	0%	0%
2016 Senate	100%	0%	0%
2016 Governor	100%	0%	0%
2016 Lt. Governor	100%	0%	0%
2016 Attorney General	100%	0%	0%
2014 Senate	100%	0%	0%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Duchin Plan using the equivalent election. For example, using the 2020 Presidential election 100% of the simulations produce 0 Democratic leaning districts. The Duchin Plan does as well, as the ‘0 Districts’ cell is bolded in that row.

9.3 Forsyth and Yadkin Senate Alternative County Grouping

The Forsyth and Yadkin Senate alternative county group contains 2 districts. In the Duchin Map these are Districts 31 and 32. The county cluster has an overall partisan index of .53, which is slightly Democratic. After conducting 50,000 initial simulations to create two districts in this cluster, I discard any simulations that contain more county traversals than the Duchin Plan. This leaves 48,151 simulations that meet this criteria. Next, I discard any simulations in which the average compactness score of the districts in the simulations is not as large or larger than the compactness score of the Duchin Map. This leaves 19,706 simulated maps, each containing two districts.

A map of the location of this county cluster in relation to the rest of the state is shown in Figure 136. A map of the Duchin Map’s district boundaries is shown in Figure 137.

The distribution of district partisanship based on the statewide partisan elections index calculated for each of the simulation results is shown in Figure 139. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The vertical dashed green line shows the number of Democratic leaning seats in the Duchin Map in the cluster. In 100% of the simulations there are 0 Democratic leaning districts. The Duchin Map is in alignment with the modal outcome of the simulations by also creating 0 Democratic leaning districts.

Table 52 breaks apart the partisan index into the 11 constituent elections and shows the distribution of Democratic leaning seats generated if one were to look at each election separately. Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Duchin Plan using the equivalent election. In all of the 11 individual elections there is agreement between the modal (most common) outcome in the simulations and the Duchin Map.

The Duchin Plan creates a solidly Democratic district and an additional very compet-

itive district by dividing the city of Winston-Salem. While Winston-Salem is too large to be a single district, the Duchin Plan splits Winston-Salem nearly equally across both districts while the Enacted Plan keeps a larger share of Winston-Salem in one district. The tactic of dividing Democratic cities in a ‘pinwheel’ or ‘pizza’ shape and grouping those ‘slices’ with more Republican suburban and exurban areas is a classic tactic to generate more Democratic districts and overcome the geographic clustering that is common among Democratic voters. The Enacted Plan keeps much more of Winston-Salem within one district. Table 51 shows the percent of Winston-Salem voters in each district in each plan. It is clear that the Duchin plan splits Winston-Salem into 2 roughly equal parts while the Enacted Plan places a much larger majority of Winston-Salem into only 1 district. Figure 138 shows this division.

Table 51: Division of Winton-Salem in Enacted Plan and Duchin Plan

	Percent of Winston-Salem in district	
District:	Enacted Plan	Duchin Plan
31	16.35	52.3
32	83.65	47.7
Total:	100%	100%

Note: Population number for city by district for Enacted Plan from: https://ncleg.gov/Files/GIS/Plans_Main/Senate_2021/SL%202021-173%20Senate%20-%20StatPack%20Report.pdf Population numbers for city by district for Duchin Plan from Dave’s Redistricting online. <https://davesredistricting.org/>

Figure 136: Map of Forsyth and Yadkin Alternative Senate County Cluster

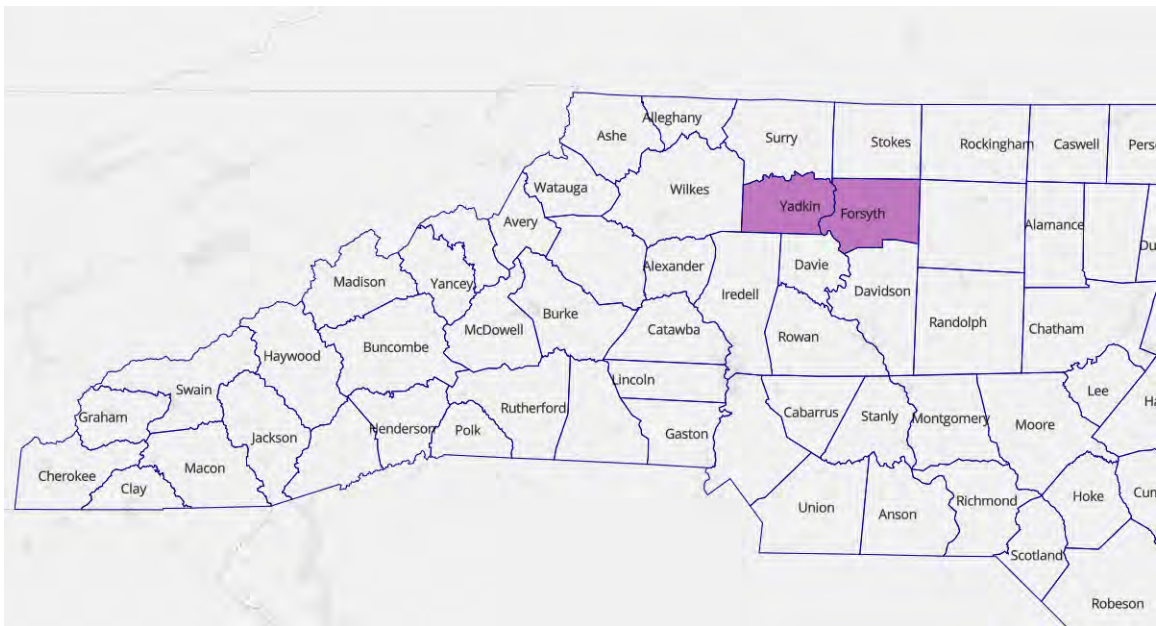


Figure 137: Map of Duchin Plan in Forsyth and Yadkin Alternative Senate County Cluster

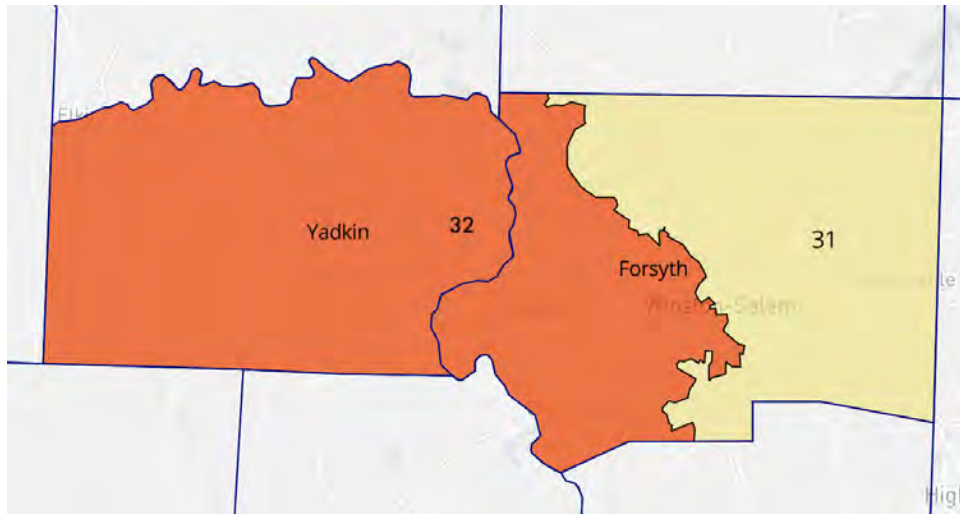
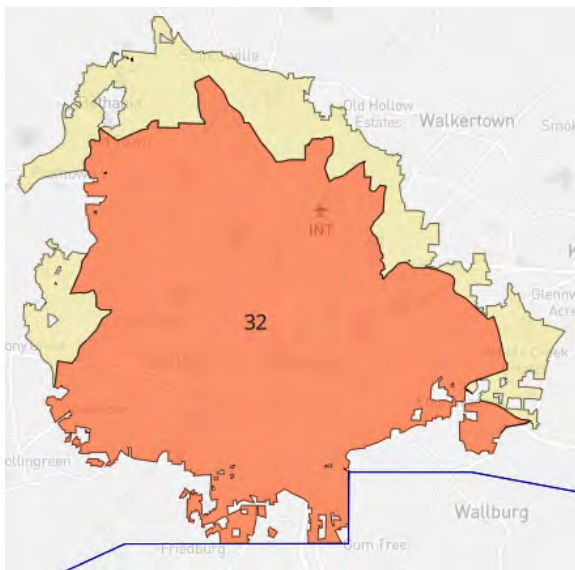
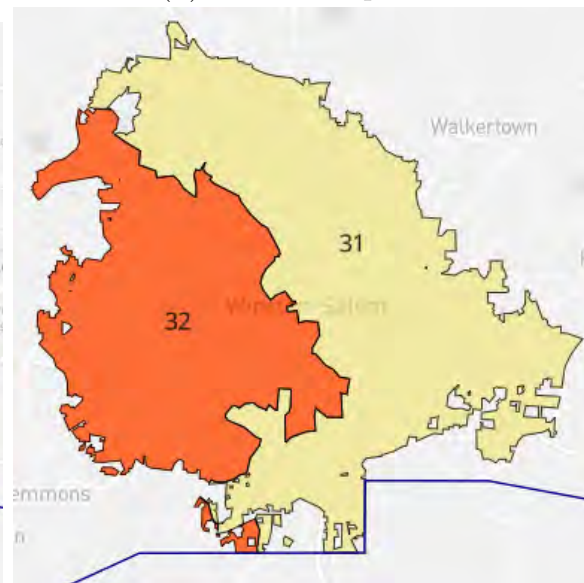


Figure 138: Map of Division of Winston-Salem in Enacted and Duchin Senate Plans

(a) Enacted Map



(b) Duchin Map

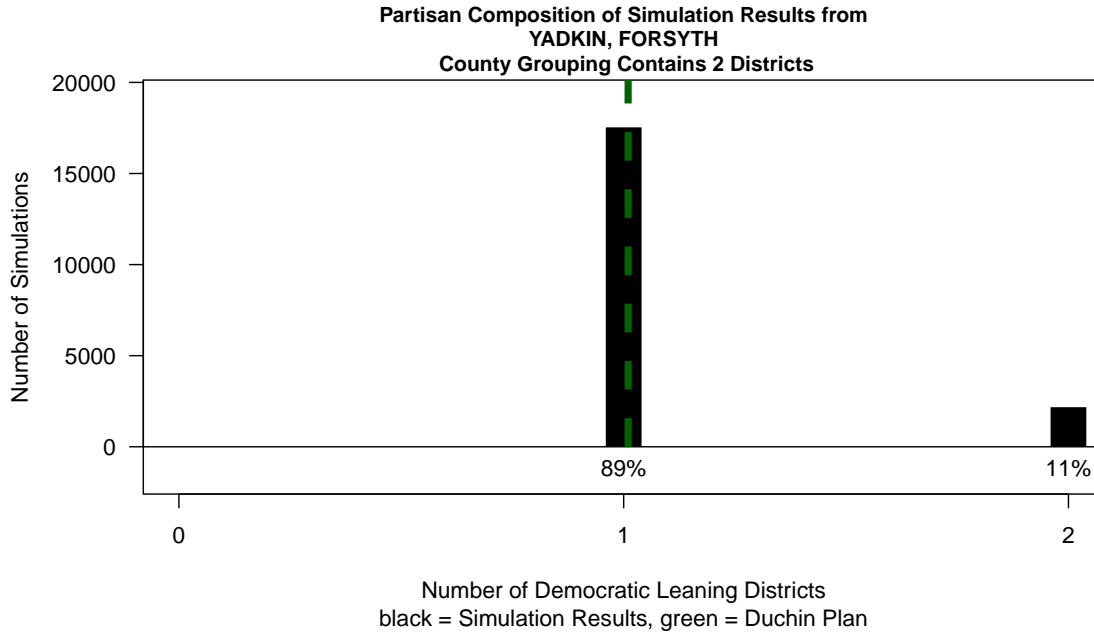


Partisan Lean of Districts

District:	Enacted Plan
31	0.58
32	0.49

Note: Partisan index is based on the two-party vote average of 11 statewide partisan elections between 2014-2020.

Figure 139: **Distribution of Partisan Districts from Simulations in Forsyth and Yadkin Alternative Senate County Cluster**



Note: Distribution of likely district partisanship based on the statewide partisan elections index calculated for each of the simulation results. The black bars show the distribution from the simulation results, with the percentage of simulations that generate each of the various possible number of Democratic seats in the cluster shown below each bar. The green vertical line shows the number of Democratic leaning seats in the Duchin Map in the same cluster.

Table 52: Simulation Results by Individual Elections

Forsyth and Yadkin Alternative Senate County Cluster

Number of Democratic Leaning Districts:			
	0	1	2
Individual Elections:			
2020 President	0%	56%	44%
2020 Senate	0%	77%	23%
2020 Governor	0%	0%	100%
2020 Lt. Governor	0%	91%	9%
2020 Attorney General	0%	86%	14%
2016 President	0%	92%	8%
2016 Senate	4%	96%	0%
2016 Governor	0%	62%	38%
2016 Lt. Governor	3%	97%	0%
2016 Attorney General	0%	84%	16%
2014 Senate	0%	98%	2%

Note: Each row shows the percent of simulations that produce the number of Democratic leaning districts using the election or election index indicated in the row. The bolded number in each row is the number of Democratic leaning districts produced by the Duchin Plan using the equivalent election. For example, using the 2020 Presidential election 44% of the simulations produce 2 Democratic leaning districts. The Duchin Plan does as well, as the ‘2 Districts’ cell is bolded in that row.

10 Conclusion

Based upon my analysis of North Carolina’s recently enacted redistricting plans for the General Assembly and the plans submitted by the North Carolina League of Conservation Voters, it is my opinion that the Enacted Maps are not “extreme partisan gerrymanders” as plaintiffs allege.

I come to this opinion through the use of a redistricting simulation algorithm to generate 50,000 simulated district maps in each county grouping in which there are multiple districts in both the North Carolina House of Representatives and the North Carolina Senate. The redistricting algorithm generates a representative sample of districts by following neutral redistricting criteria without regard to racial or partisan data. In this way, the simulated

districts establish a comparison set of plans that use purely non-partisan redistricting inputs. I then compare the simulated plans against the Enacted Plans and the Duchin Plans by reference to election results to assess whether the partisan effects of those plans are consistent with what one would expect to see in a redistricting plan composed without reference to any partisan considerations.

In the House, these simulations show that the Enacted Plans consistently score more often within the range of the non-partisan simulated maps than the Duchin Plans. In addition, the simulations show that the Enacted Plans contain one county grouping, the Guilford County grouping in the House of Representative, that is a partisan outlier. However, this grouping largely follows the boundaries of a 2019 court-approved district plan. In contrast, the Duchin Plans generate partisan outliers in four county groupings.

In the Senate analysis both the Enacted and Duchin plans generate partisan outliers when compared to the simulated district maps in two clusters each. Furthermore, neutral redistricting criteria such as following municipal lines support the decisions by the map drawers in the Enacted Plan in more districts, while in these same districts the Duchin Plan divides Democratic-leaning municipalities into more pieces in order to combine Democratic-leaning voters in cities with Republican voters in suburban and rural parts of North Carolina to create additional competitive or Democratic-leaning districts.

Based on the evidence and analysis presented below, my opinions regarding the 2021 enacted redistricting plans in the North Carolina General Assembly can be summarized as follows:

- The contemporary political geography of North Carolina is such that Democratic majorities are often geographically clustered in the largest cities of the state while Republican voters often dominate the suburban and rural portions of the state.
- This is not the case in the rural northeastern region of the state, where there are also significant Democratic majorities.

- This geographic clustering in cities and in the rural northeast puts the Democratic Party at a natural disadvantage when single-member districts are drawn.
- This is further amplified by the ‘county grouping’ process that is unique to North Carolina’s redistricting process where districts are constrained to remain within county groups.
- This disadvantage partially arises from the difficulty, and in many cases impossibility, of drawing Democratic-leaning districts in many of the county groupings that comply with constitutional requirements, even though Democratic voters make up roughly 40% of voters in these parts of the state.
- Based on a comparison between the Enacted Plan, the Duchin Plan, and a set of 50,000 simulated maps, the Enacted Plan is less of a partisan outlier than the Duchin Plan in the State House.
- In the Senate analysis both the Enacted and Duchin plans generate partisan outliers when compared to the simulated district maps in two clusters each.
- Areas of disagreement between proposed plans often arise because the Duchin plan divides Democratic leaning municipalities into more pieces in order to combine Democratic-leaning voters with Republican voters in suburban and rural parts of the state to create additional competitive or Democratic leaning districts.
- Given these results, as well as the otherwise high degree of agreement between the Enacted and Duchin maps, it is my opinion that the Enacted Maps are not “extreme partisan gerrymanders” as plaintiffs allege.

Michael Jay Barber

CONTACT INFORMATION

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Department of Political Science
724 KMBL
Provo, UT 84602

barber@byu.edu
<http://michaeljaybarber.com>
Ph: (801) 422-7492

ACADEMIC APPOINTMENTS

Brigham Young University, Provo, UT

August 2020 - present Associate Professor, Department of Political Science
2014 - July 2020 Assistant Professor, Department of Political Science
2014 - present Faculty Scholar, Center for the Study of Elections and Democracy

EDUCATION

Princeton University Department of Politics, Princeton, NJ

Ph.D., Politics, July 2014

- Advisors: Brandice Canes-Wrone, Nolan McCarty, and Kosuke Imai
- Dissertation: “Buying Representation: the Incentives, Ideology, and Influence of Campaign Contributions on American Politics”
- 2015 Carl Albert Award for Best Dissertation, Legislative Studies Section, American Political Science Association (APSA)

M.A., Politics, December 2011

Brigham Young University, Provo, UT

B.A., International Relations - Political Economy Focus, April, 2008

- *Cum Laude*

RESEARCH INTERESTS

American politics, congressional polarization, political ideology, campaign finance, survey research

PUBLICATIONS

19. “**Ideological Disagreement and Pre-emption in Municipal Policymaking**”
with Adam Dynes
Forthcoming at *American Journal of Political Science*
18. “**Comparing Campaign Finance and Vote Based Measures of Ideology**”
Forthcoming at *Journal of Politics*
17. “**The Participatory and Partisan Impacts of Mandatory Vote-by-Mail**”, with
John Holbein
Science Advances, 2020. Vol. 6, no. 35, DOI: 10.1126/sciadv.abc7685
16. “**Issue Politicization and Interest Group Campaign Contribution Strategies**”,
with Mandi Eatough
Journal of Politics, 2020. Vol. 82: No. 3, pp. 1008-1025

15. **“Campaign Contributions and Donors’ Policy Agreement with Presidential Candidates”**, with Brandice Canes-Wrone and Sharece Thrower
Presidential Studies Quarterly, 2019, 49 (4) 770–797
14. **“Conservatism in the Era of Trump”**, with Jeremy Pope
Perspectives on Politics, 2019, 17 (3) 719–736
13. **“Legislative Constraints on Executive Unilateralism in Separation of Powers Systems”**, with Alex Bolton and Sharece Thrower
Legislative Studies Quarterly, 2019, 44 (3) 515–548
Awarded the Jewell-Loewenberg Award for best article in the area of subnational politics published in *Legislative Studies Quarterly* in 2019
12. **“Electoral Competitiveness and Legislative Productivity”**, with Soren Schmidt
American Politics Research, 2019, 47 (4) 683–708
11. **“Does Party Trump Ideology? Disentangling Party and Ideology in America”**, with Jeremy Pope
American Political Science Review, 2019, 113 (1) 38–54
10. **“The Evolution of National Constitutions”**, with Scott Abramson
Quarterly Journal of Political Science, 2019, 14 (1) 89–114
9. **“Who is Ideological? Measuring Ideological Responses to Policy Questions in the American Public”**, with Jeremy Pope
The Forum: A Journal of Applied Research in Contemporary Politics, 2018, 16 (1) 97–122
8. **“Status Quo Bias in Ballot Wording”**, with David Gordon, Ryan Hill, and Joe Price
The Journal of Experimental Political Science, 2017, 4 (2) 151–160.
7. **“Ideologically Sophisticated Donors: Which Candidates Do Individual Contributors Finance?”**, with Brandice Canes-Wrone and Sharece Thrower
American Journal of Political Science, 2017, 61 (2) 271–288.
6. **“Gender Inequalities in Campaign Finance: A Regression Discontinuity Design”**, with Daniel Butler and Jessica Preece
Quarterly Journal of Political Science, 2016, Vol. 11, No. 2: 219–248.
5. **“Representing the Preferences of Donors, Partisans, and Voters in the U.S. Senate”**
Public Opinion Quarterly, 2016, 80: 225–249.
4. **“Donation Motivations: Testing Theories of Access and Ideology”**
Political Research Quarterly, 2016, 69 (1) 148–160.
3. **“Ideological Donors, Contribution Limits, and the Polarization of State Legislatures”**
Journal of Politics, 2016, 78 (1) 296–310.
2. **“Online Polls and Registration Based Sampling: A New Method for Pre-Election Polling”** with Quin Monson, Kelly Patterson and Chris Mann.
Political Analysis 2014, 22 (3) 321–335.
1. **“Causes and Consequences of Political Polarization”** In *Negotiating Agreement in Politics*. Jane Mansbridge and Cathie Jo Martin, eds., Washington, DC: American Political Science Association: 19–53. with Nolan McCarty. 2013.
 - Reprinted in *Solutions to Political Polarization in America*, Cambridge University Press. Nate Persily, eds. 2015
 - Reprinted in *Political Negotiation: A Handbook*, Brookings Institution Press. Jane Mansbridge and Cathie Jo Martin, eds. 2015

AVAILABLE WORKING PAPERS	“Misclassification and Bias in Predictions of Individual Ethnicity from Administrative Records” (Revise and Resubmit at <i>American Political Science Review</i>)
	“Taking Cues When You Don’t Care: Issue Importance and Partisan Cue Taking” with Jeremy Pope (Revise and Resubmit)
	“A Revolution of Rights in American Founding Documents” with Scott Abramson and Jeremy Pope (Conditionally Accepted)
	“410 Million Voting Records Show the Distribution of Turnout in America Today” with John Holbein (Revise and Resubmit)
	“Partisanship and Trolleyology” with Ryan Davis (Under Review)
	“Who’s the Partisan: Are Issues or Groups More Important to Partisanship?” with Jeremy Pope (Revise and Resubmit)
WORKS IN PROGRESS	“Race and Realignment in American Politics” with Jeremy Pope (Revise and Resubmit)
	“The Policy Preferences of Donors and Voters”
	“Estimating Neighborhood Effects on Turnout from Geocoded Voter Registration Records.” with Kosuke Imai
	“Super PAC Contributions in Congressional Elections”
	“Collaborative Study of Democracy and Politics” with Brandice Canes-Wrone, Gregory Huber, and Joshua Clinton
	“Preferences for Representational Styles in the American Public” with Ryan Davis and Adam Dynes
INVITED PRESENTATIONS	“Representation and Issue Congruence in Congress” with Taylor Petersen
	“Education, Income, and the Vote for Trump” with Edie Ellison
	“Are Mormons Breaking Up with Republicanism? The Unique Political Behavior of Mormons in the 2016 Presidential Election” <ul style="list-style-type: none">• Ivy League LDS Student Association Conference - Princeton University, November 2018, Princeton, NJ
	“Issue Politicization and Access-Oriented Giving: A Theory of PAC Contribution Behavior” <ul style="list-style-type: none">• Vanderbilt University, May 2017, Nashville, TN

“Lost in Issue Space? Measuring Levels of Ideology in the American Public”

- Yale University, April 2016, New Haven, CT

“The Incentives, Ideology, and Influence of Campaign Donors in American Politics”

- University of Oklahoma, April 2016, Norman, OK

“Lost in Issue Space? Measuring Levels of Ideology in the American Public”

- University of Wisconsin - Madison, February 2016, Madison, WI

“Polarization and Campaign Contributors: Motivations, Ideology, and Policy”

- Hewlett Foundation Conference on Lobbying and Campaign Finance, October 2014, Palo Alto, CA

“Ideological Donors, Contribution Limits, and the Polarization of State Legislatures”

- Bipartisan Policy Center Meeting on Party Polarization and Campaign Finance, September 2014, Washington, DC

“Representing the Preferences of Donors, Partisans, and Voters in the U.S. Senate”

- Yale Center for the Study of American Politics Conference, May 2014, New Haven, CT

CONFERENCE PRESENTATIONS

Washington D.C. Political Economy Conference (PECO):

- 2017 discussant

American Political Science Association (APSA) Annual Meeting:

- 2014 participant and discussant, 2015 participant, 2016 participant, 2017 participant, 2018 participant

Midwest Political Science Association (MPSA) Annual Meeting:

- 2015 participant and discussant, 2016 participant and discussant, 2018 participant

Southern Political Science Association (SPSA) Annual Meeting:

- 2015 participant and discussant, 2016 participant and discussant, 2017 participant

TEACHING EXPERIENCE

Poli 315: Congress and the Legislative Process

- Fall 2014, Winter 2015, Fall 2015, Winter 2016, Summer 2017

Poli 328: Quantitative Analysis

- Winter 2017, Fall 2017, Fall 2019, Winter 2020, Fall 2020, Winter 2021

Poli 410: Undergraduate Research Seminar in American Politics

- Fall 2014, Winter 2015, Fall 2015, Winter 2016, Summer 2017

AWARDS AND
GRANTS

2019 BYU Mentored Environment Grant (MEG), American Ideology Project, \$30,000

2017 BYU Political Science Teacher of the Year Award

2017 BYU Mentored Environment Grant (MEG), Funding American Democracy Project, \$20,000

2016 BYU Political Science Department, Political Ideology and President Trump (with Jeremy Pope), \$7,500

2016 BYU Office of Research and Creative Activities (ORCA) Student Mentored Grant x 3

- Hayden Galloway, Jennica Peterson, Rebecca Shuel

2015 BYU Office of Research and Creative Activities (ORCA) Student Mentored Grant x 3

- Michael-Sean Covey, Hayden Galloway, Sean Stephenson

2015 BYU Student Experiential Learning Grant, American Founding Comparative Constitutions Project (with Jeremy Pope), \$9,000

2015 BYU Social Science College Research Grant, \$5,000

2014 BYU Political Science Department, 2014 Washington DC Mayoral Pre-Election Poll (with Quin Monson and Kelly Patterson), \$3,000

2014 BYU Social Science College Award, 2014 Washington DC Mayoral Pre-Election Poll (with Quin Monson and Kelly Patterson), \$3,000

2014 BYU Center for the Study of Elections and Democracy, 2014 Washington DC Mayoral Pre-Election Poll (with Quin Monson and Kelly Patterson), \$2,000

2012 Princeton Center for the Study of Democratic Politics Dissertation Improvement Grant, \$5,000

2011 Princeton Mamdouha S. Bobst Center for Peace and Justice Dissertation Research Grant, \$5,000

2011 Princeton Political Economy Research Grant, \$1,500

OTHER SCHOLARLY
ACTIVITIES

Expert Witness in Nancy Carola Jacobson, et al., Plaintiffs, vs. Laurel M. Lee, et al., Defendants. Case No. 4:18-cv-00262 MW-CAS (U.S. District Court for the Northern District of Florida)

Expert Witness in Common Cause, et al., Plaintiffs, vs. LEWIS, et al., Defendants. Case No. 18-CVS-14001 (Wake County, North Carolina)

Expert Witness in Kelvin Jones, et al., Plaintiffs, v. Ron DeSantis, et al., Defendants, Consolidated Case No. 4:19-cv-300 (U.S. District Court for the Northern District of Florida)

Expert Witness in Community Success Initiative, et al., Plaintiffs, v. Timothy K. Moore, et al., Defendants, Case No. 19-cv-15941 (Wake County, North Carolina)

Expert Witness in Richard Rose et al., Plaintiffs, v. Brad Raffensperger, Defendant, Civil Action No. 1:20-cv-02921-SDG (U.S. District Court for the Northern District of Georgia)

Georgia Coalition for the People’s Agenda, Inc., et. al., Plaintiffs, v. Brad Raffensberger, Defendant. Civil Action No. 1:18-cv-04727-ELR (U.S. District Court for the Northern District of Georgia)

Expert Witness in Alabama, et al., Plaintiffs, v. United States Department of Commerce; Gina Raimondo, et al., Defendants. Case No. CASE No. 3:21-cv-00211-RAH-ECM-KCN (U.S. District Court for the Middle District of Alabama Eastern Division)

Expert Witness in League of Women Voters of Ohio, et al., Relators, v. Ohio Redistricting Commission, et al., Respondents. Case No. 2021-1193 (Supreme Court of Ohio)

ADDITIONAL
TRAINING

EITM 2012 at Princeton University - Participant and Graduate Student Coordinator

COMPUTER
SKILLS

Statistical Programs: R, Stata, SPSS, parallel computing

Updated December 22, 2021

STATE OF NORTH CAROLINA

COUNTY OF WAKE

NORTH CAROLINA LEAGUE OF
CONSERVATION VOTERS, et al.,

REBECCA HARPER, et al.,

Plaintiffs,

vs.

REPRESENTATIVE DESTIN HALL, in his
official capacity as Chair of the House
Standing Committee on Redistricting, et al.,

Defendants.

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION

21 CVS 015426

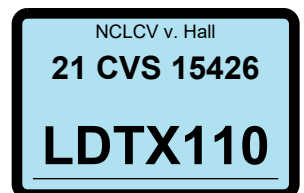
Consolidated with
21 CVS 500085

AFFIDAVIT OF MICHAEL BARBER

Now comes affiant Michael Barber, having been first duly cautioned and sworn, deposes
and states as follows:

1. I am over the age of 18 and am competent to testify regarding the matters
discussed below.
2. For the purposes of this litigation, I have been asked by counsel for Legislative
Defendants to analyze relevant data and provide my expert opinions.
3. To that end, I have personally prepared the rebuttal report attached to this
affidavit as Exhibit A, and swear to its authenticity and to the faithfulness of the opinions.

FURTHER THE AFFIANT SAYETH NAUGHT.



Executed on 28 December, 2021.

Michael Barber



Michael Barber

STATE OF FLORIDA

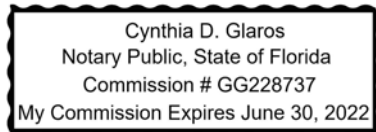
COUNTY OF PINELLAS

Sworn to and subscribed before me by online notarization this 28th day of December, 2021, by
MICHAEL BARBER, who appeared by way of two-way audio/video communication
technology, and he provided his Utah driver's license as identification.

Cynthia D. Glaros



Cynthia D. Glaros
Notary Public, State of Florida
My Commission Expires: 06/30/2022



Reply Report of Michael Barber, PhD

Dr. Michael Barber
Brigham Young University
724 Spencer W. Kimball Tower
Provo, UT 84604
barber@byu.edu

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1 Introduction and Qualifications

I have been asked by counsel for the Legislative Defendants to analyze and respond to reports submitted by Drs. Magleby, Pegden, Mattingly, and Cooper with regards to their analysis of North Carolina’s recently enacted redistricting plans for the General Assembly (the “Enacted Plans”).¹

I do this in the following ways. First, I provide a summary of their conclusions as well as comparisons between their main results and those I produced in my original report. I also consider the specific analysis they produce for several county groupings that are singled out in their reports for additional scrutiny. I also define a measure of substantive significance to determine the degree to which the Enacted Map differs from Dr. Pegden’s simulations and subsequent expected seats analysis.

The results show that there is often not agreement, even among the plaintiffs’ experts, as to whether or not a county grouping’s districts constitute a partisan outlier. In some cases the simulations produced by different experts come to different conclusions, and in other cases some of the experts assert an extreme partisan gerrymander, but in that same grouping the map proposed by the North Carolina League of Conservation Voters (NCLCV Map) exhibits the same qualities as the Enacted Map.

Based on the evidence and analysis presented below, my opinions regarding these reports studying the North Carolina General Assembly can be summarized as follows:

- There is significant agreement between Dr. Magley’s simulation results and those produced in my original report with regard to the number of seats carried by Democrats in both the simulations and the Enacted Plan despite some differences in our particular simulation methods.
- However, Dr. Magleby does not present county grouping by county grouping analyses,

¹Due to the incredibly tight time constraints between the submission of reports and the deadline for submission of rebuttal reports, I only analyze Dr. Cooper’s report in the House clusters and not the Senate clusters. My analysis has been provided to the best of my ability given the time constraints.

so it is not possible to compare his results with mine to identify if there are differences at this more granular level.

- In many of the 12 county groupings considered by Drs. Pegden and Mattingly in the House the Enacted Plan is either not a statistical outlier, is not substantively different from the simulations, or is in agreement with the map proposed by the NCLCV plaintiffs in the districts under dispute. Furthermore, in other cases there are reasonable explanations for the boundaries of the map that are separate from partisanship.
- In the 5 county groupings considered by plaintiffs’ experts in the Senate, there is also often disagreement on whether the map constitutes a large outlier. In many of the clusters the Enacted Plan is either not a statistical outlier, is not substantively different from the simulations, or is in agreement with the map proposed by the NCLCV plaintiffs in the districts under dispute.

I am an associate professor of political science at Brigham Young University and faculty fellow at the Center for the Study of Elections and Democracy in Provo, Utah. I received my PhD in political science from Princeton University in 2014 with emphases in American politics and quantitative methods/statistical analyses. My dissertation was awarded the 2014 Carl Albert Award for best dissertation in the area of American Politics by the American Political Science Association.

I teach a number of undergraduate courses in American politics and quantitative research methods.² These include classes about political representation, Congressional elections, statistical methods, and research design.

I have worked as an expert witness in a number of cases in which I have been asked to analyze and evaluate various political and elections-related data and statistical methods. Cases in which I have testified at trial or by deposition are listed in my CV, which is attached to the end of this report. I have previously provided expert reports in a number of

²The political science department at Brigham Young University does not offer any graduate degrees.

cases related to voting, redistricting, and election-related issues: *Nancy Carola Jacobson, et al., Plaintiffs, vs. Laurel M. Lee, et al., Defendants. Case No. 4:18-cv-00262 MW-CAS (U.S. District Court for the Northern District of Florida); Common Cause, et al., Plaintiffs, vs. Lewis, et al., Defendants. Case No. 18-CVS-14001 (Wake County, North Carolina); Kelvin Jones, et al., Plaintiffs, v. Ron DeSantis, et al., Defendants, Consolidated Case No. 4:19-cv-300 (U.S. District Court for the Northern District of Florida); Community Success Initiative, et al., Plaintiffs, v. Timothy K. Moore, et al., Defendants, Case No. 19-cv-15941 (Wake County, North Carolina); Richard Rose et al., Plaintiffs, v. Brad Raffensperger, Defendant, Civil Action No. 1:20-cv-02921-SDG (U.S. District Court for the Northern District of Georgia); Georgia Coalition for the People’s Agenda, Inc., et. al., Plaintiffs, v. Brad Raffensberger, Defendant. Civil Action No. 1:18-cv-04727-ELR (U.S. District Court for the Northern District of Georgia); Alabama, et al., Plaintiffs, v. United States Department of Commerce; Gina Raimondo, et al., Defendants. Case No. CASE NO. 3:21-cv-00211-RAH-ECM-KCN (U.S. District Court for the Middle District of Alabama Eastern Division); League of Women Voters of Ohio, et al., Relators, v. Ohio Redistricting Commission, et al., Respondents. Case No. 2021-1193 (Supreme Court of Ohio); Adams, et al., Relators, v. DeWine, et al., Respondents. Case No. 2021-1428 (Supreme Court of Ohio)*

In my position as a professor of political science, I have conducted research on a variety of election- and voting-related topics in American politics and public opinion. Much of my research uses advanced statistical methods for the analysis of quantitative data. I have worked on a number of research projects that use “big data” that include millions of observations, including a number of state voter files, campaign contribution lists, and data from the US Census. I have also used geographic information systems and other mapping techniques in my work with political data.

Much of this research has been published in peer-reviewed journals. I have published nearly 20 peer-reviewed articles, including in our discipline’s flagship journal, *The American Political Science Review* as well as the inter-disciplinary journal, *Science Advances*. My CV,

which details my complete publication record, is attached to this report as Appendix A.

The analysis and opinions I provide in this report are consistent with my education, training in statistical analysis, and knowledge of the relevant academic literature. These skills are well-suited for this type of analysis in political science and quantitative analysis more generally. My conclusions stated herein are based upon my review of the information available to me at this time. I reserve the right to alter, amend, or supplement these conclusions based upon further study or based upon the availability of additional information. I am being compensated for my time in preparing this report at an hourly rate of \$400/hour. My compensation is in no way contingent on the conclusions reached as a result of my analysis. The opinions in this report are my own, and do not represent the view of Brigham Young University.

2 Review of Dr. Magleby’s Report

My review of Dr. Magleby’s report shows many areas in which our data and methods are similar and a few important areas where we differ in our methods. I begin with areas of similarity. As my report considered only the state legislative districts and not the congressional districts, I focus on that portion of Dr. Magleby’s report as well.

My review of his report over the last several days indicates that our analysis is similar in the following ways:

- We both use a redistricting simulation algorithm to construct hypothetical legislative districts in the NC House and Senate.
- We both use data from historical elections at the level of the VTD to compute the partisan lean of the Enacted Plan as well as the simulated districts.
- We both use statewide election data to compute partisan indices.
- Using the partisan indices, we both compute the number of districts “carried” by

Democrats and Republicans as a measure of the partisan lean of the districts in the Enacted Plan and the set of simulations.

Our analysis differs in the following ways:

- While we both use a redistricting simulation algorithm to construct hypothetical legislative districts in the NC House and Senate, the exact method and computer programs differ in their construction.
- While we both use data from historical elections at the level of the VTD to compute the partisan lean of the Enacted Plan as well as the simulated districts, we use slightly different elections to generate a partisan index for each district. Professor Magleby uses the following elections in 2016 and 2020 in his index: President, US Senate, Governor, Lieutenant Governor, Attorney General, Treasurer, Secretary of State, Auditor, Agriculture Commissioner, Insurance Commissioner, Labor Commissioner, and Superintendent of Public Instruction. I also use elections for President, US Senate, Governor, Lieutenant Governor, and Attorney General. Due to the very tight time constraints of this case I was unable to obtain data for Treasurer, Secretary of State, Auditor, Agriculture Commissioner, Insurance Commissioner, Labor Commissioner, and Superintendent of Public Instruction. I also include the 2014 Senate race. However, the differences in our indices will not make a large difference given the large number of elections included in either index. Any one election carries very little weight. Finally, if the intention of simulations is to compare the Enacted Plan to a set of simulated districts, the more important factor is that the measure by which the Enacted Plan is evaluated is the same as the measure by which the simulated districts are measured. This is true of both sets of simulations.
- Professor Magleby takes a random sample of 1,000 districting plans from a larger set of simulations to use as his comparison set. From the description in his report, it appears that there is no consideration for whether the simulated districts divide more

counties or are more or less compact than the Enacted Plan. In my report I only include simulations with as many or fewer county traversals and simulations in which the districts comprising the county grouping have an average compactness score that is as large or larger than the Enacted Plan.

- We both conduct simulations separately for each county grouping, however, Professor Magleby’s report does not include them in his report. Because of this, I am unable to identify county groupings where the Enacted Map may differ from the simulated districts.

At the statewide level, our results are quite similar. In the State House Dr. Magelby’s index predicts the Enacted Plan to have 48 Democratic districts (see Figure 1 of Magleby report). Dr. Magleby’s simulations produce a distribution of seats carried by Democrats, with a peak at 52 seats carried by Democrats for a gap of 4 seats between the Enacted Plan and the modal outcome of the simulations.

My index in the House yields 49 seats carried by Democrats (see Tables 1 and 2 in Barber report). Because I consider each county grouping separately, I do not produce a single statewide histogram of seats carried by Democrats statewide, however, Tables 1 and 2 in my report show the middle 50% range of simulations across all House clusters to be 50-55 Democratic seats, which would include the modal outcome in Dr. Magleby’s Figure 1. This produces a gap of 1-6 seats between the Enacted Plan and the middle 50% range of simulated plans.

In the State Senate Dr. Magelby’s index predicts the Enacted Plan to have 19 Democratic districts (see Figure 3 of Magleby report). Dr. Magleby’s simulations produce a distribution of seats carried by Democrats, with a peak at 22 seats carried by Democrats for a gap of 3 seats between the Enacted Plan and the modal outcome of the simulations.

My index yields 20 seats carried by Democrats in the State Senate (see Tables 31 and 32 in Barber report). Because I consider each county grouping separately, I do not produce a single statewide histogram of seats carried by Democrats statewide, however, Tables 31

and 32 in my report show the middle 50% range of simulations across all clusters to be 23 Democratic seats for a gap of 3 seats between the Enacted Plan and the modal outcome of the simulations.

3 Review of Dr. Cooper’s Report

Dr. Cooper provides no quantitative analysis of the Enacted Plan aside from computing a few different partisan indices of the Enacted Plan. He does not compare the plan to any other alternative plan or set of plans, simulated or otherwise. While the partisan indices he uses are quantitative in nature, the analysis he conducts is fundamentally qualitative. For his analysis of the State House and Senate he looks at each county grouping and offers opinions and anecdotes about the boundaries of the districts as well as the supposed intentions of the legislature. However, he offers no evidence aside from his own opinion to support his assertions of the intentions of the legislature when drawing the district boundaries.

There is nothing wrong, per se, with a qualitative approach to evaluating a state’s map. However, qualitative research requires the same standards and rigor as quantitative research. King, Keohane, and Verba (2021), arguably the most influential recent work on qualitative research, describe the need for rigorously defined standards in qualitative research as the following:

We argue that nonstatistical research will produce more reliable results if researchers pay attention to the rules of scientific inference—rules that are sometimes more clearly stated in the style of quantitative research....Indeed the distinctive characteristic that sets social science apart from casual observation is that social science seeks to arrive at valid inferences by the systematic use of well-established procedures of inquiry (pg. 4).³

³King, Gary., Verba, Sidney., Keohane, Robert O.. *Designing Social Inquiry: Scientific Inference in Qualitative Research*, New Edition. United States: Princeton University Press, 2021.

From my review of Dr. Cooper’s cluster-by-cluster analysis, there is no systematic process by which he determines if a set of districts in a county group constitute a gerrymander or not. Dr. Cooper does not describe any methods or processes that would be consistent with analysis in political science. Instead, I would describe his report as more akin to “casual observation,” rather than rigorous social science. Nevertheless, I consider the particular county groups that he identifies and compare his assessment to that of my report and the other plaintiff expert reports.

4 Review of Dr. Pegden’s Report

Dr. Pegden provides an analysis of the districts in the State House and Senate, as well as the congressional maps. However, I only consider the State House and Senate portion of his report. My understanding of his analysis is that he performs something akin to a simulation analysis, but in a slightly different way. Through a series of very large number of small perturbations to the existing districts that adhere to the redistricting criteria in North Carolina he creates a large set of comparison maps. He then compares the Enacted Map to this set of comparison maps using the 2020 Attorney General election as a “proxy for partisan voting patterns (pg. 9)” in two ways.

Unlike myself, Professor Magleby, and Professor Mattingly, Dr. Pegden only considers one election instead of an index or series of elections. It is unclear to me why he makes this choice since using any individual election as a proxy for future state legislative election results will be subject to the idiosyncrasies (candidate-related factors, issues specific to the office and campaign, campaign spending/advertising, etc) of the particular election chosen. While he provides alternative elections in the Appendix of his report for the 2020 Presidential election, the 2020 Lieutenant Governor election, and the 2020 Governor election, these are only included for the statewide analysis and do not look at specific county groupings in a group-by-group analysis, like is done earlier in his report.

The first analysis Dr. Pegden conducts is to determine the proportion of maps that are more “partisan” than the set of comparison maps. This fraction is treated throughout the report in a similar fashion to a reported p-value in other quantitative research in the social sciences. As Dr. Pegden states: “My method produces a rigorous p-value (statistical significance level) which precisely captures the confidence one can have in the findings of my “second level” analyses. In particular, for my statewide analyses, my second-level claims are all valid at a statistical significance of $p = .002$ (pg. 6).”

He also produces an additional analysis for each county grouping in which he computes the expected seat share for the Enacted Plan and compares this to the expected seat share of the set of comparison maps he produces. As he states: “When I am evaluating the partisanship of a comparison districting (to compare it to the Enacted Plan), I am interested in the number of seats we expect Democrats might win in the districting, given unknown shifts in partisan support. In particular, the metric I use is: How many seats, on average, would Democrats win in the given districting, if a random uniform swing is applied to the historical voting data being used?” This comparison is akin to a measure of substantive significance, as it helps us to understand the substantive difference between the Enacted Map and the set of comparison maps generated by Dr. Pegden’s algorithm.

Substantive significance is a way of measuring the “practical significance” of a statistical finding. Gross (2015) states, “The function of statistical tests is merely to answer: Is the variation great enough for us to place some confidence in the result; or, contrarily, may the latter be merely a happenstance of the specific sample on which the test was made? The question is interesting, but it is surely secondary, auxiliary, to the main question: Does the result show a relationship which is of substantive interest because of its nature and its magnitude?”⁴ As an example, suppose a drug trial discovers a drug to reduce blood pressure that produces a statistically significant effect in a randomized controlled trial. However,

⁴Gross, Justin H. “Testing What Matters (If You Must Test at All): A Context-Driven Approach to Substantive and Statistical Significance.” *American Journal of Political Science* 59, no. 3 (2015): 775-788. quoting Kish, Leslie. 1959. “Some Statistical Problems in Research Design.” *American Sociological Review* 24(3):328-38.

suppose that the substantive impact of this drug on patients’ blood pressure remains very small. Given this, it may not be in the interests of the company to produce the drug given other considerations such as cost, potential side effects, and the opportunity costs of other activities. This would be an example of a difference between statistical and substantive significance.

The previous paragraph is relevant to Dr. Pegden’s analysis because the first and second level analyses he provides are akin to measures of statistical significance while the expected seat share he computes is akin to a measure of substantive significance. Various measures of redistricting have been created and used, but agreement on any one particular measure as the ideal is lacking. Furthermore, even when a particular measure is agreed upon, what constitutes a substantively significant difference using that measure is even rarer.⁵ Cain et al. summarise this issue well when they state, “Any partisan gerrymandering doctrine that the Court adopts will presumably allow states to draw maps that deviate some from the counterfactual plans. Strict adherence is not likely to be required. The critical question in applying this method then becomes: How much deviation is too much?”⁶

Given this, agreement on a strict definition of substantive significance is vanishingly rare. As a guidepost, I look at the expected seat share between the Enacted Plan and the expected seat share of the middle 50% of Dr. Pegden’s simulations (in other words, the simulations which constitute the 25th to the 75th percentile). I then calculate how this difference would translate into an expectation for a party to pick up an additional seat over the 5 legislative elections that would take place over the decade in which the plan would be in place.⁷ A redistricting plan is in place for a decade, so it makes sense to consider the

⁵Herschlag, Gregory, Han Sung Kang, Justin Luo, Christy Vaughn Graves, Sachet Bangia, Robert Ravier, and Jonathan C. Mattingly. “Quantifying gerrymandering in North Carolina.” *Statistics and Public Policy* 7, no. 1 (2020): 30-38.; Stephanopoulos, Nicholas O., and Eric M. McGhee. “The measure of a metric: The debate over quantifying partisan gerrymandering.” *Stan. L. Rev.* 70 (2018): 1503.; Warrington, Gregory S. “A comparison of partisan-gerrymandering measures.” *Election Law Journal: Rules, Politics, and Policy* 18, no. 3 (2019): 262-281.

⁶Cain, Bruce E., Wendy K. Tam Cho, Yan Y. Liu, and Emily R. Zhang. “A Reasonable Bias Approach to Gerrymandering: Using Automated Plan Generation to Evaluate Redistricting Proposals.” *William & Mary Law Review* 59, no. 5 (2018): 1521.

⁷I also use the middle 50% standard in my own analysis when looking at whether the Enacted Plan is

substantive differences over that time period.

5 Review of Dr. Mattingly’s Report

Dr. Mattingly also produces a set of simulated districting plans and compares the Enacted Plan to this set of comparison maps. Dr. Mattingly does not produce an election index, but instead analyzes separately the results in 12 or 16 different elections in 2016 and 2020. In his statewide analysis he includes 2020: Attorney General, United States Senate, Commissioner of Insurance, Lieutenant Governor, Governor, State Treasurer, Secretary of State, State Auditor, Commissioner of Agriculture, Commissioner of Insurance, and US President; 2016: Commissioner of Agriculture, Governor, Lieutenant Governor, US Senate, and President. In his cluster-by-cluster analysis these elections are 2020: Attorney General, United States Senate, Commissioner of Insurance, Lieutenant Governor, Governor, State Treasurer, Secretary of State, State Auditor, Commissioner of Agriculture, and United States President; 2016: Lieutenant Governor and President. It is unclear to me why he does not include the other 2020 races in the cluster-by-cluster analysis.

In his analysis of the State House Dr. Mattingly produces two different “ensembles” or sets of simulations. The first set he describes as “matched” in that the simulations match the criteria used to draw the Enacted Plan. However, this is often not the case in the cluster-by-cluster analyses where the simulations often do not match the degree to which the Enacted Plan follows these criteria (See, for example, Figures 6.1.3, 6.1.9, 6.1.12, 6.1.21, 6.1.24, 6.1.27, 6.1.30, 6.1.33, 6.1.36 where the Enacted Plan splits fewer municipalities or has fewer ousted voters than a substantial number of the simulations). The simulations are often higher than the Enacted Plan in number of municipalities split, number of voters “ousted” from a district (see pg. 9 of the Mattingly report for a description of ousted voters), and the average compactness of the simulated districts is also often lower than the Enacted Plan (see

an outlier from the simulation results. This interquartile range is a commonly used measure of the central range of expected outcomes in a distribution.

Figure 7.3.1 in Mattingly Report.) Given this, I analyze the results of Dr. Mattingly’s second set of simulations that are more strict regarding municipal splits and district compactness and do not consider the first set of simulations especially helpful in analyzing the Enacted Plan.

In his analysis of the State Senate the opposite is true. As in the House Dr. Mattingly produces two different “ensembles” or sets of simulations. The first set he describes are “matched” in that the simulations match the criteria used to draw the Enacted Plan. Here Dr. Mattingly notes, “We will see that the enacted NC Senate preserves municipalities to a high degree; in a way consistent with the most municipality preserving distributions we could produce. Hence, we also provide a Secondary Ensemble for the NC Senate which does not explicitly preserve municipalities (though compactness and the county preservation lead to a degree of municipality preservation.) It coincides with the primary ensemble properties in other respects” (pg. 6). Given the stated interests of the legislature in keeping municipalities whole, it is unclear to me why it would be useful to produce an analysis that intentionally violates this principle.⁸ As such, I focus my comparisons on the first set of simulations in the Senate.

6 Disagreement Among Plaintiffs’ Experts in House County Groupings

In this section I consider the county groupings that are singled out in the various expert reports submitted by the plaintiffs as being especially egregious examples of gerrymandering. However, as I will show, there is often disagreement even among the plaintiffs’ own experts as to the presence, degree, and extent of the problem.

⁸For example, the committee hearing transcripts state: “We honored municipal boundaries. The chair made every effort to keep municipalities whole throughout the draw.” See 9:43:00-9:45:00 in the committee hearing https://www.youtube.com/watch?v=7pyfVT6V0c4&t=34565s&ab_channel=NCGARedistricting and https://www.youtube.com/watch?v=G0Ver0sNMm4&ab_channel=NCGARedistricting in the Senate.

6.1 Pitt House County Grouping

The Pitt county grouping contains two districts. The largest city in the cluster is Greenville, with a population of 87521, or nearly 1 district exactly (the target district population in the House is 208,788). However, creating a district that is entirely Greenville with the second district constituting everything in Pitt County that is not Greenville would create a district that resembles a donut hole (in other words, an embedded district). This type of district is also not proposed in the NCLCV proposed map. Given this, to avoid a “donut hole” scenario requires connecting the district that incorporates the majority of Greenville to the edge of the county so as to make sure this district is no longer embedded in the outer district. Simply adding a VTD to the district is not possible since no single VTD can be added without making the population of the district too large and the district highly non-compact. Thus, extending the boundaries of the district to the edge of the county necessitates splitting Greenville. The legislature chose to do this in a relatively east-west direction with northern Greenville in HD-8 and southern Greenville in HD-9.

Dr. Pegden’s report states, “My theorems imply that the enacted districting is among the most optimized-for-partisanship 11% of all alternative districting satisfying my districting criteria (in other words, 89.1% are less optimized-for-partisanship)...(pg. 21)”. 11% would not constitute a statistical outlier in a traditional scientific study.

With regards to substantive significance, Dr. Pegden’s analysis predicts the expected seats from a range of uniform swings in election outcomes in the Enacted Plan in this cluster to be 1.3 Democratic seats. To gauge the substantive significance of this result, I compare it to the 25th percentile outcome of the simulations on the same metric. This yields an expected seats of between 1.45 Democratic districts, for a difference of between .15 districts. In other words, in a series of 5 elections with varying electoral environments (some good for Democrats and some good for Republicans) in each district in the cluster, we would expect the Enacted Map to elect an additional Democrat in the county group less than 1 time, on average, than the simulated maps would do.

In Dr. Mattingly’s report, all 12 elections he considers generate a strongly Democratic district (HD-8). In only 3 of the 12 elections he considers a majority of the simulations create a second Democratic district while in 9 of the 12 elections the majority of the simulations generate a Republican district. In Figure 6.1.23 the Enacted Plan agrees with the majority outcome of the simulations in 10 of the 12 elections he considers.

These results are similar to those contained in my original report. In 10 of the 11 elections I include a majority of simulations generate one Democratic District and one Republican leaning district. In 10 of the 11 elections, the Enacted Plan agrees with the majority outcome of the simulated maps.

The overall picture here is one of agreement that in the majority of cases the Enacted Plan and the simulations generate one Democratic-leaning district and one Republican-leaning district.

Dr. Cooper does not provide any analysis of the Enacted Plan aside from calculating a partisan index of the districts. However, Dr. Cooper notes that Pitt County is currently represented by two Democrats, Kandie Smith and Brian Farkas. Dr. Cooper fails to note the old (2020) districting arrangement had 3 districts in Pitt County with the third district (District 12) extending into Lenoir County and being represented by Republican Chris Humphrey.

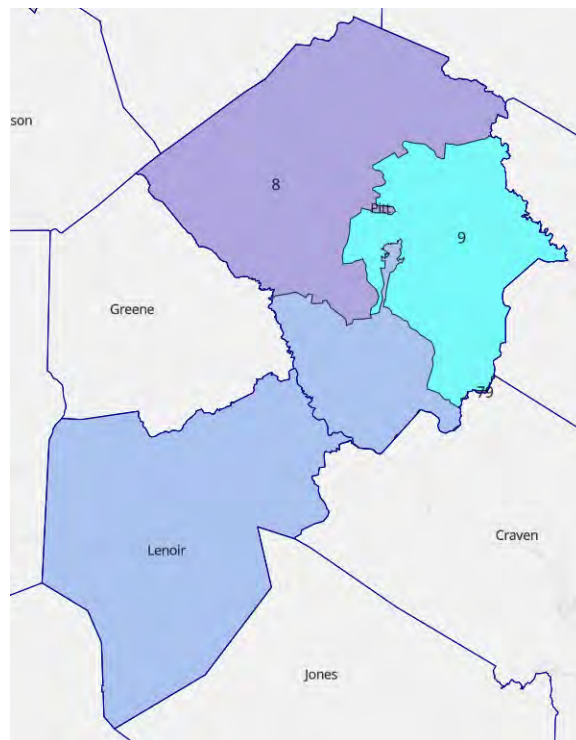


Figure 1: **2020 Districts in Pitt County**

6.2 Alamance House County Grouping

The Alamance County grouping contains two districts, HD-63 and HD-64. In this county there is disagreement between plaintiffs’ experts as to whether or not the Enacted Map constitutes a gerrymander. Drs. Pegden and Mattingly do not find the map to be a partisan outlier, while Dr. Cooper objects to the particular shape of the districts.

Dr. Pegden’s analysis places the Alamance County plan among the lowest quarter of districtings. He states, “In every run, the districting was in the most partisan 74% of districtings (in other words, 26.3% were less partisan, in every run) (pg. 23).” Because of this, he further states, “The Enacted Map is not unusual enough in the first-level analysis to enable a statistically significant second-level analysis of this cluster (pg. 23).” Looking at the range of expected Democratic seats in this county, the Enacted Plan is actually *more* Democratic than the median simulation in Dr. Pegden’s report.

Dr. Mattingly also agrees that this plan is not an outlier. He states, “From Figure 6.1.25, we see that thought [sic] the Enacted Map tends have more Democrats in the more Democratic district and less in the less democratic [sic] district it not [sic] an outlier on its own (pg. 46).”

The simulations in my initial report also agree with this assessment. In 10 of 11 elections I analyze, the partisan lean of the districts in the Enacted Plan agree with the partisan lean of the majority of the simulations run. In 6 of the 11 elections a Democrat won a majority of the two-party vote in District 63 while in 5 of the elections the Republican candidate won the majority of the votes.

However, Dr. Cooper notes the unusual shape of the district but does not mention that this shape is largely the same (different by only 2.5 precincts) as the 2019 court-approved maps.

6.3 Duplin-Wayne House County Grouping

The Duplin-Wayne County grouping contains two districts, HD-4 and HD-10.

Dr. Pegden does not provide an analysis of this county. He states, “For this cluster, my conservative approach (as discussed in Section 4.3.2) does not allow my algorithm to generate any comparison maps other than the map itself.” This is interesting as it aligns with my simulations in which I found no alternative maps that had an equal (or fewer) number of county traversals and were as compact or more compact than the Enacted Plan (see pg. 58 of Barber original report).

Dr. Mattingly does not find the map to be a partisan outlier in his analysis. He states, “In the Duplin-Wayne county cluster the two districts are safely Republican under the elections considered. The Enacted Map is typical, falling in the middle of the observed democratic [sic] fraction on the Histograms (pg. 42).”

However, the proposed NCLCV Map generates one consistently Democratic-leaning district across all 11 election that I analyze. This constitutes a partisan outlier in all 11 elections I consider and would also fall outside the majority of the simulation results in all comparable elections in Dr. Mattingly’s simulations as well.⁹

⁹While we do not use the same elections Dr. Mattingly and I both use the 2016 Lieutenant Governor, 2016 President, 2020 Lieutenant Governor, 2020 US Senate, 2020 President, 2020 Attorney General, and 2020 Governor races.

6.4 Buncombe House County Grouping

The Buncombe County grouping contains three districts, HD-114, HD-115, and HD-116. In this county there is agreement among experts that the Enacted Map in this county grouping generally creates two Democratic seats and 1 Republican-leaning seat. The degree to which this is a partisan outlier is less certain.

Dr. Pegden reports that the Enacted Map in this county “was in the most partisan 0.020% of districtings (in other words, 99.979% were less partisan, in every run) (pg. 16).” This is a statistically significant result. The Enacted Map has an expected Democratic seats generated from the uniform swing analysis of 2.26 seats while the 25th percentile plan has an expected Democratic seats of 2.85. This leads to a substantive difference of 0.59 expected Democratic seats. Put another way, across 5 hypothetical elections of each district in the cluster, we would expect the Enacted Map to elect one fewer Democrat (meaning 2 rather than 3 in this cluster) than the 25th percentile simulation roughly 3 additional times.

Dr. Mattingly’s presents simulations in which the Enacted Map and the simulations agree on the creation of 2 Democratic districts in the cluster (HD-114 and HD-115). In all 12 elections considered the Enacted Map and the simulations are in agreement on the partisan lean of these two districts. The third district, HD-116, is the source of the disagreement. In 10 of the 12 simulations HD-116 in the Enacted Plan does not agree with the majority of the simulations in Dr. Mattingly’s report (see Figure 6.1.14).

Dr. Cooper offers his assessment by saying “By shifting the current district lines where the districts meet in Asheville, however, the Enacted Map packs as many Democrats as possible into HD-114, while HD-115 stays relatively constant in terms of predicted vote share. The C-shaped HD-116 now includes most of the Republican-leaning VTDs in Buncombe...” Dr. Cooper appears to imply that a more appropriate orientation of the district lines would be to place a substantial portion of Asheville into each of the three districts.

In other words, across all three experts, the disagreement with the Enacted Plan centers on district HD-116. The “C” shape in District HD-116, as noted by Dr. Cooper, is

the result of a decision to minimize the division of the city of Asheville. With a population of 94,589, the city will need to be split into two different districts, but not necessarily three. The Enacted Plan does this by placing approximately 87 percent of the city population in two districts, HD-114 and HD-115, leaving HD-116 to wrap around the the city and largely avoid its boundaries. This, however, creates the “C” shape of the district.

Finally, Dr. Cooper states, “Soon after the maps were passed, all three Democratic incumbents announced that they would be retiring and not running for office in these newly drawn districts.” It is unclear to me how this fact is relevant to the shape of the new districts. If the Enacted Map create two strong Democratic districts, how is the announced retirement of all three Democratic incumbents in any way a result of the districting process, as Dr. Cooper implies? Dr. Cooper does not offer any other evidence that something else related to the new districts may have been the cause, such as double bunking, or a dramatic shift in the composition of each district from the old (2020) districts.

6.5 Cumberland House County Grouping

The Cumberland County group contains four districts, HD-42, HD-43, HD-44, and HD-45. In this cluster there is disagreement between the experts as to whether this county constitutes an extreme gerrymander.

Dr. Pegden’s analysis contend the that the Enacted Plan is neither a statistically significant nor substantively significant outlier. He states, “In every run, the districting was in the most partisan 16% of districtings (in other words, 83.5% were less partisan, in every run)...The Enacted Map is not unusual enough in the first-level analysis to enable a statistically significant second-level analysis of this cluster (pg. 27).”

Beyond not being statistically unique, the substantive difference in the number of expected Democratic seats is very small. The Enacted Map has an expected Democratic seats generated from the uniform swing analysis of 3.21 seats while the 25th percentile plan has an expected Democratic seats of 3.25. This leads to a substantive difference of between 0.04 expected Democratic seats. In other words, across 5 hypothetical elections of each district in the cluster, we would expect the Enacted Map to elect one fewer Democrat (meaning 3 rather than 4 in this cluster) than the 25th percentile simulation less than 1 additional time.

Dr. Mattingly’s presents analysis in which the simulations generate two solidly Democratic districts (HD-44 and HD-42) and two districts that are closer to the .50 line with HD-43 being Democratic-leaning and HD-45 being Republican-leaning (see Figure 6.1.29 in Mattingly Report). Regarding this outcome he states, “In an ensemble that better preserves municipalities, the most Republican district is typically more republican [sic] and the second most Republican district more Democratic. This makes the Enacted Plan which squeezes the two together with an [sic] large outlier.”

A closer look at Figure 6.1.29 shows that the Enacted Plan is an outlier not because it favors one party over the other, but rather because it creates more competitive races than the majority of Dr. Mattingly’s simulations. While Dr. Mattingly’s simulations produce

a reliably Republican district in HD-45 and a reliably Democratic district in HD-43, the Enacted Plan creates neither and instead generates two very competitive districts. This produces a responsive map in which the partisanship of legislators elected to these two districts will likely shift frequently with shifting electoral preferences, something Dr. Mattingly notes is a desirable feature of a districting plan in other portions of his report (see pg. 3 and 4 of Mattingly Report).

Dr. Cooper agrees with this when he states, “The Enacted Map creates two extremely competitive districts, HD-43 and HD-45 (with CCSC scores of D+1,334 and D+663, respectively) by splitting the Democratic-leaning City of Fayetteville into all four districts in the cluster.” While his assessment of the competitiveness of these two districts is correct, he is incorrect as to the reason. Fayetteville has a population of 208,501 and as such is required to be divided into at least three districts, but not four. And while the Enacted Plan does draw parts of Fayetteville into all four districts, only 7.3 % of Fayetteville’s population is placed in District 45.

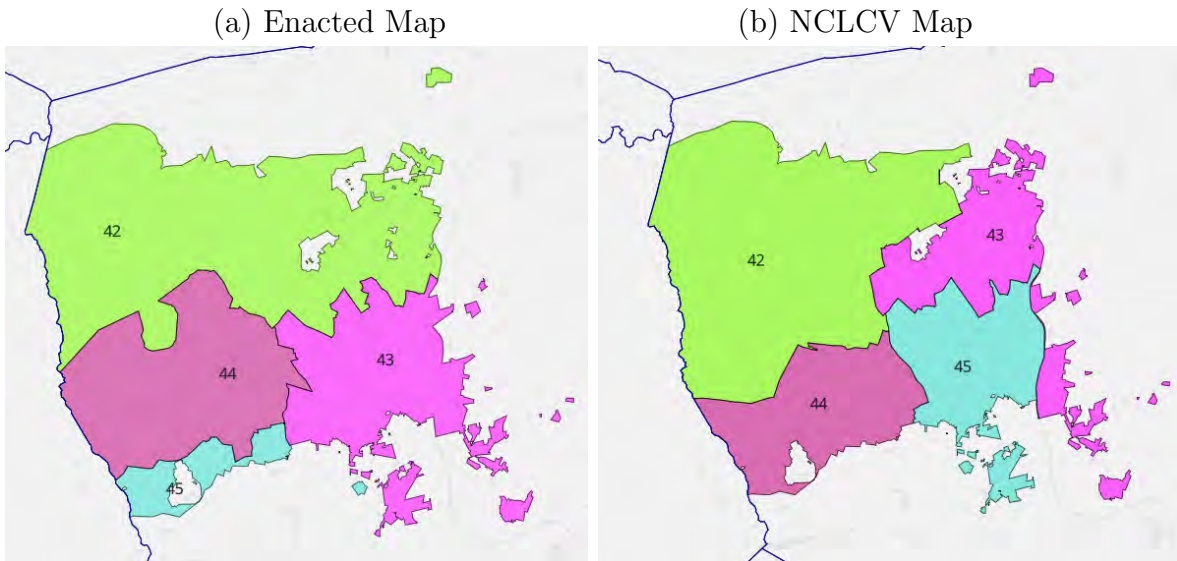
Furthermore, the Enacted Plan places a much smaller proportion of Fayetteville in to the 45th district than NCLCV plaintiff’s proposed map does. If Dr. Cooper’s objections to dividing municipalities more than necessary is applied to this map, then plaintiff’s map fares much worse than the Enacted Map. The table and figure below shows the comparison of how Fayetteville is divided in the two plans, which is also shown as Table 18 and Figure 54 in my original report.

Table 1: Division of Fayetteville in Enacted Plan and NCLCV Plan

	Percent of Fayetteville in district	
District:	Enacted Plan	NCLCV Plan
42	31.4	33.4
43	21.4	21.5
44	39.9	26.8
45	7.3	18.3
Total:	100%	100%

Note: Population number for city by district for Enacted Plan from: https://ncleg.gov/Files/GIS/Plans_Main/Senate_2021/SL%202021-173%20Senate%20-%20StatPack%20Report.pdf Population numbers for city by district for NCLCV Plan from Dave’s Redistricting online. <https://davesredistricting.org/>

Figure 2: Map of Fayetteville Divisions in Cumberland County Cluster



6.6 Durham-Person House County Grouping

The Durham-Person County grouping contains 4 districts, HD-2, HD-29, HD-30 and HD-31. In this cluster there is disagreement with one district in particular, HD-2, which takes in the entirety of Person County to the north and the northern and eastern portions of Durham county.

Dr. Pegden’s analysis of this county cluster yields the following results. He states, “My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.20% of all alternative districtings satisfying my districting criteria (in other words, 99.79% are less optimized-for-partisanship)” (pg. 25).

However, the substantive effect of this difference is very small. The Enacted Map has an expected Democratic seats generated from the uniform swing analysis of 3.87 seats while the 25th percentile plan has an expected Democratic seats of 3.95. This leads to a substantive difference of between 0.08 expected Democratic seats. Put another way, across 5 hypothetical elections of each district in the cluster, we would expect the Enacted Map to elect one fewer Democrat (meaning 3 rather than 4 in this cluster) than the 25th percentile simulation less than 1 additional time.

Dr. Mattingly’s simulations reveal three highly Democratic districts and one district that is more competitive. In the three highly Democratic district (HD-31, HD-29, and HD-30), the Enacted Plan and the simulations are in agreement in all 12 of the 12 elections considered. In 10 of the 12 elections he considers the Enacted Plan agrees with the majority of simulations on the partisanship of the more competitive district, HD-2 (see Figure 6.1.23 of Mattingly Report).

Dr. Cooper simultaneously criticizes the map for dividing Durham across all four district while also packing Democratic into three of the four districts. He states, “The Enacted Map splits the City of Durham across all four districts but packs Democratic voters in HDs 29, 39, and 31; there is not a single Republican or competitive VTD in those districts (pg. 84).” This is a confusing complaint to offer since there are nearly no Republican VTDs

in Durham County (if any at all when looking at Map 40 in Dr. Cooper’s report), so it comes as no surprise that the three districts that are entirely contained in Durham County would contain no Republican-leaning VTDs. Furthermore, Dr. Cooper notes that the city of Durham is included in all four districts. However, remedying this by making sure District 2 contained no portion of Durham would only further make District 2 more Republican as the most Democratic VTDs in District 2 are those within the Durham city limits. Furthermore, the population of Durham is 283,506, which means it is large enough that it is absolutely necessary to include parts of Durham in all four districts.

6.7 Brunswick-New Hanover House County Grouping

The Brunswick-New Hanover County grouping contains 4 districts, HD-17, HD-18, HD-19, and HD-20. In this case, there is disagreement between experts as to whether this cluster constitutes an extreme gerrymander.

Dr. Pegden’s analysis contends that the Enacted Plan is not a significant outlier, statistically or substantively. He states, “In every run, the districting was in the most partisan 11% of districtings (in other words, 89.4% were less partisan, in every run). The Enacted Map is not unusual enough in the first-level analysis to enable a statistically significant second-level analysis of this cluster (pg. 24).”

Beyond not being unusual in comparison to the simulations to perform a statistically significant second-level analysis, the substantive difference in the expected Democratic seat share is also very small. The Enacted Map has an expected Democratic seats generated from the uniform swing analysis of 1.25 seats while the 25th percentile plan has an expected Democratic seats of 1.25. This leads to a substantive difference of between 0.00 expected Democratic seats. In other words, across 5 hypothetical elections of each district in the cluster, we would not expect the Enacted Map to differ from the 25th percentile simulation at all, on average.

Dr. Mattingly argues on the other hand that the cluster is problematic. Specifically, he locates the problem in District 20. He states of this district, “The Republican party typically wins the second most democratic [sic] district [HD-20] in the Enacted Plan even though it would go to the Democrats under a number of elections when the neutral maps in the primary ensemble are used.” Looking at Figure 6.1.35 in Dr. Mattingly’s report we see that in 5 of the 12 elections the Enacted Plan agrees with the majority of simulations on the partisan lean of HD-20.

Dr. Cooper does not offer much by way of exposition in this cluster other than to claim that District 18 is packing Democratic voters “in and around Wilmington” and that “[t]he heavily Republican HD-19 also ensnares a Democratic-leaning VTD south of Wilmington,

which keeps that VTD out of competitive HD-20 (pg. 95).” Another way to consider the “packing” referred to by Dr. Cooper is to note that District 18 keeps the communities of Hightsville, Wrightsboro, Skippers Corner, Castle Hayne, Blue Clay Farms, Northchase, Murraysville, and Kings Grant — all municipalities in and around Wilmington — together. Secondly, the “ensnared” VTD that Dr. Cooper refers to is only moderately Democratic (.56 in the 2020 Presidential election) and would make only the slightest difference in the overall partisan lean of HD-20 were it to somehow capture it from HD-19.

6.8 Forsyth-Stokes House County Grouping

The Forsyth-Stokes County grouping contains 5 districts, HD-91, HD-71, HD-72, HD-74, and HD-75. In this county there is agreement among experts that the Enacted Map in this county grouping generally creates two Democratic seats and 2 Republican-leaning seats. The partisan lean of the middle district in the Enacted Plan, HD-74, is in dispute.

Dr. Pegden’s analysis contends that the Enacted Plan is a significant outlier, statistically and substantively. He states, “My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.26% of all alternative districtings satisfying my districting criteria (in other words, 99.73% are less optimized-for-partisanship) (pg. 18).”

The substantive difference in the expected Democratic seat share is as follows: The Enacted Map has an expected Democratic seats generated from the uniform swing analysis of 2.18 seats while the 25th percentile plan has an expected Democratic seats of 2.85. This leads to a substantive difference of 0.67 expected Democratic seats. Stated differently, across 5 hypothetical elections of each district in the cluster, we would expect the Enacted Map to elect one fewer Democrat (meaning 2 rather than 3 in this cluster) than the 25th percentile simulation roughly 3 additional times.

Dr. Mattingly’s presents simulations that contain two districts that are consistently Democratic leaning (HD-71 and HD-72) and two districts in which the distribution of simulation results are nearly always Republican leaning (HD-91 and HD-75). Thus, the outlier in his analysis lies with HD-74 where the simulations often generate both Republican and Democratic leaning districts and the Enacted Plan is more consistently Republican leaning.

However, the Enacted Plan’s District 74 is very similar in shape and partisan lean to the NCLCV “optimized map.” A map of the similarities in these districts is presented in Figure 69 of my original report. The partisan lean of District 74 using the election index in my original report is 0.45 while the partisan lean of District 74 in the NCLCV map is 0.46. Thus, if the Enacted Map is an extreme gerrymander due to the boundaries and partisan lean of District 74, then this criticism would also apply to the proposed NCLCV map as

well.

Finally, Dr. Cooper notes of this district, “The splits of Winston-Salem do not make sense without reference to the anticipated voting behavior of the VTDs arranged into each district.” However, this is not the case. The splits of Winston-Salem are largely the same as the 2020 maps, which were approved by a court in 2019. To a large degree the legislature appears to have chosen to leave the district boundaries much the same as the previous court-approved maps. Figure 69 in my original report presents this comparison between the current maps and the old maps in this cluster.

6.9 Cabarrus-Davie-Rowan-Yadkin House County Grouping

The Cabarrus County grouping contains 5 districts, HD-73, HD-76, HD-77, HD-82, and HD-83.

The layout of districts in this cluster is largely determined by the geography of the four counties in the cluster. Yadkin and Davie are sparsely populated and as such must constitute a portion of a single district (HD-77). This district then extends south into northern Rowan County, where it borders Davie County. Rowan County has a larger population - enough to sustain 1.68 districts. To minimize county traversals in the group, this implies creating a single district that is entirely contained within Rowan county and then another district that spans Rowan County and extends into northern Cabarrus County. Finally, Cabarrus County is the most populated county of the group (population = 225,804) with a population large enough to support 2.6 districts. This means that there will be two districts entirely contained in Cabarrus County with a partial district that spans Rowan and Cabarrus Counties. Because the county grouping is arranged in a linear North/South axis, this layout of districts - 1 in Yadkin and Davie, and partially in Rowan, 1 in Rowan, 1 spanning Rowan/Cabarrus, and 2 entirely in Cabarrus is the only arrangement that complies with the rules requiring the minimization of county traversals.

Thus, complaints of the districts are limited to the particular boundaries of the two and a half districts in Cabarrus county (HD-73, HD-82 and HD-83).

Dr. Pegden does not find the Enacted Plan to be a significant outlier. He states, “In every run, the districting was in the most partisan 12% of districtings (in other words, 87.7% were less partisan, in every run). The Enacted Map is not unusual enough in the first-level analysis to enable a statistically significant second-level analysis of this cluster (pg. 26).”

Beyond not being unusual in comparison to the simulations to perform a statistically significant second-level analysis, the substantive difference in the expected Democratic seat share is also very small. The Enacted Map has an expected Democratic seats generated from the uniform swing analysis of 0.33 seats while the 25th percentile plan has an expected

Democratic seats of 0.45. This leads to a substantive difference of 0.12 expected Democratic seats. In other words, across 5 hypothetical elections of each district in the cluster, we would expect the Enacted Map to elect one fewer Democrat (meaning 0 rather than 1 in this cluster) than the 25th percentile simulation less than 1 additional time.

Dr. Mattingly’s simulations produce 4 very Republican districts and one district that generates both Republican and Democratic outcomes (HD-82), depending on the election one uses to measure partisanship. He states, “In the Cabarrus-Davie-Rowan-Yadkin county cluster, there are abnormally few Democrats in the most Democratic district (district 82).” In 4 of the 12 elections he considers the Enacted Plan agrees with the majority of the simulations on the partisanship of this swing district.

One important thing to note is that the proposed NCLCV map performs worse than the Enacted Plan by this metric described by Dr. Mattingly. The most Democratic district in this plan is actually *less* Democratic than the Enacted Plan (0.43 in the NCLCV plan compared to 0.41 in the Enacted Plan using the partisan index in my original report). Thus, by Dr. Mattingly’s argument, this would place the NCLCV map as more of a partisan outlier than the Enacted Plan in this county cluster.

6.10 Guilford County House County Grouping

The Guilford County grouping contains 6 districts, HD-57, HD-58, HD-59, HD-60, HD-61, and HD-62.

Dr. Pegden’s analysis contends that the Enacted Plan is a significant outlier. He states, “My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.000089% of all alternative districtings satisfying my districting criteria (pg. 19).”

The substantive difference in the expected Democratic seat share is as follows: The Enacted Map has an expected Democratic seats generated from the uniform swing analysis of 4.46 seats while the 25th percentile plan has an expected Democratic seats of 5.45. This leads to a substantive difference of 0.99 expected Democratic seats. In other words, across 5 hypothetical elections of each district in the cluster, we would expect the Enacted Map to elect one fewer Democrat (meaning 4-5 rather than 5-6 in this cluster) than the 25th percentile simulation every time, on average.

Dr. Mattingly states of his simulations in this county: “The ensemble reliably has four democratic districts and a 5th which typically leans Republican but sometimes is competitive. Yet, the Enacted Plan gives one clearly Republican district and one which is often safely Republican and at times competitive (pg. 36).” District 59 is the district in question. Excluding HD-59, in 12 of the 12 elections the Enacted Plan agrees with the majority of Dr. Mattingly’s simulations on the partisanship of the remaining 5 districts in the cluster. Thus the discussion of a potential gerrymander is focused on the composition of HD-59.

This also conforms with the simulation results in my original report. In 11 of the 11 elections I consider, the partisan lean of the districts in the Enacted Plan is one Democratic district short of the outcome in the majority of the simulations run.

However, one factor to consider is that District 59’s boundaries are identical to the court-approved 2019 map’s boundaries, but for one precinct, G53 (See Figure 78 in my original report for a map of the district under the two plans). District 59’s population would

be is too large if the map were to use the exact boundaries from 2019 based on the updated 2020 census population numbers. At the same time, District 61 and 58 are within the new population thresholds based on the new census numbers. Thus, it makes perfect sense to move one precinct from 57 into either 61 or 58 to equalize the population of these districts. Precinct G53 may have been chosen because it contains the right population size and is nearly entirely within the city of Greensboro, allowing a larger share of Greensboro to be contained within fewer districts.

6.11 Mecklenburg County House County Grouping

The Mecklenburg County cluster contains 13 districts, HD-88, HD-92, HD-98, HD-99, HD-100, HD-101, HD-102, HD-103, HD-104, HD-105, HD-106, HD-107, and HD-112.

Dr. Pegden’s analysis contends that the Enacted Plan is a outlier, but not to the degree of other clusters discussed above. He states, “My theorems imply that the enacted districting is among the most optimized-for-partisanship 5.0% of all alternative districtings satisfying my districting criteria (in other words, 95.0% are less optimized-for-partisanship) (pg. 20).” In a traditional scientific study, the 5% boundary represents the line of a statistically significant outlier.

The substantive difference in the expected Democratic seat share is as follows: The Enacted Map has an expected Democratic seats generated from the uniform swing analysis of 11.56 seats while the 25th percentile plan has an expected Democratic seats of 11.95. This leads to a substantive difference of 0.39 expected Democratic seats. Put another way, across 5 hypothetical elections of each district in the cluster, we would expect the Enacted Map to elect one fewer Democrat (meaning 11-12 rather than 12-13 in this cluster) than the 25th percentile simulation in approximately 2 of these 5 elections, on average. In other words, the difference across this range of electoral environments is Republicans picking up an additional seat about 2 in 5 times.

Dr. Mattingly’s presents simulation analysis that present the partisan distributions of the different districts and where, specifically, an outlier might occur. Figure 6.1.2 of Dr. Mattingly’s report shows that in the 10 most Democratic districts in the cluster, the Enacted Plan agrees with the majority of simulations in 12 of the 12 elections considered. Both the simulations and the Enacted Plan contain 9 comfortably Democratic districts and a 10th district that is Democratic in 11 of the 12 elections considered. In the 2 most Republican districts (HD-98 and HD-103), the Enacted Plan agrees with the majority of simulations in 12 of the 12 elections considered. These two districts occasionally lean Democratic and occasionally lean Republican, but in all 12 elections the Enacted Plan’s partisan lean aligns

with the partisan lean of the majority of the simulations. This leaves one districts in dispute - HD-104. In District 104, the Enacted Plan agrees with the majority of the simulations in 11 of the 12 elections considered. Thus, across the 13 different districts in 12 different elections, the Enacted Plan is in alignment with the majority of the simulation results in all but 1 election (Figure 6.1.2 shows a misalignment of HD-104 with the majority of the simulations in the 2020 Commissioner of Agriculture election).

Dr. Cooper states that, “[t]he Enacted Map places no Republican VTDs in HDs 92, 99, 100, 101, 102, 106, 107, and 112, leaving every Republican-leaning VTD in HDs 88, 103, 104, and 105.” Dr. Cooper omits here that there are very few Republican leaning VTDs at all on his map to begin with, they tend to be close to one another, and are concentrated in northern and southeastern Mecklenburg County. Thus it is not surprising that they are placed in relatively few of the districts given the desire for geographically compact districts. He notes the partisan composition of HDs 98 and 103 as being “carved out of the pockets of Republican voters in the north and southeast portions of the county... (pg. 68).” However, this assessment ignores the partisan geography of the cluster. District 98 is geographically compact and avoids traversing into the Charlotte city limits. Furthermore, District 103 in the southeast of the county keeps the cities of Mint Hill (there are 6 voters from this city not in District 103) and Matthews whole and together in one district.

6.12 Wake County House County Grouping

The Wake County cluster contains 13 districts, HD-11, HD-21, HD-33, HD-34, HD-35, HD-36, HD-37, HD-38, HD-39, HD-40, HD-41, HD-49, and HD-66.

Dr. Pegden’s analysis contends that the Enacted Plan is a statistical outlier. He states, “My theorems imply that the enacted districting is among the most optimized-for-partisanship 2.2% of all alternative districtings satisfying my districting criteria (in other words, 97.8% are less optimized-for-partisanship) (pg. 22).”

The substantive difference in the expected Democratic seat share is as follows: The Enacted Map has an expected Democratic seats generated from the uniform swing analysis of 11.62 seats while the 25th percentile plan has an expected Democratic seats of 11.85. This leads to a substantive difference of 0.23 expected Democratic seats. In other words, across 5 hypothetical elections of each district in the cluster, we would expect the Enacted Map to elect one fewer Democrat (meaning 11-12 rather than 12-13 in this cluster) than the 25th percentile simulation in approximately 1 of these 5 elections, on average.

Dr. Mattingly’s simulation analysis presents the partisan distributions of the different districts and where specifically an outlier might occur. Figure 6.1.5 of Dr. Mattingly’s report shows that in the 10 most Democratic districts in the cluster, the Enacted Plan agrees with the majority of simulations in 12 of the 12 elections considered. In the most Republican district (HD-37), the Enacted Plan agrees with the majority of simulations in 9 of the 12 elections considered. This leaves two districts - HD-35 and HD-21. In District 35, the Enacted Plan agrees with the majority of the simulations in 7 of the 12 elections considered, and in HD-21 the Enacted Plan agrees with the majority of the simulations in 10 of the 12 elections considered. However, in the 2 elections where it is in disagreement, the Enacted Plan actually creates a *Democratic* leaning district where the majority of simulations create a Republican leaning district. Thus, the results in this cluster are mixed. Some of the Enacted Plan’s districts are more Republican, on average, than the simulations and in other cases the Enacted Plan’s districts are more Democratic. And in most cases there is agreement.

7 Disagreement Among Plaintiff Experts in Senate County Groupings

7.1 Cumberland and Moore Senate County Grouping

The Cumberland and Moore Senate county grouping contains two districts, SD-19 and SD-21.

Dr. Pegden’s analysis contend that the Enacted Plan is a statistical outlier. He states, “My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.000015% of all alternative districtings satisfying my districting criteria (in other words, 99.999984% are less optimized-for-partisanship) (pg. 28).”

The substantive difference in the expected Democratic seat share is as follows: The Enacted Map has an expected Democratic seats generated from the uniform swing analysis of 1.01 seats while the 25th percentile plan has an expected Democratic seats of 1.35. This leads to a substantive difference of 0.34 expected Democratic seats. Put differently, across 5 hypothetical elections of each district in the cluster, we would expect the Enacted Map to elect one fewer Democrat (meaning 1 rather than 2 in this cluster) than the 25th percentile simulation in approximately 1-2 of these 10 elections, on average. In other words, the difference across this range of electoral environments is Republicans picking up an additional seat less than 2 in 5 times.

Dr. Mattingly states of the result of the simulations in this cluster, “The districts in the enacted are chosen to maximize the number of Democrats in the more democratic district and the number of republicans in the most Republican district. The map is an extreme outlier in both of these regards. The effect is a maximally non-responsive map.” It is noteworthy that in other clusters Dr. Mattingly criticizes the map for being overly responsive (see Cumberland House grouping discussion). Despite this critique, from Figure 6.2.10 we see that in all 12 elections the Enacted Map agrees with the majority of the simulations in all districts. In not a single election do a majority of the simulations produce

two Democratic seats.

It is also noteworthy that the NCLCV plaintiff’s proposed plan is identical to Enacted Plan in this cluster.

7.2 Forsyth-Stokes Senate County Grouping

The Forsyth and Stokes Senate county grouping contains two districts, SD-31 and SD-32.

Dr. Pegden’s analysis contend that the Enacted Plan is a statistical outlier. He states, “My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.0051% of all alternative districtings satisfying my districting criteria (in other words, 99.9947% are less optimized-for-partisanship) (pg. 29).”

However, in this cluster the substantive difference in the expected Democratic seat share is nearly zero. This is a particularly good example of the importance of distinguishing between statistical and substantive significance. The Enacted Map has an expected Democratic seats generated from the uniform swing analysis of 1.00 seats while the 25th percentile plan has an expected Democratic seats of 1.05. This leads to a substantive difference of 0.05 expected Democratic seats. Put another way, across 5 hypothetical elections of each district in the cluster, we would expect the Enacted Map to elect one fewer Democrat (meaning 1 rather than 2 in this cluster) than the 25th percentile simulation in approximately 0 of these 5 elections, on average. In other words, the difference between the Enacted Plan and the simulations results across this range of electoral environments is effectively zero in this cluster.

Dr. Mattingly states of the result of the simulations in this cluster, “The districts in the enacted are chosen to maximize the number of Democrats in the more democratic district and the number of republicans [sic] in the most Republican district. The map is an extreme outlier in both of these regards. The effect is a maximally non-responsive map (pg. 61).” This is similar to his objection to the Cumberland-Moore cluster above, and is again

noteworthy that in other clusters Dr. Mattingly criticizes the map for being overly responsive (see Cumberland House grouping discussion). Despite this critique, from Figure 6.2.7 we see that in all 12 elections the Enacted Map agrees with the majority of the simulations in all districts. In not a single election do the simulations produce two Democratic seats.

7.3 Guilford-Rockingham Senate County Grouping

The Guilford and Rockingham Senate county grouping contains 3 districts, SD-26, SD-27, and SD-28.

Dr. Pegden’s analysis contend that the Enacted Plan is a statistical outlier. He states, “My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.00012% of all alternative districtings satisfying my districting criteria (in other words, 99.99987% are less optimized-for-partisanship) (pg. 31).”

The substantive difference in the expected Democratic seat share is as follows: The Enacted Map has an expected Democratic seats generated from the uniform swing analysis of 2 seats while the 25th percentile plan has an expected Democratic seats of 2.25. This leads to a substantive difference of 0.25 expected Democratic seats. Put differently, across 5 hypothetical elections of each district in the cluster, we would expect the Enacted Map to elect one fewer Democrat (meaning 2 rather than 3 in this cluster) than the 25th percentile simulation in approximately 1-2 of these 10 elections, on average. In other words, the difference across this range of electoral environments is Republicans picking up an additional seat less than 2 in 5 times.

Dr. Mattingly’s summary of the simulations results in this cluster are as follows: “The three districts in the Guilford-Rockingham cluster are constructed to pack an exceptional number of democrats [sic] in the most democratic [sic] district (district 28) and exceptionally few Democrats in the most Republican district (district 26). The effect is to ensure a Republican victory in the district 26, when in some elections the most republican [sic] district would be at risk of going to the Democratic Party (pg. 63).” However, in 11 of the 12

elections the Enacted Map’s least Democratic district (SD-26) agrees with the majority of the simulations by electing a Republican. In only 1 of the 12 elections do the majority of his simulations produce 3 Democratic districts while the Enacted Plan produces only 2. SD-26 is less competitive (i.e. more Republican leaning) than the majority of simulations, but the inverse is also true of SD-27, which is competitive in many of the simulations and in a few rare cases elects a Republican but is more Democratic and always elects a Democrat in the Enacted Plan.

7.4 Granville-Wake Senate County Grouping

The Granville and Wake Senate county cluster contains 6 districts, SD-13, SD-14, SD-15, SD-16, SD-17, and SD-18.

Dr. Pegden’s analysis contend that the Enacted Plan is a statistical outlier. He states, “My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.000030% of all alternative districtings satisfying my districting criteria (in other words, 99.999969% are less optimized-for-partisanship) (pg. 30).”

The substantive difference in the expected Democratic seat share is as follows: The Enacted Map has an expected Democratic seats generated from the uniform swing analysis of 5.13 seats while the 25th percentile plan has an expected Democratic seats of 5.75. This leads to a substantive difference of 0.62 expected Democratic seats. Put another way, across 6 hypothetical elections of each district in the cluster, we would expect the Enacted Map to elect one fewer Democrat (meaning 5 rather than 6 in this cluster) than the 25th percentile simulation in approximately 3 of these 5 elections, on average. In other words, the difference across this range of electoral environments is Republicans picking up an additional seat roughly 3 in 5 times.

Dr. Mattingly’s presents simulations that contain four districts that are solidly Democratic in which no simulation nor the Enacted Plan produce a Republican-leaning seat (see Figure 6.2.4 in Dr. Mattingly’s report). The simulations also contain two seats (SD-13 and

SD-17) in which a majority of the simulations produce a Republican-leaning seat (4 of the 12 elections considered) and in other elections produce a Democratic-leaning seat (5 of the 12 elections considered). In some cases the majority of simulations in SD-13 and SD-17 diverge with one district being majority Republican and the other producing a majority of the simulations generating a Democratic district (3 of the 12 elections). In the most Republican district the Enacted Plan agrees with the majority of the simulations in 10 of the 12 elections considered and in the second most Republican district there is agreement in 9 of the 12 elections considered.

7.5 Iredell-Mecklenburg Senate County Grouping

The Iredell and Mecklenburg Senate county cluster contains 6 districts, SD-37, SD-38, SD-39, SD-40, SD-41, and SD-42.

Dr. Pegden’s analysis contend that the Enacted Plan is a statistical outlier. He states, ‘My theorems imply that the enacted districting is among the most optimized-for-partisanship 0.0057% of all alternative districtings satisfying my districting criteria (in other words, 99.9943% are less optimized-for-partisanship) (pg. 32).’

However, the substantive difference in the expected Democratic seat share is much smaller. The Enacted Map has an expected Democratic seats generated from the uniform swing analysis of 4.67 seats while the 25th percentile plan has an expected number of Democratic seats of 4.85. This leads to a substantive difference of 0.18 expected Democratic seats. In other words, across 5 hypothetical elections of each district in the cluster, we would expect the Enacted Map to elect one fewer Democrat (meaning 4 rather than 5 in this cluster) than the 25th percentile simulation in approximately 1 of these 5 elections, on average. Put another way, the difference across this range of electoral environments is Republicans picking up an additional seat roughly 1 in 5 times.

Dr. Mattingly’s simulations in this cluster contain four districts that are solidly Democratic in which no majority of his simulations nor the Enacted Plan produce a Republican-

leaning seat (see Figure 6.2.1 in Dr. Mattingly’s report). The simulations also contain one seat (SD-37) in which a majority of the simulations produce a heavily Republican-leaning seat in all 12 elections. The Enacted Plan is in total agreement with the majority of simulations in these districts. This leaves SD-41, which is a more competitive seat in the simulations. In 9 of the 12 elections considered the partisan outcome in the Enacted Plan matches the partisan outcome in the majority of the simulations by producing a majority of the two-party vote share for the Democratic candidate.

Appendix A: Curriculum Vitae

Michael Jay Barber

CONTACT INFORMATION

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ACADEMIC APPOINTMENTS

Brigham Young University, Provo, UT

August 2020 - present Associate Professor, Department of Political Science
2014 - July 2020 Assistant Professor, Department of Political Science
2014 - present Faculty Scholar, Center for the Study of Elections and Democracy

EDUCATION

Princeton University Department of Politics, Princeton, NJ

Ph.D., Politics, July 2014

- Advisors: Brandice Canes-Wrone, Nolan McCarty, and Kosuke Imai
- Dissertation: “Buying Representation: the Incentives, Ideology, and Influence of Campaign Contributions on American Politics”
- 2015 Carl Albert Award for Best Dissertation, Legislative Studies Section, American Political Science Association (APSA)

M.A., Politics, December 2011

Brigham Young University, Provo, UT

B.A., International Relations - Political Economy Focus, April, 2008

- *Cum Laude*

RESEARCH INTERESTS

American politics, congressional polarization, political ideology, campaign finance, survey research

PUBLICATIONS

19. “**Ideological Disagreement and Pre-emption in Municipal Policymaking**”
with Adam Dynes
Forthcoming at *American Journal of Political Science*
18. “**Comparing Campaign Finance and Vote Based Measures of Ideology**”
Forthcoming at *Journal of Politics*
17. “**The Participatory and Partisan Impacts of Mandatory Vote-by-Mail**”, with
John Holbein
Science Advances, 2020. Vol. 6, no. 35, DOI: 10.1126/sciadv.abc7685
16. “**Issue Politicization and Interest Group Campaign Contribution Strategies**”,
with Mandi Eatough
Journal of Politics, 2020. Vol. 82: No. 3, pp. 1008-1025

15. **“Campaign Contributions and Donors’ Policy Agreement with Presidential Candidates”**, with Brandice Canes-Wrone and Sharece Thrower
Presidential Studies Quarterly, 2019, 49 (4) 770–797
14. **“Conservatism in the Era of Trump”**, with Jeremy Pope
Perspectives on Politics, 2019, 17 (3) 719–736
13. **“Legislative Constraints on Executive Unilateralism in Separation of Powers Systems”**, with Alex Bolton and Sharece Thrower
Legislative Studies Quarterly, 2019, 44 (3) 515–548
Awarded the Jewell-Loewenberg Award for best article in the area of subnational politics published in *Legislative Studies Quarterly* in 2019
12. **“Electoral Competitiveness and Legislative Productivity”**, with Soren Schmidt
American Politics Research, 2019, 47 (4) 683–708
11. **“Does Party Trump Ideology? Disentangling Party and Ideology in America”**, with Jeremy Pope
American Political Science Review, 2019, 113 (1) 38–54
10. **“The Evolution of National Constitutions”**, with Scott Abramson
Quarterly Journal of Political Science, 2019, 14 (1) 89–114
9. **“Who is Ideological? Measuring Ideological Responses to Policy Questions in the American Public”**, with Jeremy Pope
The Forum: A Journal of Applied Research in Contemporary Politics, 2018, 16 (1) 97–122
8. **“Status Quo Bias in Ballot Wording”**, with David Gordon, Ryan Hill, and Joe Price
The Journal of Experimental Political Science, 2017, 4 (2) 151–160.
7. **“Ideologically Sophisticated Donors: Which Candidates Do Individual Contributors Finance?”**, with Brandice Canes-Wrone and Sharece Thrower
American Journal of Political Science, 2017, 61 (2) 271–288.
6. **“Gender Inequalities in Campaign Finance: A Regression Discontinuity Design”**, with Daniel Butler and Jessica Preece
Quarterly Journal of Political Science, 2016, Vol. 11, No. 2: 219–248.
5. **“Representing the Preferences of Donors, Partisans, and Voters in the U.S. Senate”**
Public Opinion Quarterly, 2016, 80: 225–249.
4. **“Donation Motivations: Testing Theories of Access and Ideology”**
Political Research Quarterly, 2016, 69 (1) 148–160.
3. **“Ideological Donors, Contribution Limits, and the Polarization of State Legislatures”**
Journal of Politics, 2016, 78 (1) 296–310.
2. **“Online Polls and Registration Based Sampling: A New Method for Pre-Election Polling”** with Quin Monson, Kelly Patterson and Chris Mann.
Political Analysis 2014, 22 (3) 321–335.
1. **“Causes and Consequences of Political Polarization”** In *Negotiating Agreement in Politics*. Jane Mansbridge and Cathie Jo Martin, eds., Washington, DC: American Political Science Association: 19–53. with Nolan McCarty. 2013.
 - Reprinted in *Solutions to Political Polarization in America*, Cambridge University Press. Nate Persily, eds. 2015
 - Reprinted in *Political Negotiation: A Handbook*, Brookings Institution Press. Jane Mansbridge and Cathie Jo Martin, eds. 2015

AVAILABLE WORKING PAPERS	“Misclassification and Bias in Predictions of Individual Ethnicity from Administrative Records” (Revise and Resubmit at <i>American Political Science Review</i>)
	“Taking Cues When You Don’t Care: Issue Importance and Partisan Cue Taking” with Jeremy Pope (Revise and Resubmit)
	“A Revolution of Rights in American Founding Documents” with Scott Abramson and Jeremy Pope (Conditionally Accepted)
	“410 Million Voting Records Show the Distribution of Turnout in America Today” with John Holbein (Revise and Resubmit)
	“Partisanship and Trolleyology” with Ryan Davis (Under Review)
	“Who’s the Partisan: Are Issues or Groups More Important to Partisanship?” with Jeremy Pope (Revise and Resubmit)
	“Race and Realignment in American Politics” with Jeremy Pope (Revise and Resubmit)
	“The Policy Preferences of Donors and Voters”
	“Estimating Neighborhood Effects on Turnout from Geocoded Voter Registration Records.” with Kosuke Imai
	“Super PAC Contributions in Congressional Elections”
WORKS IN PROGRESS	“Collaborative Study of Democracy and Politics” with Brandice Canes-Wrone, Gregory Huber, and Joshua Clinton
	“Preferences for Representational Styles in the American Public” with Ryan Davis and Adam Dynes
	“Representation and Issue Congruence in Congress” with Taylor Petersen
	“Education, Income, and the Vote for Trump” with Edie Ellison
INVITED PRESENTATIONS	“Are Mormons Breaking Up with Republicanism? The Unique Political Behavior of Mormons in the 2016 Presidential Election” <ul style="list-style-type: none">• Ivy League LDS Student Association Conference - Princeton University, November 2018, Princeton, NJ
	“Issue Politicization and Access-Oriented Giving: A Theory of PAC Contribution Behavior” <ul style="list-style-type: none">• Vanderbilt University, May 2017, Nashville, TN

“Lost in Issue Space? Measuring Levels of Ideology in the American Public”

- Yale University, April 2016, New Haven, CT

“The Incentives, Ideology, and Influence of Campaign Donors in American Politics”

- University of Oklahoma, April 2016, Norman, OK

“Lost in Issue Space? Measuring Levels of Ideology in the American Public”

- University of Wisconsin - Madison, February 2016, Madison, WI

“Polarization and Campaign Contributors: Motivations, Ideology, and Policy”

- Hewlett Foundation Conference on Lobbying and Campaign Finance, October 2014, Palo Alto, CA

“Ideological Donors, Contribution Limits, and the Polarization of State Legislatures”

- Bipartisan Policy Center Meeting on Party Polarization and Campaign Finance, September 2014, Washington, DC

“Representing the Preferences of Donors, Partisans, and Voters in the U.S. Senate”

- Yale Center for the Study of American Politics Conference, May 2014, New Haven, CT

CONFERENCE
PRESENTATIONS

Washington D.C. Political Economy Conference (PECO):

- 2017 discussant

American Political Science Association (APSA) Annual Meeting:

- 2014 participant and discussant, 2015 participant, 2016 participant, 2017 participant, 2018 participant

Midwest Political Science Association (MPSA) Annual Meeting:

- 2015 participant and discussant, 2016 participant and discussant, 2018 participant

Southern Political Science Association (SPSA) Annual Meeting:

- 2015 participant and discussant, 2016 participant and discussant, 2017 participant

TEACHING
EXPERIENCE

Poli 315: Congress and the Legislative Process

- Fall 2014, Winter 2015, Fall 2015, Winter 2016, Summer 2017

Poli 328: Quantitative Analysis

- Winter 2017, Fall 2017, Fall 2019, Winter 2020, Fall 2020, Winter 2021

Poli 410: Undergraduate Research Seminar in American Politics

- Fall 2014, Winter 2015, Fall 2015, Winter 2016, Summer 2017

AWARDS AND
GRANTS

2019 BYU Mentored Environment Grant (MEG), American Ideology Project, \$30,000

2017 BYU Political Science Teacher of the Year Award

2017 BYU Mentored Environment Grant (MEG), Funding American Democracy Project, \$20,000

2016 BYU Political Science Department, Political Ideology and President Trump (with Jeremy Pope), \$7,500

2016 BYU Office of Research and Creative Activities (ORCA) Student Mentored Grant x 3

- Hayden Galloway, Jennica Peterson, Rebecca Shuel

2015 BYU Office of Research and Creative Activities (ORCA) Student Mentored Grant x 3

- Michael-Sean Covey, Hayden Galloway, Sean Stephenson

2015 BYU Student Experiential Learning Grant, American Founding Comparative Constitutions Project (with Jeremy Pope), \$9,000

2015 BYU Social Science College Research Grant, \$5,000

2014 BYU Political Science Department, 2014 Washington DC Mayoral Pre-Election Poll (with Quin Monson and Kelly Patterson), \$3,000

2014 BYU Social Science College Award, 2014 Washington DC Mayoral Pre-Election Poll (with Quin Monson and Kelly Patterson), \$3,000

2014 BYU Center for the Study of Elections and Democracy, 2014 Washington DC Mayoral Pre-Election Poll (with Quin Monson and Kelly Patterson), \$2,000

2012 Princeton Center for the Study of Democratic Politics Dissertation Improvement Grant, \$5,000

2011 Princeton Mamdouha S. Bobst Center for Peace and Justice Dissertation Research Grant, \$5,000

2011 Princeton Political Economy Research Grant, \$1,500

OTHER SCHOLARLY
ACTIVITIES

Expert Witness in Nancy Carola Jacobson, et al., Plaintiffs, vs. Laurel M. Lee, et al., Defendants. Case No. 4:18-cv-00262 MW-CAS (U.S. District Court for the Northern District of Florida)

Expert Witness in Common Cause, et al., Plaintiffs, vs. LEWIS, et al., Defendants. Case No. 18-CVS-14001 (Wake County, North Carolina)

Expert Witness in Kelvin Jones, et al., Plaintiffs, v. Ron DeSantis, et al., Defendants, Consolidated Case No. 4:19-cv-300 (U.S. District Court for the Northern District of Florida)

Expert Witness in Community Success Initiative, et al., Plaintiffs, v. Timothy K. Moore, et al., Defendants, Case No. 19-cv-15941 (Wake County, North Carolina)

Expert Witness in Richard Rose et al., Plaintiffs, v. Brad Raffensperger, Defendant, Civil Action No. 1:20-cv-02921-SDG (U.S. District Court for the Northern District of Georgia)

Georgia Coalition for the People’s Agenda, Inc., et. al., Plaintiffs, v. Brad Raffensberger, Defendant. Civil Action No. 1:18-cv-04727-ELR (U.S. District Court for the Northern District of Georgia)

Expert Witness in Alabama, et al., Plaintiffs, v. United States Department of Commerce; Gina Raimondo, et al., Defendants. Case No. CASE No. 3:21-cv-00211-RAH-ECM-KCN (U.S. District Court for the Middle District of Alabama Eastern Division)

Expert Witness in League of Women Voters of Ohio, et al., Relators, v. Ohio Redistricting Commission, et al., Respondents. Case No. 2021-1193 (Supreme Court of Ohio)

ADDITIONAL
TRAINING

EITM 2012 at Princeton University - Participant and Graduate Student Coordinator

COMPUTER
SKILLS

Statistical Programs: R, Stata, SPSS, parallel computing

Updated December 22, 2021

STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
21 CVS 015426

NORTH CAROLINA LEAGUE OF CONSER-
VATION VOTERS, INC., et al.,

REBECCA HARPER, et al.,

COMMON CAUSE,

Plaintiffs,

v.

REPRESENTATIVE DESTIN HALL, in his offi-
cial capacity as Chair of the House Standing Com-
mittee on Redistricting, et al.

Defendants.

**EXPERT REPORT OF
JAMES L. LELOUDIS II**

PLAINTIFFS'
EXHIBIT
1486

Race and Voting Rights in North Carolina, 1860-2021

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I. Summary of Opinions

My name is James L. Leloudis II. I have taught history at the University of North Carolina at Chapel Hill for thirty-one years, with a focus on North Carolina and the American South. I have published extensively on the history of the state and region, and my scholarship has won awards from the nation's leading professional associations in my field.

I was retained by the Plaintiffs in this case to assess whether there is a history of racial discrimination in North Carolina, specifically with respect to the regulation of elections and legislative redistricting. Based on my forty years of researching, writing, and teaching in this field, and having reviewed published works by historians of race and politics in the American South, newspapers from the time period covered by this declaration, the public laws of North Carolina, archival sources for individuals and institutions, and reports from various federal and state agencies, it is my opinion that:

- North Carolina has a long and cyclical history of struggle over minority voting rights and political participation, from the time of Reconstruction to the present day.
- When minority rights have been constrained, North Carolina's state government has been decidedly unresponsive to minority concerns and interests related to social and economic policy. That lack of responsiveness to Blacks and, in recent years, a rapidly growing population of Hispanics, has perpetuated minority disadvantages in employment and education, further hindering the ability of minority populations to participate fully and freely in the political process.¹
- Over the last century and a half, North Carolina lawmakers have employed a variety of measures to limit the rights of racial and ethnic minorities to register, to vote, and to participate in the democratic process. These measures have included vigilante violence, a literacy test and poll tax, and a host of other regulations regarding the preparation of ballots, procedures for challenging electors' right to register and to vote, and election monitoring by partisan poll watchers.
- During the late 1950s and 1960s, lawmakers acted to limit the political participation of newly enfranchised Black voters by switching from ward to at-large representation in county and municipal governments, increasing the number of multi-member districts in the state legislature, introducing numbered-seat plans for legislative elections, and outlawing single-shot voting. After the federal courts began to enforce the Voting Rights Act of 1965 and limited those practices, extreme partisan gerrymandering and racial vote dilution became the tactics of choice for limiting minority voting rights and political participation.
- Actions by the North Carolina legislature in the current redistricting cycle fit the pattern of conservative backlash to minority gains. With a rising minority electorate, lawmakers have created district maps that they claim are colorblind; but in fact, the maps reproduce

¹ The terms 'Hispanic' and 'Latino' are often used interchangeably to describe immigrants from Mexico, Cuba, and Central and South America. I will use 'Hispanic' throughout this report because that is the term most often employed by the U.S. Census Bureau, the North Carolina State Board of Elections, and other government agencies and researchers to characterize voters who have ties to those regions.

familiar forms of racial discrimination. The legislature is acting with no fear of repercussion in part because this is the first redistricting cycle without the preclearance protections of the Voting Rights Act of 1965.

- In the context of North Carolina’s political history, race and politics overlap, to the extent that partisan gerrymandering many times acts as a cover for racial discrimination in redistricting.

Each of these opinions is explained and supported in detail below.

II. Background and Qualifications

I am employed as Professor of History at the University of North Carolina at Chapel Hill. I received a B.A., with highest honors, from the University of North Carolina at Chapel Hill (1977), an M.A. from Northwestern University (1979), and a Ph.D. from the University of North Carolina at Chapel Hill (1989). My primary training was in the history of the United States, with specialization in the history of race, politics, labor, and reform in the nineteenth- and twentieth-century American South. For the past thirty-one years I have taught undergraduate and graduate courses in my area of specialization. I have published four books, nine articles, and numerous book reviews. I have also made more than fifty presentations to academic and lay audiences.

My scholarship has won a number of prestigious awards, including the Louis Pelzer Prize for the best essay by a graduate student (1982, Organization for American Historians), the Philip Taft Labor History Award for the best book on the history of labor (1988, New York State School of Industrial and Labor Relations, Cornell University), the Merle Curti Award for the best book on American social history (1988, Organization of American Historians), the Albert J. Beveridge Award for the best book on the history of the United States, Latin America, or Canada (1988, American Historical Association), the Mayflower Cup for the best non-fiction work on North Carolina (1996, North Carolina Literary and Historical Association), and the North Caroliniana Society Award for the best work on North Carolina history (2010).

In 1982, as a graduate student in history at the University of North Carolina at Chapel Hill, I conducted research that became part of the expert testimony provided by Professor Harry Watson in *Gingles v. Edmisten*, 590 F. Supp. 345 (1984).² In 2014-2016, I provided expert testimony for the plaintiffs in *North Carolina State Conference of the NAACP v. McCrory*, 182 F. Supp. 3d 320 (M.D.N.C. 2016), and *North Carolina State Conference of the NAACP v. McCrory*, 831 F.3d 204 (4th Cir. 2016). In 2017, I was retained as an expert witness for the plaintiffs in *Hall v. Jones County Board of Commissioners*, 4:17-cv-00018 (E.D.N.C. July 5, 2017), but the case was settled before I submitted a report. I recently served as an expert witness for the plaintiffs in *Holmes v. Moore*, 270 N.C. App. 7 (Wake Cnty. Sup. Ct. 2019), and I am currently an expert witness for the plaintiffs in *North Carolina State Conference of the NAACP v. Cooper*, 1:18-cv-01034 (M.D.N.C. Aug. 17, 2021).

I produced this report under contract with the Southern Coalition for Social Justice and Hogan Lovells, representing Common Cause. My billing rate is \$300/hour, with total payment not

² *Gingles v. Edmisten*, 590 F. Supp. 345 (E.D.N.C. 1984).

to exceed \$20,000, unless approved by counsel. Payment is not contingent on reaching specific conclusions as a result of my research, or on the outcome of my findings.

A detailed record of my professional qualifications and publications is set forth in the curriculum vitae appended to this report, which I prepared and know to be accurate.

III. Materials Reviewed

I have conducted qualitative research on the history of race, voting rights, voter suppression, and redistricting in North Carolina, from the end of the Civil War to the present. Sources that I have consulted include published works by historians of race and politics in the American South, newspapers from the time period covered by this declaration, the public laws of North Carolina, archival sources for individuals and institutions, court cases, and reports from various federal and state agencies. All of the sources relied upon for this report are footnoted and fully cited herein, and also listed in my bibliography.

IV. Scope

This report examines the historical context for recent attempts to limit minority citizens' voting rights and ability to elect candidates of their choice. It details more than a century and a half of fierce conflict between efforts to expand access to the ballot box for all citizens, especially Blacks, and campaigns to impose restrictions on the franchise and minority participation in democratic governance. The report begins with the Civil War and Reconstruction era and concludes with today's battles over the regulation of elections and both legislative and municipal redistricting.

V. Introduction – Democracy, Racial Equality, and the Rights of Citizenship

Today, Americans are sharply divided over questions of voting rights and minority political participation. To understand how we came to this impasse, we must look back to 1865 and the end of America's Civil War. The Union had been preserved and the Confederacy was in ashes, but the sacrifice of nearly three quarters of a million lives had not decided the republic's future. Would there be a "new birth of freedom," as Abraham Lincoln had imagined in his Gettysburg Address, or would the nation be reconstituted as a "white man's government," the outcome preferred by his successor, Andrew Johnson? Between 1865 and 1870, self-styled "radicals" in Lincoln's Republican Party answered that question with three constitutional amendments that historians have described as America's "Second Founding."³

The Thirteenth Amendment (1865) abolished slavery and guaranteed the liberty of four million Black men, women, and children who had been enslaved in the South. The Fourteenth (1868) granted them citizenship by birthright and established the principle of "equal protection of the laws." And the Fifteenth (1870) forbade the states from denying or abridging male citizens' right to vote "on account of race, color, or previous condition of servitude."

These constitutional guarantees tied the fate of American democracy to the citizenship rights of a newly emancipated Black minority and their descendants. For one hundred and fifty

³ Carmichael, *Lincoln's Gettysburg Address*, 72, and Foner, *Second Founding*. Johnson spoke often of a "white man's government"; for the example used here, see Speech on the Restoration of State Government, January 21, 1864, in Graf and Haskins, eds., *Papers of Andrew Johnson*, vol. 6, 577-78.

years, the exercise of those rights and the connection between racial justice and democratic governance have been the centermost issues in American politics. This has been particularly true for the right to vote.

In North Carolina, battles over the political rights of citizenship have played out through cycles of emancipatory politics and conservative retrenchment. In a pattern repeated multiple times, Blacks and their allies have formed political movements to end racial exploitation and claim their rights as equal citizens. They have done so not only to advance their own interests but to promote participatory democracy more generally and to make government responsive to the needs of all its people. Invariably, these efforts have met resistance from conservative lawmakers who erected safeguards – or what advocates of enfranchisement called barriers – around the ballot box. Conservatives have been remarkably creative in that work. When one restriction was struck down in the courts or through protest and political mobilization, they quickly invented another. Sometimes, they spoke in overtly racial terms and implemented reforms through violent means. At other times, they cast franchise restrictions in the more euphemistic language of fraud and corruption. Consistently, they presented strict regulation of the right to vote as a means of ensuring "good order" and "good government."

Some pundits have suggested that the fight over ballots and democratic governance represents little more than competition between Democrats and Republicans to reshape the electorate and gain partisan advantage. No doubt the contest has been intensely partisan, but the ideological realignment of the Democratic and Republican parties reminds us that something far more significant has been at stake. In the decades immediately after the Civil War, Conservatives called themselves Democrats, campaigned for limited social provision, and took the vote from Black men, while Republicans identified as social progressives, championed an expansive and generous state, and fought for equality at the ballot box and in the halls of government. Beginning in the mid twentieth century, these positions flipped. Grassroots activists and national leaders reshaped the Democratic Party to support the advancement of civil rights, while the Republican Party became overwhelmingly white, sought to limit federal involvement in state and local affairs, and adopted a restrictive stance toward citizenship and its attendant rights.

Through all these changes, one fact has remained constant. Discrimination on the basis of color has been white conservatives' primary means of securing both political advantage over minority citizens and their progressive white allies. That was glaringly obvious in 1900, when Democrats amended North Carolina's constitution in order to disenfranchise Black men. It is also evident today in Republicans' attempts to restrict minority citizens' voting rights and in their use of racially discriminatory redistricting practices and partisan gerrymandering to consolidate control over state government and public policy. This politics of race threatens the fundamental principles of our democracy. When racial equality has been denied, and when the consideration of race has been used for partisan gain and the exclusion of minority electors from the democratic polity, the result has been a society in which vast numbers of citizens – not only racial minorities – have had their right to fair and effective representation compromised.

Understood in this historical context, today's conflicts over minority political rights are reminders that we live in a time every bit as consequential as the flush of reform that followed the Civil War. Then, as now, democracy was imperiled by divisive racial appeals, violent expressions of white supremacy, and efforts to roll back newly won citizenship. In such a moment, history has clarifying power.

VI. War, Emancipation, and Reconstruction

A. Civil War to the Black Code

On the eve of the Civil War, North Carolina's government was an oligarchy, not a democracy. The state constitution gave political advantage to a slaveholding elite concentrated in the eastern counties of the coastal plain. Seats in the state Senate were apportioned among fifty districts defined by the value of the taxes that residents paid into state coffers; in the House of Representatives, apportionment was governed by the "federal ratio," which counted slaves as three-fifths of a person. These provisions, together with property requirements for election to high state office, effectively removed a large majority of middling and poor whites from governance of the state and their local communities. Free Black men with property had been entitled to vote under the state constitution of 1776, but that right was rescinded in 1835 by a constitutional amendment. This was the first time in the state's history that the franchise was restricted on the basis of race. Political leaders framed Black disenfranchisement as a necessary response to Nat Turner's rebellion in 1831 and the founding of the American Anti-Slavery Society in 1833. They saw it as protection against the threat of slave insurrections encouraged by white abolitionists and their perceived agents, free Black men exercising the rights of citizenship.⁴

By 1860 more than 85 percent of lawmakers in the North Carolina General Assembly were slaveholders, a higher percentage than in any other southern state. Wealth was closely held by this elite, who constituted roughly seven percent of the state's population of one million and resided primarily in the east. These men also maintained a firm grip on political power. Indeed, the principles of oligarchy were written into the state's constitution. At the local level, voters elected only two county officials: a sheriff and a clerk of court. The power to govern rested in the hands of justices of the peace who were nominated by members of the state House of Representatives and commissioned for life terms by the governor.⁵

North Carolina's antebellum oligarchs did not rule with unchallenged authority. In the 1850s, they faced political revolt by white yeoman farmers in the central Piedmont and the western mountain region who called for removal of property requirements for the right to vote for state senators and demanded an *ad valorem* tax on slaveholders' human property – more than three hundred and thirty thousand Black men, women, and children. Dissenters won the first contest by popular referendum on free suffrage in 1856, and they prevailed in the second when delegates to the state secession convention gave ground on taxation for fear that in war with the North, ordinary whites "would not lift a finger to protect rich men's negroes."⁶

Most of North Carolina remained behind Confederate lines until the final days of the Civil War, and for that reason the state bore a Herculean share of hardship and deprivation. By 1863, North Carolina troops were deserting by the thousands. Many did so with support from the Order of the Heroes of America, an underground network of Unionists and Quaker pacifists. Food riots broke out in the state's largest towns, and in the 1864 gubernatorial election, William Woods Holden, a self-made newspaper publisher, ran on a peace platform, arguing that a negotiated return

⁴ Escott, *Many Excellent People*, 3-31, and Morris, "Panic and Reprisal," 52.

⁵ On antebellum North Carolina's economic and political structure, see Escott, *Many Excellent People*, chapt. 1. The figure on slaveholders in the state legislature is from p. 15.

⁶ *Ibid.*, 28-30, and 34.

to the Union offered North Carolina's only chance to "save human life" and "prevent the impoverishment and ruin of our people." Holden lost to incumbent governor Zebulon B. Vance by 58,070 to 14,491 votes, but his candidacy exposed a deep rift between the state's wealthy rulers and a significant minority of whites – twenty percent of the electorate – who had "tired of the rich man's war & poor man's fight."⁷

As defeat grew imminent, Calvin H. Wiley, a distinguished educator and publicist, warned of the insurrection that collapse of the Confederacy and the end of slavery would unleash. "The negroes [and] the meanest class of white people would constitute a majority," he warned, and those "who were once socially & politically degraded" would make common cause and rise up in rebellion. To forestall this political realignment, self-styled Conservatives took advantage of President Andrew Johnson's desire for a quick reconstruction of the South by acting decisively to retain political power and dominion over Black labor through legislative action.⁸

In the spring of 1866, Conservatives in the General Assembly passed an Act Concerning Negroes and Persons of Color, known informally as the Black Code. The act sought to keep Blacks subjugated and to "fix their status permanently" by attaching to them the same "burthen and disabilities" imposed on free persons of color by antebellum law.⁹

Under the Black Code, freedmen could not vote, carry weapons without a license, migrate into the state, return to the state after more than ninety days' absence, or give testimony against a white person in a court of law, except by consent of the white defendant. The law also gave sheriffs broad authority to prosecute freedmen for vagrancy, a crime punishable by hiring out to "service and labor."¹⁰

B. A New State Constitution and Expansion of the Franchise

The Republican majority in the U.S. Congress watched developments in North Carolina and elsewhere in the South with growing concern, particularly for the rights of freedmen. Thaddeus Stevens, congressman from Pennsylvania, warned North Carolina Conservatives that they would "have no peace until a negro is free as a white man . . . and is treated as a white man!" To that end, Congress approved the Fourteenth Amendment to the federal Constitution in June 1866 and tendered it for ratification by the states. The amendment gave citizenship to freedmen and struck directly at the Black Code by guaranteeing all citizens equal protection under the law and forbidding the states to deprive any citizen of life, liberty, or property without due process.¹¹

In North Carolina, as in all other southern states except Tennessee, Conservative lawmakers stood firm. They refused to ratify an amendment that, in their view, turned "the slave, master, and the master, slave." Congress answered that defiance by asserting its authority once more, this time through passage of the Military Reconstruction Act of 1867. The act ordered the continued military occupation of the South, instructed army commanders to organize conventions that would

⁷ Escott, *Many Excellent People*, 44 and 49, and Raper, *William W. Holden*, 51. On internal dissent during the Civil War, see also Durrill, *Uncivil War*.

⁸ Escott, *Many Excellent People*, 89-90.

⁹ Ibid., 130, and *Public Laws of North Carolina, 1865-66*, chapt. 40. For North Carolina law governing slaves and free Blacks before the Civil War, see *Revised Code of North Carolina, 1854*, chapt. 107. See also Browning, "North Carolina Black Code."

¹⁰ *Public Laws of North Carolina, 1865-66*, chapt. 40.

¹¹ Raper, *William W. Holden*, 91.

rewrite the southern states' constitutions, and granted all adult male citizens – "of whatever race, or color, or previous condition" – the right to vote for convention delegates.¹²

This extension of a limited franchise to Black men radically rearranged the political landscape in North Carolina. It was now possible that an alliance between freedmen and dissenting whites could constitute a political majority. With that end in view, opponents of Conservative rule gathered in Raleigh in March 1867 to establish a biracial state Republican Party. William Holden, the Confederate peace candidate who had served briefly as North Carolina's provisional governor after the South's surrender, stood at the party's head and directed efforts to build a statewide organization using networks established during wartime by the Heroes of America and by the Union League in its campaigns to mobilize freedmen.

When voters went to the polls to elect delegates to the constitutional convention, leaders of the old elite were stunned: Republicans won 107 of the convention's 120 seats. Of that majority, fifteen were Black, including religious and political leader James W. Hood, who had presided over the first political convention of Blacks in North Carolina in late 1865. At that gathering, 117 delegates, most of them former slaves, met in Raleigh to petition white leaders for "adequate compensation for our labor . . . education for our children . . . [and abolition of] all the oppressive laws which make unjust discriminations on account of race or color."¹³

During the winter of 1867-68, delegates to the constitutional convention crafted a document that defined a thoroughly democratic polity. The proposed constitution guaranteed universal manhood suffrage, removed all property qualifications for election to high state office, and at the county level put local government in the hands of elected commissioners rather than appointed justices of the peace. North Carolina would no longer be "a republic erected on race and property." The constitution of 1868 also expanded the role of the state in advancing the welfare of its citizens by levying a capitation tax to fund education and "support of the poor," mandating for the first time in North Carolina history a state system of free public schools, and establishing a state board of public charities to make "beneficent provision for the poor, the unfortunate and orphan."¹⁴

Black delegates to the convention knew that the success of these reforms would depend on safeguarding broad access to the franchise and appealed for the forceful defense of voting rights. The convention passed an ordinance to criminalize efforts to intimidate "any qualified elector of this State . . . by violence or bribery, or by threats of violence or injury to his person or property."¹⁵

In May 1868, voters ratified the constitution, elected William Holden governor, and gave the biracial Republican Party six of North Carolina's seven Congressional seats and control of more than two-thirds of the seats in the state legislature. The scale of the Republicans' victory reflected the fact that in North Carolina the percentage of whites who crossed the color line and made common cause with former bondsmen was larger than in any other southern state.¹⁶

¹² Escott, *Many Excellent People*, 135, and *Statutes at Large, Treaties, and Proclamations*, 429. Tennessee had been readmitted to the Union in 1866.

¹³ Escott, *Many Excellent People*, 125 and 142; Bernstein, "Participation of Negro Delegates in the Constitutional Convention of 1868," 391; and Hamilton, *Reconstruction in North Carolina*, 240-46.

¹⁴ *Constitution of the State of North Carolina, 1868*, Article V, sec. 2; Article VI, Sec. 1; Article VII, Sec. 1; and Article XI, sec. 7; and Orth, "North Carolina Constitutional History," 1779.

¹⁵ *Constitution of North Carolina, 1868*, Ordinances, chapt. XXXVI.

¹⁶ Raper, *William W. Holden*, 101, and Foner, *Reconstruction*, 332.

That alliance and the democratic society it envisioned were startling, even by today's standards. In 1869, twenty Black political leaders from North Carolina traveled to Washington, D.C. to attend the Colored National Labor Convention, where they joined nearly two hundred other delegates from points across the South and throughout the nation. James H. Harris, a Black lawmaker and one of the founders of the North Carolina Republican Party, was elected president of the convention. Over the next five days, the delegates drafted a manifesto for a future built upon racial cooperation, labor solidarity, and respect for the rights of women and immigrants. The document called for unions organized "without regard to color"; extended a "welcome hand to the free immigration of labor of all nationalities"; and implored the states to fund "free school system[s] that know no distinction . . . on account of race, color, sex, creed or previous condition." These things, the manifesto proclaimed, would make the "whole people of this land the wealthiest and happiest on the face of the globe."¹⁷

C. Klan Violence and "Redemption"

Historian Paul Escott writes that North Carolina's Republican Party "offered a new and vibrant democracy. It seemed inspired with a mission: to open up North Carolina's . . . politics and social system." But as he observes, the party's Conservative rivals were determined to make race, not democracy, the "central question." They described Republicans as a "mongrel mob" spawned by "negro suffrage and social disorder," and they warned non-elite whites of the loss of racial privilege. "IT IS IN THE POOR MAN'S HOUSE," the editor of the *Wilmington Journal* railed, "THAT THE NEGRO WILL ENFORCE HIS EQUALITY."¹⁸

Such provocations struck deep chords of sentiment in a society that had been organized around racial division for more than two hundred years. But in the new order, words alone could not loosen the Republicans' hold on power. To strike the crippling blow, Conservatives turned to the Ku Klux Klan and vigilante violence. The Klan was first organized in Tennessee in 1868 and subsequently spread across the South. In North Carolina, its leader was one of the Conservatives' own: William L. Saunders, a former Confederate colonel and later a trustee of the state university and secretary of state.

The Klan's masked nightriders committed "every degree of atrocity; burning houses, whipping men and women, beating with clubs, shooting, cutting, and other methods of injuring and insult." In Graham, the seat of Alamance County, they murdered Wyatt Outlaw, a Black town commissioner and constable, and hung his body from a tree in the public square; and in Caswell County, Klansmen lured state senator John W. Stephens, a white Republican, into the basement of the county courthouse, where they beat and stabbed him to death.¹⁹

Violence occurred in all parts of the state, but as the murders of Outlaw and Stephens attest, backlash against Black political power was especially fierce in the central Piedmont, where the Klan aimed to intimidate not only Black voters, but also the large number of dissenting whites who had crossed the race line. As one Klan leader explained, he and his compatriots aimed not to

¹⁷ *Proceedings of the Colored National Labor Convention*, 4 and 11-12.

¹⁸ Escott, *Many Excellent People*, 145-48 and 151.

¹⁹ Raper, *William W. Holden*, 160.

restore "a white man's government only, but – mark the phrase – an *intelligent* white man's government."²⁰

On July 8, 1870, Governor Holden declared Alamance and Caswell Counties to be in open insurrection and ordered the state militia to suppress the Klan and arrest its leaders. That move quelled the worst violence but gave Holden's Conservative opponents the issue they needed to win back control of the General Assembly in the fall election. In 1871, Conservatives successfully impeached and removed Holden from office on charges of unlawfully suspending the prisoners' right of habeas corpus.²¹

From there, the democratic experiment of Reconstruction rapidly unwound. White northerners, weary of a decade of struggle with the South, had little will to continue a states' rights battle with their neighbors. Slavery had been abolished and secession, punished. That was enough for most whites, who found it perfectly consistent to hate the institution of slavery and to despise the slave with equal passion. For a majority, racial equality had never been a part of the Civil War's purpose. The last federal troops left North Carolina in 1877, a year after Conservatives – now calling themselves Democrats – elected Zebulon B. Vance Governor, a post that he had held for two terms during the Civil War. Across the state, Democrats celebrated "redemption" from what they had long described as the "unwise . . . doctrine of universal equality."²²

In an effort to secure their victory, white Democrats abolished elected county government, returned authority to appointed justices of the peace, and limited appointed offices to whites only. But continued Black political participation at the state level sustained a competitive two-party system. White Democrats never polled more than 54 percent of the gubernatorial vote, and between 1877 and 1900, forty-three Black lawmakers served in the state House of Representatives, eleven served in the state Senate, and four served in the U.S. House of Representatives.²³

D. New Forms of Economic Subjugation

Economic change swept through rural North Carolina in the decades after Reconstruction as an emerging merchant class pressed freedmen and white yeoman farmers into commercial production. The result was the notorious system of sharecropping that turned once-independent whites into debtors and locked Blacks in virtual peonage. Each spring, sharecroppers took out loans in the form of the seeds, tools, and supplies they needed in order to plant the year's crop. To ensure repayment – often at interest rates as high as 50 percent – merchants demanded that their clients grow cotton or tobacco, which could be sold readily for cash. As farmers produced more of these cash crops, prices fell and rural families spiraled downward into debt. Whites who owned their land sometimes managed to escape this trap, but Blacks – the vast majority of whom were landless and had to pay rent to landlords as well as interest to merchants – had no recourse. Black sharecroppers often ended the agricultural year with no profit and were unable to accumulate wealth. This process of immiseration repeated itself from generation to generation and produced enduring poverty. In eastern North Carolina, where sharecropping had dominated the agricultural economy,

²⁰ Hamilton, ed., *Papers of Randolph Abbott Shotwell*, vol. 2, 376.

²¹ Ibid., chaps. 8-9.

²² Escott, *Many Excellent People*, 147.

²³ Crow, "Cracking the Solid South," 335, and Escott, *Many Excellent People*, 181. On North Carolina's Black congressmen, see E. Anderson, *Race and Politics in North Carolina, 1872-1901*.

the effects could still be seen a century later, when Blacks' per capita income in the region was as low as 22 percent of that of whites.²⁴

Desperation and resentment over a new economic order that rewarded manipulators of credit more than cultivators of the land led farmers into revolt. Whites joined the Southern Farmers Alliance, first organized in Texas and then spread throughout the South by means of local chapters, and Blacks affiliated with a parallel organization, the Colored Farmers Alliance. In 1892, these groups sought redress through the political process. Blacks remained true to the Republican Party, while whites, calling themselves Populists, bolted from the Democratic Party – controlled by the state's economic elite – to the new national People's Party. The results were disastrous for the Populists. In the governor's race, the Democratic candidate won 48.3 percent of the vote, while the Republican candidate received 33.8 percent and the Populist candidate trailed with 17.04 percent. These numbers contained a lesson that was obvious to voters who were less than a generation removed from the biracial politics of Reconstruction. Divided, the dissidents were all but certain to lose; united, they could challenge Democratic power.²⁵

VII. Fusion Politics and a New Campaign for White Supremacy

A. Biracial Alliance, Electoral Reform, and Investment in Social Provision

In 1894, white Populists and Black Republicans in North Carolina forged a political partnership under the banner of "Fusion" and ran a historic joint slate of candidates. The logic of that move was clear and compelling. As one Populist explained, "We can join with others who agree with us and win a great victory." This sentiment also appealed to skilled artisans and factory laborers, Black and white, who during the 1880s had rallied to the Knights of Labor and embraced the organization's call for interracial cooperation and class solidarity. On Election Day, Fusion candidates won 116 of the 170 seats in the North Carolina legislature. On the local level, in 1894 and 1896, they also elected more than one thousand Black officials, including county commissioners, deputy sheriffs, school committeemen, and magistrates.²⁶

A commitment to fair play and democracy animated the Fusion legislature. Lawmakers capped interest rates at 6 percent, a godsend for cash-strapped farmers who relied on credit to survive; shifted the weight of taxation from individuals to corporations; and restored elected local government, a postwar reform that Democrats had reversed after their return to power in the 1870s. In addition, the legislature made new investments in public services that Democrats had starved for resources, including the state penitentiary, state schools for deaf and blind children, a state-supported home for Black orphans, and state mental asylums.²⁷

Most important, Fusion legislators also revised state election law with the aim of guaranteeing full and fair access to the franchise:

²⁴ Petty, *Standing Their Ground*, and Goldfield, *Still Fighting the Civil War*, 277-78.

²⁵ Beckel, *Radical Reform*, 135-77, and North Carolina Governor, 1896, <<http://bit.ly/32oHPk>>, September 5, 2019.

²⁶ On local elections, see Escott, *Many Excellent People*, 247, and Gershenhorn, "Rise and Fall of Fusion Politics in North Carolina," 4.

²⁷ Kousser, *Shaping of Southern Politics*, 186, and *Public Laws and Resolutions of the State of North Carolina, Session of 1895*, chaps. 69, 73, 116, 135, 174, 183, 219, 275, 348.

- The revised law required that the clerk of the superior court in every county lay out compact precincts "so as to provide, as near as may be, one separate place of voting for every three hundred and fifty electors." The clerks were also instructed to publish the details of precinct boundaries and polling places in local newspapers and to post that information in public places. In a rural state in which population was widely dispersed, these provisions ensured that neither travel nor lack of public notice would be an impediment to voting. Legislators revisited the law in 1897 to provide additional protection for the opportunity as well as the right to cast a ballot. They stipulated that every elector was "entitled," without penalty, "to absent himself from service or employment" for sufficient time to register and to vote.²⁸
- To safeguard impartiality in voter registration and the supervision of elections, the law gave clerks of court – who were elected officials, and therefore accountable to voters – the authority to appoint in every precinct one registrar and one election judge from "each political party of the state." Prior to this time, that responsibility had belonged to county officers who owed their appointment and their loyalty to the majority party in the legislature.²⁹
- The law also criminalized various forms of physical and economic intimidation. It specified that "no regimental, battalion or company muster shall be called or directed on election day, nor shall armed men assemble on the day of election." In addition, any person who attempted "by force and violence" to "break up or stay any election" was guilty of a misdemeanor, punishable by imprisonment and a fine of up to one hundred dollars. Similar penalties applied to "any person who shall discharge from employment, withdraw patronage from, or otherwise injure, threaten, oppress, or attempt to intimidate, any qualified voter."³⁰
- The law sought to limit frivolous and obstructive challenges to voter eligibility and the legality of ballots cast by presuming the truthfulness of citizens' declarations. Challenges were allowed only on a specified day prior to an election, at which time registration books were opened for public review, and challengers were required to present proof that an elector had withheld or provided false information at the time of registration. Otherwise, the law treated "entry of the name, age, residence, and date of registration of any person by the registrar, upon the registration book of a precinct, [as] presumptive evidence of the regularity of such registration, the truth of the facts stated, and the right of such person to register and to vote at such precinct."³¹
- The law accommodated illiterate voters – 23 percent of whites and 60 percent of Blacks – by authorizing political parties to print ballots on colored paper and to mark them with party insignia, an old practice that Democrats had abolished. In this period, before the introduction of official, non-partisan ballots and secret voting, electors received ballots from the party, or parties, they favored, marked through the names of any candidates they did not support, and handed their ballots to an election judge for deposit in boxes labeled with the office or group of offices for which they were voting. The use of color coding and party

²⁸ *Public Laws and Resolutions, Session of 1895*, chap. 159, sec. 5, and *Public Laws and Resolutions, Session of 1897*, chap. 185, sec. 72.

²⁹ *Public Laws and Resolutions, Session of 1895*, chap. 159, sec. 7.

³⁰ *Ibid.*, chap. 159, secs. 38, 39, and 41.

³¹ *Ibid.*, chap. 159, secs. 10-12 and 14.

insignia helped illiterate voters correctly identify and cast the ballot of the party they favored. To protect voters from fraudulent handling of their ballots, the law also specified that "any ballot found in the wrong box shall be presumed to have been deposited there by mistake of the officers of election, and unless such presumption shall be rebutted, the ballot shall be counted." This was important, because there could be as many as six boxes at each polling place, and apart from their labels, they all looked alike.³²

- Finally, the law required public disclosure of campaign financing. Every candidate had to provide, within ten days after an election, "an itemized statement, showing in detail all the moneys contributed or expended by him, directly or indirectly, by himself or through any other person in aid of his election." Those reports also were to "give the names of the various persons who received the moneys, the specific nature of each item, and the purpose for which it was expended or contributed."³³

These changes produced momentous results in the 1896 election. Republican registration overall increased by 25 percent, and turnout among registered Black voters rose from 60 to nearly 90 percent. Fusionists won more than three-fourths of the seats in the legislature and elected a white Republican, Daniel L. Russell Jr., as governor. Fusion insurgencies arose in other southern states, but only in North Carolina did a biracial alliance take control of both the legislative and executive branches of government.³⁴

Fusion lawmakers used their political strength to redress two decades of Democrats' underinvestment in education. This was a particularly important issue for Black Republicans, whose predecessors had led the campaign to include a mandate for public schools in the 1868 state constitution and whose constituents were profoundly disadvantaged in their day-to-day interactions with landlords, merchants, and employers by an inability to read and do basic arithmetic. In an Act to Encourage Local Taxation for Public Schools, lawmakers instructed county commissioners to hold elections in every school district under their supervision on the question of "levying a special district tax" for public education. Districts that voted in favor of taxation were entitled to apply for matching funds from the state. To pressure those that refused, legislators ordered an election every two years until a special tax was approved.³⁵

In separate legislation, Black lawmakers used their influence in the Fusion alliance to ensure equitable provision for students in their communities. A revised school law abolished separate white and Black committees appointed at the township level to manage schools for each race and replaced them with consolidated committees made up of five appointees, no more than three of whom could come from the same political party. The law charged the new committees with managing the schools in their districts as a single enterprise. They were to appropriate funds on a strict per capita basis and to apportion "school money . . . so as to give each school in their district, white

³² *Public Laws and Resolutions, Session of 1895*, chapt. 159, secs. 19 and 20; Trelease, "Fusion Legislatures of 1895 and 1897," 282; and Beeby, *Revolt of the Tar Heels*, 40. On illiteracy, see *Report of Population of the United States at the Eleventh Census: 1890*, part 2, xxxv.

³³ *Public Laws and Resolutions, Session of 1895*, chapt. 159, sec. 72.

³⁴ Escott, *Many Excellent People*, 245-47; Beckel, *Radical Reform*, 179-80; and Kousser, *Shaping of Southern Politics*, 182 and 187.

³⁵ *Public Laws and Resolutions, Session of 1897*, chapt. 421.

and colored, the same length of school term." Districts were also required to limit enrollments to no more than 65 students per school, so as to ensure a rough measure of equity in school facilities.³⁶

The election and education reforms enacted in 1895 and 1897 affirmed the values that Black and white reformers had written into the state constitution in 1868. That document, the core of which remains in force today, opened by invoking the Declaration of Independence and connecting the ideals of the American republic to the economic and political struggles set in motion by Confederate defeat and the abolition of slavery. Italics highlight language added by the framers of 1868: "We do declare . . . that all men are created equal; that they are endowed by their Creator with certain unalienable rights; that among these are life, liberty, *the enjoyment of the fruits of their own labor*, and the pursuit of happiness. . . . That all political power is vested in, and derived from the people; all government of right originates from the people, is founded upon their will only, and is instituted *solely for the good of the whole*."³⁷ Fusion lawmakers in North Carolina, historian Morgan Kousser has observed, created "the most democratic" political system "in the late nineteenth-century South."³⁸

B. Resurgent White Supremacy and the Wilmington Coup

As they approached the election of 1898, Democrats once again made white supremacy their rallying cry and vigilante violence their most potent political weapon. Responsibility for orchestrating the party's return to power fell to former congressman Furnifold M. Simmons. Simmons lived in eastern North Carolina, in the Second Congressional District, which was known as the "Black Second" because of its large and politically active Black population. Counties in the district sent more than fifty Black representatives to the General Assembly in Raleigh and elected all four of the state's 19th-century Black congressmen, including Henry P. Cheatham, who had deprived Simmons of his seat in the 1888 election. Simmons and other Democratic leaders dodged the economic and class issues that held the Fusion coalition together and appealed instead to the specter of "negro domination."³⁹

Democratic newspapers took the lead in whipping up race hatred. None was more influential than the *Raleigh News and Observer*, published by Josephus Daniels. Day after day, in the weeks leading up to the election, Daniels ran political cartoons on the front page of the paper to illustrate the evils unleashed by Black political participation. The cartoons depicted Black men as overlords and sexual predators who were intent on emasculating white men, turning them into supplicants and ravaging their wives and daughters. Across scores of images, the *News and Observer's* message was clear: in an inversion of the racial order, Blacks had lifted themselves by pressing white men down.

³⁶ Ibid., chapt. 108.

³⁷ *Constitution of the State of North Carolina, 1868*, Article I, secs. 1-2.

³⁸ Kousser, *Shaping of Southern Politics*, 183.

³⁹ Escott, *Many Excellent People*, 253-58, and Korstad and Leloudis, *To Right These Wrongs*, 206. On the Black Second, see E. Anderson, *Race and Politics in North Carolina, 1872-190*, and Justesen, *George Henry White*.



"The New Slavery,"
Raleigh News and Observer, October 15, 1898.

The News and Observer.

VOL. XLV. NO. 17.

RALEIGH, N. C., TUESDAY MORNING, SEPTEMBER 27, 1898.

PRICE FIVE CENTS.

LEADS ALL NORTH CAROLINA DAILIES IN NEWS AND CIRCULATION.

GETS DOWN TO WORK

The Commission to Investigate the War Department.

FIRST FORMAL SESSION

PROCEEDINGS LIMITED TO OUTLINING A GENERAL POLICY.

THE MEETING WAS STRICTLY SECRET

Letters of Inquiry will be Addressed to War Department Officials, Army Officers and all who Know Anything of Facts Concerned.

Washington, Sept. 26.—The commission selected by the President to investigate the conduct of the War Department held its first formal session today with all the members present. Today's meeting was strictly secret and was confined to a session of two hours duration in the forenoon. The proceedings were limited to the outlining of a general policy and the formation of letters of inquiry which will be made public tomorrow.

The letters which have been drafted upon are to be addressed to the Secretary of War, the Quartermaster General, the Quartermaster General, the Surgeon General and the Chief of the Ordnance Department of the Army. They will result in the issue of inquiries intended to bring out all the facts that

employed as mail messages, to carry the mail from the postoffice to the mail train, from which it is brought to the post office.

On the day the robbery occurred, Alexander Smith, Jr., carried the mail from the postoffice, he opened the package and therefrom a registered letter containing \$25,000, due it was said to be extent \$25,000, which he captured it in the post office and later the police on the mail train, from which it was carried by the postal clerk, D. L. Gray, who noticed the condition of the package and recorded letter.

After receiving the money, Alexander Smith, Jr., began searching for war, with the Spaniards, Americans, or other parties, as he purchased these tickets. He soon encountered war, in which he was not only of the war, but his father having obtained some information as to his having money, which he thought, until he acquired him he obtained the money and to obtain so implicated Charles Douglas, a neighbor of his.

Alexander's father performed his duty nobly, and instead of endeavoring to hide, or worse his son's crime, he carried him before the United States Commissioner and surrendered him to the law.

On the examination it was developed that Charles Douglas was not implicated and had only acted in the crime to the extent of a witness and some money, hence he was discharged, while Alexander Smith was held for trial at Washington and gave bond for his appearance.

MAY REUSE INSUBORDINATE FLIGHT.
The Philippine Prison an Arrangement for, Liabilities to Return as Prisoners.

Manila, Sept. 26.—When the United States military officer McCulloch captured the insurgent attorney, Abilio, formerly the President, sixty miles south of Manila, the Army, it is believed, having landed seven thousand rifles, the insurgent soldiers followed the American road, since they had seen the Americans contemplating taking possession.



The Vampire That Hovers Over North Carolina.

OUR SICK SOLDIERS

It is reported and his speech was telling in its effect. Mr. W. A. Harrison defeated the insurrection. He under leaders of what he called and foundation have done for North Carolina.

REVISION DECIDED ON

TELEGRAPHIC FLASHES.

Manila will be evacuated by American forces.

"The Vampire that Hovers Over North Carolina,"
Raleigh News and Observer, September 27, 1898.

Democrats wielded racial appeals as a wrecking ball, much as they had done during Reconstruction. Some white Populists buckled. They gave in to the deeply entrenched ways that race shaped political and social perception and began arguing that they, not Democrats, were the most ardent defenders of white supremacy. Even so, the political battle would not be won by words alone.

In the closing days of the 1898 campaign, leaders of the Democratic Party turned once more to violence. They organized local White Government Unions and encouraged the party faithful to don the paramilitary uniform known as the "red shirt," a symbol of the blood sacrifice of the Confederacy and the late-nineteenth-century equivalent of the hooded robes worn by Klansmen in an earlier era. Democrats engaged in open intimidation of voters at registration and polling places across the state. Former congressman Alfred M. Waddell called white men to war. "You are Anglo-Saxons," he exclaimed. "You are armed and prepared, and you will do your duty. Be ready at a moment's notice. Go to the polls tomorrow, and if you find the negro out voting, tell him to leave the polls, and if he refuses, kill him. Shoot him down in his tracks." The effect was terrifying. In Winston, a Republican newspaper reported that "there were crowds of men who gathered around the polls in each ward and . . . boldly drove a large percent of the colored Republican voters and a good many white voters away from the polls."⁴⁰



Armed Red Shirts in Laurinburg and their uniform.
Courtesy of the North Carolina State Archives and
the North Carolina Museum of History.

Democrats' determination to defeat their challengers at any cost was revealed most starkly in the majority-Black coastal city of Wilmington. Revisions to the city charter made by the Fusion legislatures of 1895 and 1897 had undone Democratic gerrymandering and produced a Republican majority – including three Blacks – on the board of aldermen. Democrats were enraged by that

⁴⁰ "The North Carolina Race Conflict," *Outlook* 60 (November 19, 1898), 708, and Korstad, *Civil Rights Unionism*, 53.

development and the fact that they would not be able to challenge local Republican rule at the polls until the next municipal election in 1899.⁴¹

On November 9, the day after the 1898 election, Democratic leaders drew up a declaration of independence that called for the restoration of white rule in Wilmington. They acted on belief "that the Constitution of the United States contemplated a government to be carried on by an enlightened people; [belief] that its framers did not anticipate the enfranchisement of an ignorant population of African origin, and [belief] that those men of the State of North Carolina, who joined in forming the Union, did not contemplate for their descendants a subjection to an inferior race." "The negro [has] antagonized our interest in every way, and especially by his ballot," the *Wilmington Morning Star* exclaimed. "We will no longer be ruled, and will never again be ruled, by men of African origin."⁴²

The next day, armed white men under the command of Alfred Waddell staged the only municipal coup d'état in the nation's history. They marauded through Wilmington's Black district, set ablaze the print shop of the city's only Black newspaper, murdered as many as thirty Black citizens in the streets, and drove the sitting board of alderman from office in order to make room for a new, self-appointed city government with Waddell at its head.



A souvenir postcard produced by a local photographer documented destruction of Love and Charity Hall, which housed the *Daily Record*, Wilmington's Black newspaper. Courtesy of the New Hanover County Public Library, Robert M. Fales Collection.

⁴¹ For a detailed account of events in Wilmington, see *1898 Wilmington Race Riot Report*, 1898 Wilmington Race Riot Commission, May 31, 2006, <<http://bit.ly/2HOWsgJ>>, September 5, 2019. The report was commissioned by the state legislature in 2000. In 2007, lawmakers expressed "'profound regret that violence, intimidation and force' were used to overthrow an elected government, force people from their homes and ruin lives." See "Senate Apologizes for Wilmington Race Riot," *Raleigh News and Observer*, August 2, 2007.

⁴² *Raleigh News and Observer*, November 10, 1898; *Wilmington Morning Star*, November 10, 1898; and *Wilmington Messenger*, November 10, 1898.

Democrats won the 1898 election statewide by a narrow margin. They claimed only 52.8 percent of the vote, but that was enough to oust most Fusionists from the legislature. The victors moved immediately to "rid themselves . . . of the rule of Negroes and the lower classes of whites."⁴³

C. The 1899 Act to Regulate Elections and Black Disenfranchisement

In the 1899 legislative session, Democrats drafted an amendment to the state constitution that aimed to end biracial politics once and for all by stripping Black men of the most fundamental privilege of citizenship: the right to vote. The Fifteenth Amendment to the federal Constitution, adopted during Reconstruction, forbade the states from denying the ballot to citizens on the basis of race. North Carolina Democrats, like their counterparts elsewhere in the South, circumvented that prohibition by adopting a literacy test.

In order to vote, citizens first had to demonstrate to local election officials that they could "read and write any section of the Constitution in the English language." That gave Democratic registrars wide latitude to exclude Black men from the polls. Democrats also included a grandfather clause in the amendment that exempted from the literacy test adult males who had been eligible to vote or were lineal descendants of men who had been eligible to vote on or before January 1, 1867. That was a magic date, because it preceded the limited right to vote given to Black men under the Military Reconstruction Act, passed in March of that year. The literacy test was thus designed to achieve the very thing the federal Fifteenth Amendment expressly outlawed – voter exclusion based on race.⁴⁴

Male citizens could also be denied access to the franchise if they failed to pay the capitation tax (poll tax) levied in accordance with Article V, Section 1, of the 1868 State Constitution.⁴⁵ This link between payment of the capitation tax and the right to vote was a new impediment put in place by the disenfranchisement amendment. The amendment required that electors pay the tax before the first day of May, prior to the election in which they intended to vote. At that time of year, before the fall harvest, Black sharecroppers were unlikely to have cash on hand for such a payment.

Democrats rewrote state election law to boost the odds that the amendment would win approval. In the 1899 Act to Regulate Elections, they repealed reforms made by the Fusion legislatures of 1895 and 1897, and they put in place new provisions that were crafted to deliver "a good Democratic majority."⁴⁶

- With the aim of purging as many Fusion voters as possible, lawmakers ordered an "entirely new registration" in advance of the next election. In that process, registrars could, at their discretion, require an applicant to "prove his identity or age and residence by the testimony of at least two electors under oath." The law also gave "any by stander" the right to challenge a registrant's truthfulness and force a lengthy examination.⁴⁷
- In a reversal of provisions made in the 1895 election law, information recorded in a registration book no longer stood as presumptive evidence of an individual's right to

⁴³ Kousser, *Shaping of Southern Politics*, 191, and Escott, *Many Excellent People*, 258.

⁴⁴ *Laws and Resolutions, 1900*, chapt. 2.

⁴⁵ Ibid.

⁴⁶ Kousser, *Shaping of Southern Politics*, 190, and *Public Laws and Resolutions, Session of 1899*, chapt. 16.

⁴⁷ *Public Laws and Resolutions, Session of 1899*, chapt. 507, secs. 11 and 18.

vote. On polling day, "any elector [could] challenge the vote of any person" on suspicion of fraud. In such cases, election officials were to question the suspect voter and compel him to swear an oath of truthfulness. But even that might not be proof enough. The law stipulated that after an oath was sworn, "the registrar and judges may, nevertheless, refuse to permit such a person to vote."⁴⁸

- The law loosened safeguards against partisanship in the management of elections. Lawmakers took the authority to appoint local election officials from the county clerks of superior court, who were directly accountable to voters, and gave it to a seven-member state board of elections that was appointed by the Democratic majority in the legislature. That board's power was expansive. For instance, it had the authority to remove county election officials from office "for any satisfactory cause."⁴⁹
- The law also put an end to practices that accommodated illiterate voters. All ballots were now to be "printed upon white paper, without ornament, symbol, or device." And if a voter or election official placed a ballot in the wrong box (there were six), it was declared void and was discarded.⁵⁰



White supremacy souvenir badge, 1898.
Courtesy of the North Carolina Gallery, Wilson Library, University of North Carolina at Chapel Hill.

⁴⁸ Ibid., chapt. 507, secs. 11, 21, and 22.

⁴⁹ Ibid., chapt. 507, secs. 4-5 and 8-9.

⁵⁰ Ibid., chapt. 507, secs. 27 and 29.

With these new rules in place, Democrats approached the 1900 election confident of victory. Democratic gubernatorial candidate Charles B. Aycock made disenfranchisement the centerpiece of his campaign. On the stump, he offered the white electorate a new "era of good feeling" in exchange for racial loyalty. Aycock argued that the presence of Blacks in politics was the source of bitterness among whites, and that only their removal would heal the white body politic. "We must disenfranchise the negro," he explained to white voters. "Then we shall have . . . peace everywhere. . . . We shall forget the asperities of past years and . . . go forward into the twentieth century a united people."⁵¹

To whites who were unconvinced and Blacks who were determined to resist, Aycock issued veiled threats. "There are three ways in which we may rule," he told a white audience in eastern North Carolina. "We have ruled by force, we can rule by fraud, but we want to rule by law." To reinforce the point, bands of armed Red Shirts again paraded through towns and cities in the Piedmont and the east, cheered Aycock at campaign rallies, and loitered around polling places on Election Day. The beleaguered Populist and Republican opposition could not withstand that Democratic onslaught. With a turnout of 75 percent of the electors allowed to register under the revised election law of 1899, Aycock and disenfranchisement won by a 59 to 41 percent margin.⁵²

Democrats cast that result as a victory of white over Black, but in truth what they feared most and worked hardest to defeat was the interracial coalition that emerged from the calamity of the Civil War and reappeared in the form of Fusion. In a moment of candor, the *Charlotte Daily Observer* admitted as much. It characterized the 1900 campaign as "the struggle of the white people to rid themselves of the danger of the rule of Negroes and the lower classes of whites." The fight in 1900 was not only to establish white supremacy but also to settle the question of which white men would rule supreme.⁵³

When the legislature convened in 1901, Democrats secured their victory by passing a law to implement the white-supremacy amendment to the state constitution. The legislation stipulated that in order to register to vote, male citizens would be required to demonstrate their ability to read and write "*to the satisfaction*" (emphasis added) of a county registrar. In effect, that provision gave local election officials limitless authority to decide who would pass a literacy test and be granted – or denied – the right to vote.⁵⁴

VIII. Jim Crow

A. Racial Segregation and Economic Exploitation

The Democrats' triumph in 1900 cleared the way for a new order characterized by one-party government, segregation, and cheap labor. With the removal of Black men from politics, North Carolina's Republican Party became little more than an expression of regional differences among whites that set the western mountain region, the party's surviving stronghold, against the central Piedmont and eastern Coastal Plain.

⁵¹ Connor and Poe, eds., *Life and Speeches of Charles Brantley Aycock*, 82 and 218-19.

⁵² "Aycock at Snow Hill," *Raleigh Morning Post*, March 1, 1900; Prather, "Red Shirt Movement," 181–83; and Kousser, *Shaping of Southern Politics*, 193.

⁵³ Untitled item, *Charlotte Daily Observer*, June 6, 1900, and Woodward, *Origins of the New South*, 328.

⁵⁴ *Public Laws, Session of 1901*, chapt. 89.

Leaders of the Democratic Party controlled the selection of candidates through a tightly managed state convention. That arrangement, combined with the fact that no Republican had a realistic chance of winning election to a statewide office, convinced most electors that there was little reason to cast a ballot. Only 50 percent of the newly constrained pool of eligible voters turned out for the 1904 gubernatorial election, and by 1912 the number had declined to less than 30 percent.⁵⁵

Having regained control of the machinery of government, Democrats began implementing public policies that secured what one scholar has termed their "reactionary revolution." Black subjugation was at the head of their agenda. Over time, they developed an elaborate regime of law and custom that they called Jim Crow, a name taken from the Blackface characters in nineteenth-century minstrel shows. Most Americans – certainly most white Americans – think of Jim Crow as an expression of prejudice and discrimination. But it was much more than that: Jim Crow was a system of power and plunder that concentrated wealth and opportunity in the hands of the few and mobilized racial animosity in defense of that accumulation.⁵⁶

Lawmakers passed North Carolina's first Jim Crow law in 1899, during the same session in which they crafted the disenfranchisement amendment to the state constitution. The law required separate seating for Blacks and whites on trains and steamboats. The aim of that and other such regulations – including the segregation of streetcars in 1907, legislation in 1921 that made miscegenation a felony, and a host of local ordinances that segregated drinking fountains, toilets, and cemeteries – was to mark Blacks as a people apart and make it psychologically difficult for whites to imagine interracial cooperation. Segregation also divided most forms of civic space – courthouses, neighborhoods, and public squares – that might otherwise have been sites for interaction across the color line.⁵⁷

In Charlotte, soon to be North Carolina's largest city and the hub of its new textile economy, neighborhoods in 1870 had been surprisingly undifferentiated. As historian Thomas Hanchett has noted, on any given street "business owners and hired hands, manual laborers and white-collared clerks . . . Black people and white people all lived side by side." By 1910, that heterogeneity had been thoroughly "sorted" along lines of race and class. In communities large and small across the state, this process played out a thousand times over. White supremacy denied Blacks access to economic and political power and erected a nearly insurmountable wall between Blacks and poor whites who had risen in the mid 1890s to challenge Democrats' rule by asserting their shared grievances and claim to the franchise.⁵⁸

Hardening racial segregation relegated the majority of Black North Carolinians to the countryside and created, in effect, a bound agricultural labor force. In the 1910s, Clarence Poe, editor of the *Progressive Farmer*, led a movement to perfect that arrangement by proposing "territorial segregation" in rural areas and an amendment to the state constitution that would have allowed white communities to prohibit the sale of land to Blacks. He modeled the idea on policies implemented in the new Union of South Africa that laid the foundation for the system of apartheid established in 1948.

⁵⁵ Escott, *Many Excellent People*, 261, and Kousser, *Shaping of Southern Politics*, 195.

⁵⁶ Kousser, *Shaping of Southern Politics*, 261. The account that follows is adapted from Korstad and Leloudis, *To Right These Wrongs*, 16-18, and Korstad, *Civil Rights Unionism*, 54-57.

⁵⁷ *Public Laws and Resolutions, Session of 1899*, chap. 384, and Paschal, *Jim Crow in North Carolina*.

⁵⁸ Hanchett, *Sorting Out the New South City*, 187.

Poe believed that his reforms would lock Blacks into permanent status as tenants and sharecroppers and would make way for a "great rural civilization" to flourish among whites. He understood that the scheme might run afoul of the Fourteenth Amendment but brushed that concern aside. "If our people make up their minds that segregation is a good and necessary thing," Poe argued, "they will find a way to put it into effect – just as they did in the case of Negro disenfranchisement despite an iron-bound Amendment specifically designed to prevent it." Poe's proposal ultimately failed in the state legislature, but it had broad backing among small-scale white farmers. It also revealed how tightly Poe and North Carolina were connected to a global movement to assert white dominion over peoples of color.⁵⁹

Blacks who lived in cities and small towns had opportunities that were only modestly better than those available in rural areas. Most Black women worked in white households as maids, cooks, and laundresses. In Durham and Winston, both tobacco manufacturing centers, and in tobacco market towns in the eastern part of the state, Black women and men labored in stemmeries where they processed the leaf before it was made into cigarettes and chewing plugs. The work was dirty and undesirable – the kind of labor that whites expected Blacks to perform.⁶⁰

Jim Crow held most Black North Carolinians' earnings to near-subsistence levels. That, in turn, depressed the market value of all labor and dragged white wages downward. In textiles – North Carolina's leading industry – men, women, and children worked for some of the lowest wages in the country. Prior to the implementation of a national minimum wage in the 1930s, they earned on average 40 percent less than workers in comparable jobs in the North. Even so, textile manufacturers often boasted that they had built their mills to save poor whites from destitution. That, they said, was also their reason for restricting textile employment, with few exceptions, to whites only. The message to white laborers was clear: mill owners would make up for slim pay envelopes by safeguarding what W. E. B. Du Bois called the "psychological wages" of whiteness.⁶¹

Such insistence on maintaining the color line denied Black North Carolinians something they had prized since the time of Emancipation: quality education for their children. In the 1880s, the state spent roughly equal amounts per capita on white and Black students in the public schools, but by 1920 spending on white students outpaced that for Blacks by a margin of three-to-one. The state spent ten times as much on white school buildings as it did on Black schools, and Black teachers made only half of the \$252 a year paid to whites. The results were predictable: in 1920, 24.5 percent of Blacks over the age of ten were illiterate, as compared to 8.2 percent of whites. Racial disadvantage was also persistent.⁶²

Added to all of this, Black North Carolinians were plagued by "sickness, misery, and death." In 1940, the annual mortality rate for Blacks was 11.6 per thousand, compared to 7.6 per

⁵⁹ Herbin-Triant, "Southern Segregation South African-Style," 171 and 186.

⁶⁰ See Sharpless, *Cooking in Other Women's Kitchens*, and Korstad, *Civil Rights Unionism*.

⁶¹ Hall, Leloudis, Korstad, Murphy, Jones, and Daly, *Like a Family*, 80; Williamson, *Crucible of Race*, 430-32; and Du Bois, *Black Reconstruction*, 700.

⁶² Thuesen, *Greater Than Equal*, 31, 86, and 268 n. 48.

thousand for whites. Blacks were one-and-a-half times more likely than whites to die from tuberculosis and malaria, and Black infant mortality exceeded that for whites by the same margin.⁶³

B. World War I and the Great Migration

A casual observer of the Jim Crow South could have been forgiven for concluding that white supremacy's victory was complete, its hold of the region unassailable. Josephus Daniels, one of the regime's architects, suggested as much shortly after the 1900 election. "When Governor Aycock was elected," Daniels explained to a friend, "I said to him that I was very glad that we had settled the Negro question for all times." Aycock replied, "Joe, you are badly mistaken. . . . Every generation will have the problem on their hands, and they will have to settle it for themselves." The governor was more prescient than he might have imagined. Even at the height of Jim Crow's power, Black Americans refused to surrender their claim on equal citizenship and a fair share of social resources and economic opportunities. Over half a century – through two world wars and a global economic crisis – they clawed their way back into politics. Progress was slow and small gains often met fierce white resistance, but by the late 1950s Blacks had built a new freedom movement and prepared the way for a second Reconstruction.⁶⁴

World War I put the first chinks in Jim Crow's armor. When fighting broke out in Europe in 1914, it cut off the supply of European immigrant laborers on which the factories of the Midwest and Northeast relied. Industrial recruiters ventured southward to entice sharecroppers off the land. By 1919, nearly 440,000 Blacks had left the South in what came to be called the Great Migration. They made new homes in Baltimore, Philadelphia, New York, Pittsburgh, Chicago, and Detroit. Another 708,000 migrants followed during the 1920s. In the absence of poll taxes and literacy tests, these refugees gained access to the ballot box and influence in city politics. They also created large enclaves from which a vibrant urban Black culture emerged. Literature, art, and music gave voice to the "New Negro" – a figure dignified and defiant, determined to hold the nation accountable to its democratic promise.⁶⁵

C. The Great Depression, a New Deal, and Good-Bye to the Party of Lincoln

During the 1930s, newly enfranchised Black voters reshaped national politics by abandoning the party of Lincoln in favor of Franklin D. Roosevelt and his New Deal. Many were at first wary of Roosevelt, a Democrat whose party stood for white supremacy in the South. But Blacks were especially hard hit by the Great Depression, and Roosevelt's New Deal delivered much-needed relief. The largest federal jobs programs employed Blacks in proportion to their representation in the general population and, with mixed results, attempted to prohibit discrimination in job placement and wages. Black appointees in New Deal agencies also served President Roosevelt as a shadow cabinet, and First Lady Eleanor Roosevelt publicly supported the NAACP's civil rights agenda. America remained a Jim Crow nation, but at no time since Reconstruction had the federal

⁶³ Carlton and Coclanis, *Confronting Southern Poverty*, 33, 42, 54-55, and 59; Larkins, *Negro Population of North Carolina*, 29; and Shin, "Black-White Differentials in Infant Mortality in the South, 1940-1970," 17. The infant mortality rate for Blacks was 76.6 per 1,000 live births, compared to 50.3 per 1,000 live births for whites.

⁶⁴ Josephus Daniels to John T. Graves, December 21, 1942, cited in Ward, *Defending White Democracy*, 2.

⁶⁵ Estimates of the scale of the Great Migration vary. The figures cited here are from Gregory, "Second Great Migration," 21. On the New Negro, see Whalan, *The Great War and the Culture of the New Negro*.

government held out such hope for redressing racial injustice. In his 1936 bid for re-election, Roosevelt won 71 percent of the Black vote in a landslide victory over Republican challenger Alf Landon.⁶⁶

The effects were felt in North Carolina. In 1932, newspaperman Louis E. Austin helped to organize a political conference in Durham that attracted more than five hundred Black business, civic, and religious leaders from across the state. Austin was editor of the city's *Carolina Times*, a paper widely regarded as an exemplar of "new Negro journalism." Like others at the conference, he believed that southern Blacks needed a new strategy for advancing civil rights. Since Emancipation, Blacks had cast their lot with the Republican Party, but Republican leaders largely abandoned them in the early twentieth century. In North Carolina, the party was controlled by men who rejected its biracial heritage, and at the national level, Republican president Herbert Hoover showed little concern for Blacks' disproportionate suffering in the Great Depression. The times seemed to call for a radical change of direction, one that would challenge white supremacy at its root by mounting a political assault from within the Democratic Party.⁶⁷

That is what participants in the Durham conference had in mind when they made plans for a statewide voter registration drive. Their aim was "to become a factor in the party that has the power" by adding Black voters to the registration rolls as Democrats, not Republicans. Success came slowly, but by the mid-1930s upwards of forty thousand Black men and women had managed to pass the state's literacy test and affiliate themselves with the Democratic Party. In Durham, these new voters elected Louis Austin and Black theater owner Frederick K. Watkins as justices of the peace on the Democratic ticket. The *Pittsburgh Courier*, one of the nation's leading Black newspapers, pronounced that win "the beginning of the 'New Deal' in the South."⁶⁸

Incremental Black gains and the temerity of men like Austin angered the keepers of white rule. When Blacks registered as Democrats in Raleigh, Josephus Daniels used the *News and Observer* to warn that they were part of a plot "to destroy the great victory" won in 1900 under his leadership and that of Charles Aycock. "The Democratic Party in North Carolina is a white man's party," he exclaimed. "It came through blood and fire in allegiance to that principle." At his urging, election officials in Raleigh attempted to disqualify every Black registrant – Democrat and Republican alike – but Black citizens sued and won a court order to have the names of two hundred and ten restored to the voter rolls. They also taunted white Democrats. "Why," they wondered, "is it a crime for the Negro to seek to vote the triumphant ticket of the major party of the section in which he lives?"⁶⁹

Josiah Bailey, U.S. Senator from North Carolina, shared Daniels' fear of Black claims on the rights of citizenship. In 1937, shortly after President Roosevelt's election to a second term, he threatened a Congressional revolt against the New Deal. Bailey recruited southern Democrats and a number of Republicans to endorse a Conservative Manifesto, which, had it been implemented, would have given local officials control over federal jobs programs for the unemployed. That was

⁶⁶ Election data are from Ladd Jr., with Hadley, *Transformations of the American Party System*, 59.

⁶⁷ "North Carolinians Hold State-wide Political Confab," *Pittsburgh Courier*, April 12, 1932, and "Durham, Thriving Southern Metropolis of 17,000 Negro Inhabitants," *Norfolk Journal and Guide*, April 16, 1932.

⁶⁸ "Carolina Whites Horrified as Negro Democrats Vote," *Atlanta Daily World*, June 6, 1932, and "Elect Magistrates on Democratic Ticket in North Carolina," *Pittsburgh Courier*, November 24, 1934.

⁶⁹ "Dagger at the Heart," *Raleigh News and Observer*, May 25, 1932; "More Talk About Negro Situation," *Raleigh News and Observer*, June 1, 1932; and Gershenhorn, *Louis Austin*, 49.

key to maintaining the Black-white wage differential and Jim Crow's promise to ordinary whites that Blacks would always be beneath them. The manifesto affirmed the value of small government; called for reduced taxation of private and corporate wealth; and insisted on the primacy of "states' rights, home rule, [and] local self-government." On the Senate floor and in private exchanges, Bailey criticized President Roosevelt for pandering to the "Negro vote," caricatured the New Deal as "a gift enterprise [conducted] at the expense of those who work and earn and save," and warned that he and his allies were prepared to defend white supremacy, whatever the cost. "Keep your nose out of the South's business," he advised Roosevelt, or "be assured that a [new] white man's party [will] arise" to claim the region's loyalty.⁷⁰

That threat was more than empty bluster. From the outset, southern Democrats had worked to blunt the New Deal. In North Carolina, Democratic officials backed tobacco manufacturers who resisted the National Recovery Administration's efforts to raise wages for Black workers. They also managed the Agricultural Adjustment Administration's price support programs in ways that allowed white landlords to dismiss thousands of Black tenants and keep government crop subsidies for themselves. At the national level, southern Democrats led the effort to exclude agricultural and domestic workers – the vast majority of whom were Black – from the old-age pensions established by the Social Security Act of 1935 and the minimum-wage protection afforded by the Fair Labor Standards Act of 1938.⁷¹

University of North Carolina sociologist Guy Johnson recognized in all of this "a tendency to perpetuate . . . existing inequalities." Blacks had made important gains, but they still lacked the means "to command" an adequate wage and a "decent share of the services and benefits of government." The consequences were tragic – for Blacks, most obviously, and for poor whites in ways that Jim Crow obscured. Johnson urged politicians to confront these truths, surrender white rule, and substitute "fairness and justice" for a "policy of repression." Doing so would make possible "better homes, better health, better living, cultural development, and human adequacy for both races." White southerners had "all to gain and nothing to lose," Johnson declared. "Self-interest, simple justice, and common-sense demand that [they] give the Negro a new deal." That was not going to happen in North Carolina, at least not without a fight.⁷²

D. World War II and Civil Rights Unionism

World War II lifted the nation out of economic depression and further eroded white southerners' capacity to hold the line on civil rights. Millions more Blacks left the land. Some moved along familiar paths to work in northern war industries; others found employment in southern cities or on the sprawling military bases that were scattered across the region. They expanded their influence in Democratic Party politics, swelled the national ranks of the NAACP from fifty thousand to four hundred and fifty thousand members, and through the militant unions of the Congress of Industrial Organizations (CIO) gained new bargaining power on the factory floor. The federal

⁷⁰ Moore, "Senator Josiah W. Bailey and the 'Conservative Manifesto' of 1937"; Patterson, "Failure of Party Realignment in the South," 603; Bailey to Peter Gerry, October 19, 1937, Senatorial Series, General Correspondence, Bailey Papers; "Roosevelt 'Purge' Rapped by Bailey," *Atlanta Constitution*, September 11, 1938; and Dunn, *Roosevelt's Purge*, 237.

⁷¹ Katznelson, *Fear Itself*, chapt. 5.

⁷² Johnson, "Does the South Owe the Negro a New Deal?"

government, concerned that racial tensions not impede the war effort, acted to limit employment discrimination and to restrain white violence.⁷³

All of this played into what civil rights activists came to call a Double V strategy that encouraged Black mobilization – in the military and on the home front – to defeat the twin evils of fascism and white supremacy. The potential for making change at home was apparent even before a formal declaration of war. In early 1941, A. Philip Randolph, president of the Brotherhood of Sleeping Car Porters, proposed a march on Washington to pressure President Roosevelt to desegregate the military and guarantee equal employment opportunities in war industries. Noting the strength of grassroots support for the march, some observers predicted that more than one hundred thousand people would participate. In June, months before the Japanese attack on Pearl Harbor, Roosevelt handed the organizers a partial victory. He issued Executive Order 8802, which prohibited racial discrimination in federal job training programs and defense industry employment. With that, Randolph canceled the march.⁷⁴

This positioning of the federal government as a civil rights ally gave courage to the nearly eight thousand Black women and men who labored in the R.J. Reynolds tobacco factories in Winston-Salem. In 1943, they began organizing with assistance from the CIO's Food, Tobacco, and Allied Workers union (FTA). Under ordinary circumstances, Reynolds would have easily crushed the effort, but the war years were anything but ordinary.

When workers staged a sit-down strike, the federal Mediation and Conciliation Service intervened to negotiate a temporary settlement. Months later, the National Labor Relations Board – a New Deal agency established in 1935 by the Wagner Act – set the ground rules for a fair election in which Black workers and a significant minority of whites voted to establish a union local. Despite that result, Reynolds managers refused to sign a contract until forced by the National War Labor Board to pay higher wages and improve working conditions. Stemmerly worker Ruby Jones said of that victory, "It was just like being reconstructed."⁷⁵

Jones and others understood that winning in the workplace was but one step toward equal citizenship. Dethroning Jim Crow required that they also organize politically. "If you are going to defeat these people," union leader Robert Black explained, "not only do you do it across the negotiating table in the R.J. Reynolds Building, but you go to city hall, you elect people down there that's going to be favorable and sympathetic and represent the best interest of the working class." To that end, the union sponsored citizenship and literacy classes and launched a city-wide voter registration drive. Those efforts paid off in 1947, when Black voters elected Reverend Kenneth R. Williams to the Winston-Salem board of aldermen. He was the first Black politician in the South to defeat a white opponent at the state or local level since the Fusion era of the 1890s.⁷⁶

The unionists in Winston-Salem and ten thousand members of a sister FTA local in eastern North Carolina's tobacco warehouses and stemmeries were in the vanguard of a statewide campaign for more inclusive politics. They provided local support for the Progressive Party, formed in 1947 by breakaway Democrats to back the presidential candidacy of Henry A. Wallace.

⁷³ On the growth of the NAACP and the CIO, see Dalfiume, "'Forgotten Years' of the Negro Revolution," 99-100, and Zieger, *The CIO*.

⁷⁴ Jones, *March on Washington*, chapt. 1.

⁷⁵ Korstad, *Civil Rights Unionism*, 202.

⁷⁶ *Ibid.*, 251-52.

Wallace had served in Franklin Roosevelt's New Deal administration as vice president, secretary of agriculture, and secretary of commerce. He established a reputation as a full-throated critic of Jim Crow and, during the early years of the Cold War, opposed hardline anticommunism as a threat to democratic values at home and abroad. In 1948, Wallace challenged Roosevelt's successor, Harry S. Truman, with demands for peaceful cooperation with the Soviet Union and an immediate end to racial segregation.⁷⁷

In North Carolina, the Progressive Party nominated a slate of candidates that represented an extraordinary commitment to equal citizenship. Of the nineteen nominees, five were white women, including journalist and civil rights activist Mary Watkins Price, who was the first woman to run for governor in the state. Black candidates included Reverend William T. Brown from Maxton, who opposed former governor J. Melville Broughton for a seat in the U.S. Senate; Robert E. Brown, also from Maxton, who sought election in the Eighth Congressional District; Robert Latham, an FTA organizer in Rocky Mount, who ran in the Second Congressional District; Durham civil rights lawyer Conrad O. Pearson, who stood for state attorney general; Gertrude Green, a tobacco worker from Kinston, and Randolph Blackwell, a student at the Agricultural and Technical College of North Carolina in Greensboro (now North Carolina Agricultural and Technical State University), who sought election to the state house of representatives; and Leila B. Michael, a teacher and NAACP leader from Buncombe County, who vied for a place on her local board of education. These men and women ran on a platform that demanded repeal of North Carolina's anti-union labor laws and regressive sales tax, "civil rights for all people, improved schools, higher teacher pay, [and] increased aid to needy people." These priorities were not so different from those of Reconstruction-era Republicans and the Fusion politicians of the 1890s.⁷⁸

When Wallace stumped the state for the Progressive ticket in August 1948, bands of white hecklers, sometimes numbering in the thousands and waving Confederate flags, followed his entourage from town to town and pelted them with eggs and tomatoes. Shouts of "nigger lover" filled the air and were echoed in more genteel terms by the state's newspapers. The editors of the *Charlotte Observer* suggested that Wallace and his compatriots had brought the trouble upon themselves by announcing in advance that the candidate "would speak to none but unsegregated audiences."⁷⁹

Wallace gave his detractors no quarter. In a 1947 speech, he had declared that "Jim Crow in America has simply got to go." His reasoning echoed a long tradition of dissent within the South: "The cancerous disease of race hate, which bears so heavily upon Negro citizens . . . at the same time drags the masses of southern white citizens into the common quagmire of poverty and ignorance and political servitude . . . Jim Crow divides white and Negro for the profit of the few. It is a very profitable system indeed."

⁷⁷ On Wallace's life and career, see Culver and Hyde, *American Dreamer*.

⁷⁸ "Wallace Party Names Picks for N.C. Posts," *Norfolk Journal and Guide*, September 4, 1948, and Report of the Nominating Committee, Progressive Party of North Carolina, box 2, folder 13, Scales Papers. On Blackwell, see Chafe, *Civilities and Civil Rights*, 27-28. For more on the Progressive Party and the Wallace campaign in North Carolina, see Uesugi, "Gender, Race, and the Cold War."

⁷⁹ Devine, *Henry Wallace's 1948 Presidential Campaign*, p. 245, and "Deplorable Disorders," *Charlotte Observer*, September 1, 1948.



Henry A. Wallace campaign poster. Courtesy of Georgia State University Library Digital Collections, M. H. Ross Papers.

The price exacted by Jim Crow was measured not just in dollars, but in lives as well. Wallace made that point with a "single grim fact": "a Negro child born this day has a life expectancy ten years less than that of a white child born a few miles away." "Those ten years," he explained, "are what we are fighting for. I say that those who stand in the way of the health, education, housing, and social security programs which would erase that gap commit murder. I say that those who perpetuate Jim Crow are criminals. I pledge you that I shall fight them with everything I have." Wallace understood the fury his words would provoke. "Every uttered truth," he observed, "produces a tremor in those who live by lies."⁸⁰

Wallace's prospects, and those of the Progressive Party in North Carolina, were hamstrung from the start. He faced the problem that has plagued every third-party candidate in American politics: a concern among potential supporters that to cast a ballot for him was to waste a vote. His strong stand against racism and opposition to Cold War anticommunism also meant that he drew most of his support from the Left, including the Communist Party USA, which endorsed his candidacy. On Election Day, Wallace and his North Carolina running mates garnered only a fraction of the vote. But the issues they raised were far from settled. That became evident two years later in the Democratic primary election for the U.S. Senate.

⁸⁰ Wallace, "Ten Extra Years," <<http://bit.ly/31hRDVR>>, November 29, 2020.

E. The Senate Campaign of 1950 and Reassertion of White Rule

The story of the 1950 election began a year before, when Senator J. Melville Broughton died in office. Governor W. Kerr Scott appointed University of North Carolina president Frank Porter Graham to fill the post until the next general election. Graham's liberal views were well known. He was an outspoken supporter of labor unions; he had served as a member of the White House advisory council that helped establish Social Security in 1935; he chaired Roosevelt's Advisory Committee on Economic Conditions in the South, which documented widespread poverty in the region; and in 1938 he was founding president of the Southern Conference for Human Welfare, an interracial organization devoted "equal and exact justice to all" (a phrase borrowed from President Thomas Jefferson's 1801 inaugural address).⁸¹

In the 1950 Democratic primary, Graham faced a field of challengers that included Willis Smith, a respected Raleigh attorney and former president of the American Bar Association. On the first ballot, Graham defeated Smith and the other candidates by winning a plurality, but not a majority, of votes. As runner-up, Smith was entitled to call for a runoff, but he hesitated. He was unsure that he could raise the necessary money or that he had the stamina for another contest. Then, on June 5, just days before the deadline for Smith's decision, the U.S. Supreme Court handed down rulings that affirmed Black students' right to equal access to publicly funded graduate education and banned segregation on railroads. The court's actions galvanized Smith's supporters. On the afternoon of June 6, Jesse Helms, a young news director for WRAL Radio in Raleigh, made arrangements to air at fifteen-minute intervals a plea for Smith backers to rally at his home and urge him to demand a runoff. The crowd that gathered on Smith's lawn was persuasive. The next morning, Smith called for a second primary.⁸²

The political battle that followed was the rawest since the white supremacy campaigns of 1898 and 1900. Smith's backers brought race front and center. They focused particularly on Frank Graham's service in 1946-47 on President Harry Truman's Committee on Civil Rights, which issued the first federal report on race relations and laid the groundwork for Truman's desegregation of the military a year later. The report, titled *To Secure These Rights*, a phrase taken from the Declaration of Independence, called unequivocally for "the elimination of segregation, based on race, color, creed, or national origin, from American life."⁸³

The Smith campaign directed its harshest criticism at the committee's recommendation that Truman establish a permanent Fair Employment Practices Committee to monitor and eliminate racial discrimination in the workplace. Frank Graham – who preferred moral suasion over government intervention as an instrument of social change – had dissented from that part of the committee report, but Smith and his lieutenants paid no mind. In campaign press releases, they warned that Graham supported reforms that would allow Blacks to steal white jobs. Handbills distributed in rural communities and white working-class neighborhoods raised the alarm even more shrilly. "White People Wake Up Before It's Too Late," one exclaimed. "Frank Graham Favors Mingling of the Races."⁸⁴

⁸¹ Pleasants and Burns, *Frank Porter Graham and the 1950 Senate Race*, 5–30, and Ashby, *Frank Porter Graham*, 77, 144–45, 151–59.

⁸² Pleasants and Burns, *Frank Porter Graham and the 1950 Senate Race*, 196–201.

⁸³ President's Committee on Civil Rights, *To Secure These Rights*, 166.

⁸⁴ Pleasants and Burns, *Frank Porter Graham*, 140 and 223.

WHITE PEOPLE WAKE UP

BEFORE IT'S TOO LATE

YOU MAY NOT HAVE ANOTHER CHANCE

DO YOU WANT?

- Negroes working beside you, your wife and daughters in your mills and factories?
- Negroes eating beside you in all public eating places?
- Negroes riding beside you, your wife and your daughters in buses, cabs and trains?
- Negroes sleeping in the same hotels and rooming houses?
- Negroes teaching and disciplining your children in school?
- Negroes sitting with you and your family at all public meetings?
- Negroes going to white schools and white children going to Negro schools?
- Negroes to occupy the same hospital rooms with you and your wife and daughters?
- Negroes as your foremen and overseers in the mills?
- Negroes using your toilet facilities?

Northern political labor leaders have recently ordered that all doors be opened to Negroes on union property. This will lead to whites and Negroes working and living together in the South as they do in the North. Do you want that?

FRANK GRAHAM FAVORS MINGLING OF THE RACES

HE ADMITS THAT HE FAVORS MIXING NEGROES AND WHITES — HE SAYS SO IN THE REPORT HE SIGNED. (For Proof of This, Read Page 167, Civil Rights Report.)

DO YOU FAVOR THIS — WANT SOME MORE OF IT?

IF YOU DO, VOTE FOR FRANK GRAHAM

BUT IF YOU DON'T

VOTE FOR AND HELP ELECT


WILLIS SMITH for SENATOR

HE WILL UPHOLD THE TRADITIONS OF THE SOUTH

KNOW THE TRUTH COMMITTEE

Will You Go— BACK TO THIS?

With WILLIS SMITH



15¢ an HOUR!

12 HOURS a DAY!

CHILDREN WORKING in the MILLS!

The picture above is photograph of Spinning Room Workers of a North Carolina Mill. The picture was made more than years BEFORE the coming of Franklin D. Roosevelt and the New Deal for Tattle Workers.

It's a picture none of you will remember... of working for 10c, 15c, and 20c an hour... working 12 hours a day, 66 to 72 hours a week... children of 10 and 12 going to work in the Mill 'cause there wasn't enough food to eat, not enough clothes to wear and keep warm... kids with rickets because there was no money for milk... ym, some of you remember...

But things are better now... BETTER because men like FRANKLIN D. ROOSEVELT and FRANK GRAHAM fought for Federal Laws to give YOU a BETTER LIFE... Laws to give you HIGHER WAGES, SHORTER HOURS, BETTER WORKING CONDITIONS, UNEMPLOYMENT INSURANCE, BETTER SCHOOLS for YOUR CHILDREN, BETTER HOUSES, and OLD-AGE PENSIONS...

But the Willis Smith Crowd says that those things for which ROOSEVELT and GRAHAM fought are bad... The Smith Crowd says that those laws which have brought you a better life are the tools of the "Wall Street State" and those laws are the "Road to Socialism"... THEY want to WIPE OUT the NEW DEAL of ROOSEVELT and GRAHAM!

The Smith Crowd would like to take you back to the days of the picture above... 10c an HOUR for a 12-HOUR DAY and a 66-HOUR WORK WEEK IS SMITH'S IDEA of "SOUTHERN DEMOCRACY!"

WHY? It's a matter of Simple Arithmetic:

WILLIS SMITH is a COTTON MILL OWNER. The LESS WAGES SMITH HAS TO PAY his WORKERS, the MORE PROFIT MILL-OWNER SMITH MAKES!

FRANK P. GRAHAM

PROVEN FRIEND of the WORKING PEOPLE

Editor of "The Southern Worker", 1111 Broadway, N. Y. City
217 Broadway, N. Y. City
210 BROADWAY, N. Y. CITY

Smith and Graham campaign handbills. Courtesy of the Southern Historical Collection, Wilson Library, University of North Carolina at Chapel Hill, Daniel Augustus Powell Papers.

These attacks were powerful in the simplicity of their message: Graham posed a threat to white privilege and the racial division of labor from which it was derived. Graham's campaign countered by warning white working people that Smith would roll back the hard-won economic gains of the New Deal, but on Election Day race trumped class. Smith won the second primary by more than nineteen thousand votes. He traveled to Washington to take his Senate seat in 1951 and carried Jesse Helms with him as a member of his staff. Twenty-two years later, Helms returned as a Republican Senator and leader of the conservative movement that came to be known as the New Right.

IX. Black Advance and White Reaction in the Forgotten 1950s

A. Challenging Jim Crow at the Ballot Box

In the aftermath of the election, Graham's supporters were distraught. "I weep for the people of North Carolina," one woman wrote, "because they [were] swayed by prejudices [and] lies." But Black newspaper editor Louis Austin found cause for hope, even as he mourned Graham's defeat. He reminded readers of the *Carolina Times* that more than two hundred and sixty thousand voters – the vast majority of them white – had cast their ballots for Graham, and in doing so had refused to bow to "race hatred." Despite obvious similarities, Graham's loss was not a calamity on the same scale as the defeat of Fusion half a century before. Appeals to justice and decency had loosened Jim Crow's grasp and created new room for Blacks to maneuver. Austin urged his readers

to seize that opportunity, to light a "torch of freedom" that would "send bright rays into the dark corners of [a] benighted State."⁸⁵

Leaders and ordinary folk in Black communities across North Carolina took up that challenge. In 1951, a "rush" of thirteen Black candidates stood for election in eleven cities, from Rocky Mount in the east to Winston-Salem in the central Piedmont. Three of them won seats on their municipal councils.⁸⁶ Two years later, twenty-four Black candidates ran in nineteen cities, and six bested their white opponents.⁸⁷

The victories in 1953 were, in many respects, predictable. With one exception, they occurred in Piedmont cities with substantial Black populations and active Black civic organizations. In Winston-Salem, unionized tobacco workers had spurred voter registration and created a political movement that continued to elect a Black candidate to the city's board of aldermen. Black business leaders in Durham had similar success. Under the auspices of their Committee on Negro Affairs, they had been registering voters and sponsoring candidates for the better part of two decades. In 1953, they broke through with the election of Rencher N. Harris, a real estate appraiser, to the city council. Harris also had the backing of a short-lived interracial alliance of progressive whites and unionized textile and tobacco workers.⁸⁸

More surprising, and ultimately more threatening to white rule, was the fact that seven Black candidates had the courage to seek office in eastern North Carolina, where Jim Crow was most deeply entrenched, and that in Wilson, a small tobacco market town located in that section of the state, George K. Butterfield Sr. won election to the board of commissioners. Through the end of the decade, this spread of civil rights activism beyond the cities of the Piedmont tested white politicians' ability to deflect Black claims on equal citizenship.

The story of George Butterfield's political career in Wilson epitomized the contest between white men in power and their Black challengers in the east. Butterfield was a dentist and a veteran of World War I, born in Bermuda and educated at Meharry Dental College in Nashville, Tennessee. He moved to Wilson in 1928 and quickly established himself as a leader in the city's Black community. George K. Butterfield Jr., who currently represents North Carolina's First Congressional District, remembers that his father "was always a thorn in the side of the white establishment." In the 1940s, the elder Butterfield and his brother-in-law, Fred Davis Jr., directed a number of voter registration drives. They recruited brave volunteers and "sat up the night with them" to

⁸⁵ Ibid., 247-48, and "Victorious in Defeat," *Carolina Times*, July 1, 1950.

⁸⁶ Dr. William Hampton won a seat on the Greensboro city council, Reverend William R. Crawford won a run-off and replaced Kenneth Williams on the Winston-Salem board of aldermen, and Dr. W. P. Devane was re-elected to the Fayetteville city council. Later in 1951, Hampton and Crawford were the first Black city officials to attend meetings of the North Carolina League of Municipalities. See "Rush of Negro Candidates for City Posts in N. Carolina," *Atlanta Daily World*, May 8, 1951; "Two Win City Council Seats in No. Carolina," *Atlanta Daily World*, May 17, 1951; and "First Negro to N.C. League of Municipalities," *Atlanta Daily World*, November 10, 1951.

⁸⁷ "Negro Candidates Seek Offices in Twenty North Carolina Cities," *Chicago Defender*, May 2, 1953. Despite the title, only nineteen cities are listed in this article. For clarification of the number of city council candidates in Concord, see "Candidates Win Three North Carolina Races," *Atlanta Daily World*, May 7, 1953, and "Primary Vote at Concord Slated Tuesday," *Charlotte Observer*, April 13, 1953. For the successful candidates, see "They Scored," *Chicago Defender*, May 23, 1953. William Crawford and William Hampton won re-election in Winston-Salem and Greensboro, respectively; Rencher N. Harris claimed a seat on the Durham city council; Hubert J. Robinson was elected to the Chapel Hill town council; Nathaniel Barber took a seat on the city council in Gastonia; and Dr. George K. Butterfield Sr. was elected to the city council in Wilson.

⁸⁸ Gershenhorn, *Louis Austin*, 114, and "They Scored," *Chicago Defender*, May 23, 1953.

memorize and "rehearse the Constitution." When those aspiring voters took the literacy test, "some would pass and some would not," because the outcome was "just the whim of the registrar." Progress was slow, but over time, the effort paid off. By 1953, more than five hundred of Wilson's Black citizens had qualified to vote.⁸⁹

That figure was large enough to convince Butterfield to stand for election as a town commissioner representing Wilson's third ward. Although Blacks constituted a majority in the ward, whites outnumbered them among registered voters. Butterfield's supporters overcame that disadvantage by turning out at a much higher rate than their white neighbors. When ballots were counted, Butterfield and his opponent each received three hundred and eighty-two votes. As stipulated in Wilson's town charter, election officials decided the winner by drawing lots. A blind-folded child pulled Butterfield's name from a hat.⁹⁰

Butterfield used his political office to press for improved municipal services in Wilson's Black neighborhoods, additional funds for Black schools, and the desegregation of recreational facilities, including the town's minor-league baseball stadium. After he won re-election in 1955, Wilson's white commissioners moved to be rid of him. Shortly before the 1957 election, they approved a surprise resolution to change from a ward system to an at-large form of municipal government in which a full slate of commissioners would be elected in a single, multi-candidate contest. Under that arrangement, a Black candidate would face not one but many white opponents.⁹¹

The state legislature quickly approved the change and added a provision to Wilson's charter that prohibited single-shot, or as it was sometimes called, bullet voting. That was the practice of marking a ballot for only one candidate in at-large, multi-candidate contests in which the top vote getters won election to a set number of open seats. In simple mathematical terms, single-shot voting offered Black voters – always a minority – their best chance at electing representatives from their communities. The new prohibition undercut that prospect by requiring that election officials discard single-shot ballots.⁹²

These changes in Wilson's town government denied Butterfield a third term. In the 1957 election, he placed eighth in a field of sixteen candidates who vied for six seats on the town commission. Four years later, Reverend Talmadge A. Watkins, Butterfield's pastor and political ally, ran for a place on the town commission and, after losing, challenged the anti-single-shot rule in a lawsuit. North Carolina's Supreme Court ultimately decided the case, *Watkins v. City of Wilson*, in favor of the defendants. The justices wrote: "It is an established principle that to entitle a private individual to invoke the judicial power to determine the validity of executive or legislative action he must show that he has sustained, or is immediately in danger of sustaining, a direct injury as the result of that action and it is not sufficient that he has merely a general interest common to all members of the public." Watkins did not meet that standard, because "even if credited with all

⁸⁹ McKinney, *Greater Freedom*, 21-22 and 54, and Butterfield interview, <<http://bit.ly/2RMrziw>>, November 29, 2020.

⁹⁰ McKinney, *Greater Freedom*, 58-59, and Butterfield interview, <<http://bit.ly/2RMrziw>>, November 29, 2020.

⁹¹ McKinney, *Greater Freedom*, 91-96, and Butterfield interview, <<http://bit.ly/2RMrziw>>, November 29, 2020.

⁹² *Session Laws and Resolutions, State of North Carolina, Extra Session of 1956, and Regular Session, 1957*, chapt. 13.

rejected ballots, he would not have enough votes to change the [election] result." In 1962, the U.S. Supreme Court declined to review the case on appeal.⁹³

Watkin's defeat in court validated the work of white politicians who had been busy restructuring local governments across eastern North Carolina. Between 1955 and 1961, the state legislature approved a flurry of new laws that mandated at-large voting in a shifting mix of elections for county boards of commissioners and town councils in twenty-three eastern counties. In each of those places, lawmakers also prohibited single-shot voting. As a reporter for the *News and Observer* later noted, the purpose of these measures was "to slow the growth of Black political power."⁹⁴

1955, 1957, 1959 & 1961 Anti-Single-Shot Counties & Municipalities

- 1955: Added to §163-175
- 1957: Outside of §163-175
- 1957: Added to §163-175
- 1959: Outside of §163-175
- 1959: Added to §163-175
- 1959 & 1961: Removed from §163-175



Anti-single shot counties and municipalities, 1955-1961. The western counties were places where Republicans exerted some influence in local government.

With no sense of irony, white politicians defended these measures as protection against the corrupting influence of "bloc" interests, particularly those defined by race. That was a well-worn rationale. For instance, a group of Willis Smith's supporters had charged in 1950 that "bloc voting by any group is a menace to democracy." In an advertisement published in the *News and Observer*, they turned to Charles Aycock – one of the original architects of white supremacy – as their authority on the matter. Looking back on his election as governor in 1900, Aycock had justified his party's use of political violence by pointing to heavily Black counties in the east, where, he claimed, "120,000 Negro votes cast as the vote of one man" threatened the "security of life, liberty, and property."⁹⁵

⁹³ McKinney, *Greater Freedom*, 96 and 139-44; Butterfield interview, < <http://bit.ly/2RMrziw> >, November 29, 2020; *Watkins v. City of Wilson*, 121 S.E.2d 861 (N.C. 1961); and *Watkins v. Wilson*, 370 U.S. 46 (1962).

⁹⁴ "Failure of Singleshots Ban May Strengthen Black Vote," *Raleigh News and Observer*, January 17, 1972.

⁹⁵ *Raleigh News and Observer*, June 20, 1950.

(Political Advertisement)

Bloc Voting By ANY Group Is A MENACE to DEMOCRACY

Governor Charles B. Aycock said in his Inaugural Address, January, 1901:

"When we came to power (1898), we desired merely the security of life, liberty and prosperity. We had seen all these menaced by 120,000 Negro votes cast as the vote of one man."

Here is what happened on May 27th, 1950—

BLOC VOTING BY NEGROES IN NORTH CAROLINA: (OFFICIAL RETURNS)			
	Precinct	GRAHAM	SMITH
RALEIGH	No. 10	493	9
	No. 16	518	18
DURHAM	Hillside	1514	7
	Pearson School	1187	8
GREENSBORO	No. 5	1231	12
CHARLOTTE	No. 2	512	11
		5455	65

THESE ARE RETURNS FROM ONLY SIX NEGRO PRECINCTS

WILLIS SMITH Represents ALL The People

Gallard Committee for Willis Smith
John B. Foster, Chairman

Willis Smith campaign advertisement, Raleigh
News and Observer, June 20, 1950.

The hypocrisy of such historical claims infuriated *Carolina Times* editor Louis Austin. He noted that since the end of slavery, Blacks had found the "biggest 'bloc' of . . . all . . . arrayed against them." It included "leaders of the Ku Klux Klan," politicians who "continuously fanned the flames of race hatred," and the "mass of white voters" who elected them. Together, these enemies of democracy barred Blacks from political office and denied them both "equal education [and] equal employment opportunities." Such actions left Blacks no alternative but to vote their group interests, or as Austin put it, to "look principally to [their] own tents for whatever advancements" might be made.⁹⁶

B. Challenging Jim Crow in Court

The guardians of white rule were shrewd adversaries who displayed their resourcefulness not only at polling places but also in courts of law. That was perhaps nowhere more apparent than in the adjudication of a series of lawsuits brought by James R. Walker Jr., a young Black attorney from eastern North Carolina. Walker grew up in Hertford County, located in the historic Second Congressional District, where Black political strength had been concentrated in the decades after

⁹⁶ "The 'Negro Bloc' and the 'Single Shot,'" *Carolina Times*, May 22, 1965.

Emancipation. His parents, James and Ethel, were teachers who instilled in their son a determination to "fight social injustice." After serving in the U.S. Army during World War II, the younger Walker set out to become a civil rights lawyer.⁹⁷

In 1949, Walker applied for admission to the school of law at the University of North Carolina in Chapel Hill but was rejected on account of his race. With no other option, he enrolled at the North Carolina College for Negroes (now North Carolina Central University), where state lawmakers had established a separate and decidedly unequal law school to protect the white university from desegregation. But within a year, the U.S. Supreme Court changed the game. The court ruled in a Texas case, *Sweatt v. Painter*, that racially segregated programs of graduate and professional education were acceptable only if they exhibited "substantive equality." On the basis of that judgment, Walker and four other Black plaintiffs – Harvey Beech, James Lassiter, J. Kenneth Lee, and Floyd McKissick – sued in federal court and won admission to the law school in Chapel Hill. They began their studies during the summer of 1951. Lee and Walker took their degrees a year later and became the University of North Carolina's first Black graduates.⁹⁸

In 1955, Black community leaders in Halifax County persuaded Walker to return to eastern North Carolina and join their struggle for political rights. When he opened his law office in Weldon, he was the only Black attorney in a six-county area where sharecropping still bound Black families to the land and racial violence was a fearsome fact of life. Walker was unafraid. "I was an Army man," he remembered. "Had been to the front. . . . I wasn't scared of nothing."⁹⁹

Walker drew financial and professional support from a small community of Black lawyers in North Carolina's Piedmont cities. He also built a loose network of Black preachers, teachers, businessmen, and club women from twenty-five eastern counties. He called the group the Eastern Council on Community Affairs. Its members gathered news of voter infringement, mobilized to confront hostile white election officials, and helped Walker identify plaintiffs who were prepared to challenge Jim Crow in court.¹⁰⁰

Walker began filing lawsuits in 1956. In one of his first cases, he sued on his own behalf to challenge the prohibition of single-shot voting in an at-large election for seats on the Halifax County Board of Education. Officials had discarded his ballot because he cast a single vote for the one Black candidate rather than comply with instructions to choose seven of eight contenders.

The case eventually made its way to the North Carolina Supreme Court, where Walker ran afoul of state lawmakers' efforts to stall school desegregation. In 1955, quick on the heels of the U.S. Supreme Court's *Brown* decision, they extended their influence over policy at the local level by making seats on county school boards appointed rather than elected positions. Under the new arrangement, political parties continued to hold primary elections, but the results were no longer binding. County boards of elections reported the winners to the State Superintendent of Public Instruction, who in turn sent their names to the legislature in the form of nominations. Lawmakers then appointed school board members as they saw fit. By time the high court heard Walker's appeal, lawmakers had already exercised their authority to appoint members of the Halifax County

⁹⁷ Wertheimer, *Law and Society in the South*, 131-32.

⁹⁸ Ibid., chapt. 7, and Nixon, "Integration of UNC-Chapel Hill – Law School First." The following account of Walker's career and legal challenges to Jim Crow election law draws broadly on Wertheimer (above) and Barksdale, "Indigenous Civil Rights Movement."

⁹⁹ Wertheimer, *Law and Society in the South*, 142 and 150.

¹⁰⁰ Ibid., 146 and 148.

Board of Education. In light of that fact, the court ruled that "questions raised by plaintiff are now moot" and dismissed Walker's case.¹⁰¹

While litigating his personal complaint in Halifax County, Walker filed another lawsuit on behalf of Louise Lassiter, a resident of nearby Northampton County who had been denied the right to register after failing to prove that she was literate. At the time, registrars enjoyed broad authority to administer literacy tests in whatever form they imagined. They often framed the tests as civics exams that reached well beyond a simple assessment of an applicant's ability to read and write. Observers documented a "bewildering variety" of questions. Can you "name the signers of the Declaration of Independence?" a registrar might ask. "What is habeas corpus?" "If the NAACP attacked the U.S. government, on which side would you fight?" "Explain how a person [can] be imprisoned for debt in North Carolina, who created the world, and what 'create' mean[s]." Louise Lassiter failed her test because she mispronounced words from the state constitution, including the term 'indictment'.¹⁰²

Lassiter's case set off alarm bells in Raleigh, where state officials worried that she might prevail in federal court. Her complaint coincided with passage of the Civil Rights Act of 1957, the first national legislation of its kind since Reconstruction. That law established the U.S. Civil Rights Commission to investigate allegations of voter suppression and authorized the Department of Justice to institute civil action against any person who interfered with the right of another "to vote or to vote as he may choose."¹⁰³

Just days before Lassiter's case was scheduled to be heard in U.S. district court, legislators revised state election law to make the literacy test less arbitrary. They struck the requirement that literacy be proven "to the satisfaction" of registrars and created an appeal process for citizens who failed the test – though complaints would be heard only if filed "by 5:00 p.m. on the day following denial." These changes were enough to satisfy the federal court, which declined to proceed with Lassiter's case until she had petitioned for a local remedy.¹⁰⁴

Soon after the court's decision, Lassiter made another attempt to register. But this time, at Walker's instruction, she refused examination on grounds that the literacy test violated her right to vote. That focused Lassiter's legal complaint on the constitutionality of the test itself rather than the method of its administration. When the case reached the North Carolina Supreme Court, lawyers for the Northampton County Board of Elections argued in circles. They denied that the literacy test was discriminatory on account of race and then defended it as a political necessity adopted to correct the "outrages perpetrated upon the people of this State during the Tragic Era of Reconstruction," when the ballot was "placed in the hands of illiterate people" – that is, former slaves – "supported by the armed might of the Federal Government." Convinced by such reasoning, the

¹⁰¹ Eure, *Public School Laws of North Carolina*, 13-14; *Session Laws and Resolutions, State of North Carolina, Extra Session of 1956, and Regular Session, 1957*, chapt. 137; and *Walker v. Moss*, 97 S. E.2d 836 (N.C. 1957).

¹⁰² North Carolina Advisory Committee to the United States Commission on Civil Rights, *Equal Protection of the Laws in North Carolina*, 28 and 33, and Wertheimer, *Law and Society*, 141 and 151.

¹⁰³ Public Law 85-315: An Act to Provide Means of Further Securing and Protecting the Civil Rights of Persons Within the Jurisdiction of the United States, 637, <<http://bit.ly/2UGEvGA>>, September 5, 2019, and Winquist, "Civil Rights: Legislation: The Civil Rights Act of 1957."

¹⁰⁴ *Session Laws and Resolutions, State of North Carolina, Extra Session of 1956, and Regular Session, 1957*, chapt. 287, and *Lassiter v. Taylor*, 152 F. Supp. 295 (E.D.N.C. 1957).

court rejected Lassiter's constitutional claims. It found no evidence of "discrimination in favor, or against any [person] by reason of race, creed, or color."¹⁰⁵

On appeal in 1959, the U.S. Supreme Court unanimously affirmed that ruling. Writing for the court, Justice William O. Douglas acknowledged that when arbitrary authority was vested in registrars, a literacy requirement could "make racial discrimination easy." But he found no evidence of that intent in North Carolina's election law as amended in 1957. He instead read literacy tests as an expression of the state's desire "to raise the standards for people of all races who cast the ballot." Ignoring the effects of a century of school discrimination in the South and the core reasoning of the 1954 *Brown* decision, Douglas insisted that "literacy and illiteracy are neutral on race, creed, color, and sex, as reports around the world show."¹⁰⁶

Black certainly had no natural inclination to illiteracy, but the connection between illiteracy and race as a social category and lived experience was undeniable. Had Justice Douglas examined conditions in Northampton County, that harsh reality would have been readily apparent. In 1950, Black adults in the county had completed, on average, 5 years of schooling. That compared to 5.6 years for Black adults and 8.6 years for white adults statewide. These figures meant that a considerable portion of voting-age Blacks, in Northampton County and across the state, had completed fewer than the three years of education that demographers assumed was required to develop basic literacy skills. Jim Crow's shadow remained long and deep.¹⁰⁷

In 1960, Walker returned to court with a new client. Having failed to win a judgment that the literacy test was unconstitutional per se, he revisited the question of how it was administered. His client, Bertie County resident Nancy Bazemore, had been denied by a registrar who required that she write down passages from the state constitution as he read them aloud. Bazemore failed because of spelling errors. When the case reached the State Supreme Court, the justices ruled in Bazemore's favor and issued guidelines that sharply limited registrars' discretion in determining the form and content of the literacy test. They instructed those officials to evaluate "nothing more" than applicants' ability to "utter aloud" a section of the state constitution and to write it out "in a reasonably legible hand." Furthermore, the test was to be based on a printed copy of the constitution – not dictation – and there were to be no penalties for "the occasional misspelling and mispronouncing of more difficult words."¹⁰⁸

The *Bazemore* decision represented what many observers came to view as the North Carolina way in managing Black demands for equal rights. It rejected naked discrimination and insisted on "fair and impartial" enforcement of the law, but also left room for sorting citizens into racial categories. Across North Carolina, most whites registered and voted without a literacy test. They "took it for granted" that they were entitled to do so because of the color of their skin. In Nancy Bazemore's home county, one registrar was forthright. When asked if any whites had failed the literacy test, he replied, "No. I mean I didn't have any to try it." Though the State Supreme

¹⁰⁵ "Defendant Appellee's Brief," *Lassiter v. Northampton Board of Elections*, Supreme Court of North Carolina, fall term 1957, no. 172, Sixth District, quoted in Wertheimer, *Law and Society in the South*, 155, and *Lassiter v. Northampton County Board of Elections*, 102 S.E.2d 853 (N.C. 1958).

¹⁰⁶ *Lassiter v. Northampton County Board of Elections*, 360 U.S. 45 (1959).

¹⁰⁷ North Carolina Advisory Committee to the United States Commission on Civil Rights, *Equal Protection of the Laws in North Carolina*, 144, and Collins and Margo, "Historical Perspectives on Racial Differences in Schooling," <<http://bit.ly/2UMbN7e>>, September 5, 2019, 4.

¹⁰⁸ *Bazemore v. Bertie County Board of Elections*, 119 S.E.2d 637 (N.C. 1961).

Court did not address this issue directly, it validated the underlying assumption by ruling that there was no legal requirement that every registrant be examined. "It would be unrealistic to say that the test *must* be administered to all applicants," the justices wrote. "The statute only requires that the applicant *have* the ability" to read and write (emphasis in original). "If the registrar in good faith knows that [the] applicant has the requisite ability, no test is necessary."¹⁰⁹

This reading of state election law suggested that registrars still possessed the authority to group citizens into two classes: whites who were assumed to be literate and Blacks who had to prove it. The law did not require that the literacy test be administered to all citizens on an equal basis, but only that it "be administered, where uncertainty of ability exists, to all alike." That was a notably pernicious doctrine in a white man's society long habituated to the idea that Blacks, by their very nature, lacked the intellectual and moral capacity to function as citizens.¹¹⁰

North Carolina's response to Black demands for political rights was adaptive, not reactionary. It stood apart from what became known as "massive resistance" elsewhere in the South. As one contemporary observed, it was a "subtle strategy" for preventing "the Black vote from being effective." White political leaders were willing to tolerate the registration of a limited number of Black voters and even the occasional election of a Black officeholder, but they conceded nothing on the foundational principles of Jim Crow: Black inferiority and second-class citizenship. This was their way of maintaining what Charles Aycock had called "good order" and of warding off federal intervention, an existential threat since the days of slavery.¹¹¹

C. Challenging Jim Crow at School

A willingness to concede change at the margins shaped not only the battle over the ballot box but also the racial contest at the schoolhouse door. In the early 1930s, Black educators, organized through the North Carolina Teachers Association (NCTA), collaborated with the NAACP in a campaign to equalize Black and white teachers' pay. They were emboldened by the New Deal's support for organized labor and the minimum wage standards set by the National Recovery Administration. In October 1933, more than 2500 teachers filled the streets in Raleigh to press their demands. Weeks later, their representatives issued a bold indictment of Jim Crow:

We are disenfranchised and told to acquire learning and fitness for citizenship. We undertake the preparation in our inadequate, wretchedly equipped schools. Our children drag through the mud while others ride in busses, we pass the courses required by the state and in most places when we present ourselves for registration, we are denied that right and lose our votes. Our teachers, disadvantaged by disenfranchisement, by lack of the means to prepare themselves, nevertheless do meet the high and exacting standards of the best white institutions of the country, and then armed with the state's highest certificate go into the employment of a commonwealth which reduces their wages to the level of janitors and hod carriers.

¹⁰⁹ Ibid.; Wertheimer, *Law and Society*, 161; and North Carolina Advisory Committee to the U.S. Commission on Civil Rights, "Voting and Voter Registration in North Carolina, 1960," 22.

¹¹⁰ *Bazemore v. Bertie County Board of Elections*, 119 S.E.2d 637 (N.C. 1961).

¹¹¹ Towe, "Barriers to Black Political Participation in North Carolina," 11-12.

The NCTA urged its members to register to vote and to "unite their forces at the polls." "We are informed that it is best for us if we stay out of politics," the Black educators declared, but "we have stayed out and this is what we have."¹¹²

That effort at political mobilization produced one of the South's earliest lawsuits to challenge the constitutionality of the literacy test. In 1934, two Iredell County teachers, T. E. Allison and Robert W. Dockery, appeared before a white registrar who instructed them to read and write passages from the state constitution. When they were done, he declared his judgment: "You do not satisfy me." Allison and Dockery subsequently sued the registrar and the county and state boards of election.¹¹³

The North Carolina Supreme Court heard their case on appeal in 1936 and ruled for the defendants. Associate Justice R. Heriot Clarkson – a Confederate veteran and leader of the white supremacy campaigns of 1898 and 1900 – wrote for the court. He affirmed the constitutionality of the literacy test and said of the plaintiffs, they "just do not like the law of their State." Clarkson closed with a history lesson: "It would not be amiss to say that [the] constitutional amendment providing for an educational test . . . brought light out of darkness as to education for all the people of the State. Religious, educational, and material uplift went forward by leaps and bounds. . . . The rich and poor, the white and colored, alike have an equal opportunity for an elementary and high school education."¹¹⁴

Given the difficulties of voter registration, the NCTA had limited ability to bring direct pressure to bear on state and local politicians, but its continued agitation of the salary equalization issue, the ongoing involvement of the NAACP, and a growing number of lawsuits filed elsewhere across the South convinced the state legislature in 1939 to allocate \$250,000 to raise Black teachers' pay. Still, the average Black teacher earned only three-quarters of what the average white teacher was paid.¹¹⁵

The U.S. Court of Appeals for the Fourth Circuit put southern lawmakers on notice in 1940, when it ruled in a Norfolk, Virginia case that racial disparities in teacher pay violated the equal protection clause of the Fourteenth Amendment. A three-judge panel affirmed Black teachers' "civil right . . . to pursue their profession without being subjected to discriminatory legislation on account of race or color." America's entry into World War II then provided the final impetus to close the gap. In 1942, James W. Seabrook, president of both the NCTA and Fayetteville State Teachers College, appealed to white politicians' sense of fair play and their not-so-secret fears for Black loyalty in the war effort. He urged them to "give the Negro confidence that the principles of democracy for which he is being called upon to fight in the four corners of the earth will be applied to him here at home." Two years later, the General Assembly appropriated funds to equalize Black and white teachers' salaries.¹¹⁶

¹¹² Thuesen, *Greater Than Equal*, 142-48.

¹¹³ *Ibid.*, 147.

¹¹⁴ *Allison v. Sharp*, 184 S.E. 27 (N.C. 1936). On Justice Clarkson, see *Prominent People of North Carolina*, 16-17. In 1896, Clarkson organized one of the state's first "White Supremacy" clubs. Governor Charles Aycock rewarded his political loyalty with an appointment as solicitor of the state's Twelfth Judicial District.

¹¹⁵ Thuesen, *Greater Than Equal*, 152.

¹¹⁶ *Alston v. School Board of City of Norfolk*, 112 F.2d 992 (4th Cir. 1940); Douglas, *Reading, Writing, and Race*, 20; and Thuesen, *Greater Than Equal*, 153-55.

During the war years, Black educators' demand for equal pay expanded into a call for equal facilities. Children led the way. In October 1946, more than four hundred students, organized in a local NAACP Youth Council, filled the streets in Lumberton, a small town in southeastern North Carolina. They carried placards that cheered the triumph of democracy in World War II and set that achievement against the wretched condition of Black schools: "inadequate and unhealthy . . . overcrowded . . . and dilapidated." "D-Day," and "V for Victory," the signs exclaimed. "How Can I Learn When I'm Cold?" "It Rains on Me." "Down with Our Schools."¹¹⁷

Protests spread across eastern and central North Carolina, accompanied by lawsuits that challenged the constitutionality of unequal school funding. In 1950, plaintiffs in Durham won a breakthrough case in the U.S. District Court for the Middle District of North Carolina. Judge Johnson Jay Hayes ruled that city school officials had a legal obligation to provide "negro school children substantially equal facilities to those furnished white children." He found no "excuse or justification" for failing to meet that standard and ordered an end to discriminatory school spending.¹¹⁸

Anyone who read Judge Hayes's ruling closely would have spotted a single sentence that was even more prescient in its implications. "The burdens inherent in segregation," he wrote, "must be met by the state which maintains them." Had Hayes pronounced a death sentence for Jim Crow? In 1951, a group of fifty-five Black parents filed suit in Pamlico County to test that question. They demanded that their children be assigned to white schools unless adequate Black facilities were provided. As historian Sarah Thuesen noted, this was "the first lawsuit filed in the federal courts from North Carolina – and only the second in the South – to raise the possibility of integration." The plaintiffs dropped their complaint when county officials agreed to build a new Black high school, but they had made their point. As the editor of the *Kinston Free Press* noted, "If we want to keep segregation, we must bend over backward to see that facilities are equal."¹¹⁹

To that end, state leaders put a \$50 million school bond on the ballot in late 1953, as the U.S. Supreme Court prepared to hear final arguments in *Brown v. Board*. One observer noted that many white voters supported the measure in hope that it "might tend to influence" a judgment favorable to the white South. They could not have been more mistaken. On May 17, 1954, the Court ruled that "in the field of public education, the doctrine of 'separate but equal' has no place. Separate educational facilities are inherently unequal. Therefore, we hold that . . . segregation is a denial of the equal protection of the laws." In the aftermath of that decision, state and local officials scrambled once more to invent means of defending the substance, if not the letter, of Jim Crow statutes.¹²⁰

D. *Brown v. Board* and the Pearsall Committees

Two gubernatorial advisory committees, popularly known by the name of their chairman, wealthy eastern landowner and Democratic power-broker Thomas J. Pearsall, set the course for opposition to *Brown*. They worked from the principle "that members of each race prefer to associate with other members of their race *and that they will do so naturally unless they are prodded and inflamed and controlled by outside pressure*." (emphasis in the original).¹²¹ To that end, the

¹¹⁷ Thuesen, *Greater Than Equal*, 169-70.

¹¹⁸ *Blue v. Durham Public School District*, 95 F. Supp. 441 (M.D.N.C. 1951).

¹¹⁹ Thuesen, *Greater Than Equal*, 191.

¹²⁰ *Ibid.*, 200, and *Brown v. Board of Education of Topeka*, 347 U.S. 483 (1954).

¹²¹ Leloudis and Korstad, *Fragile Democracy*, 63.

committees proposed "the building of a new school system on a new foundation – a foundation of no racial segregation by law, but assignment according to natural racial preferences and the administrative determination of what is best for the child."¹²²

The first Pearsall committee recommended that the state cede authority over school assignments to local districts. That proposal informed the Pupil Assignment Act of 1955, passed in the same legislative session as the prohibition of single-shot voting. Lawmakers removed references to race from state school assignment policy and gave parents "freedom of choice" in selecting the schools their children would attend. But there was a catch. The law required that Black parents petition individually to have their children assigned to white schools. Doing so demanded great courage. Parents faced the prospect of retribution by angry employers and landlords, and they had to accept the risk that their children might stand alone to face white resistance. The law also gave local school boards broad discretionary authority in ruling on parents' requests. They could reject an application if they believed that it did not serve a child's "best interests," or that it would compromise "proper administration," "proper instruction," or "health and safety" in a target school.¹²³

A year later, the second Pearsall committee proposed an amendment to the state constitution that would authorize the legislature to provide private school vouchers for "any child assigned against the wishes of his parents to a school in which the races are mixed." Local school boards would also be permitted to call for public referenda to close schools in case of "enforced mixing of the races." The committee presented the amendment as a balm for racial conflict stirred up by outsiders, most notably the NAACP and the federal courts. They looked forward to a day "when sanity returns," and to re-establishment of "the harmonious relations which the races have enjoyed in North Carolina for more than fifty years" – that is, from the time of white redemption and Black disenfranchisement. In September 1956, voters approved the amendment by a margin of more than four to one. Though no schools were ever closed and only one private school voucher was issued, the amendment effectively undermined any notion that desegregation might be achieved more quickly.¹²⁴

These policies won North Carolina praise as a "moderate" southern state but produced one of the lowest desegregation rates in the region. At the beginning of the 1958-59 school year, only ten of the state's roughly 322,000 Black students were enrolled in formerly white schools. That result impressed officials in Little Rock, Arkansas, where in 1957 white resistance to desegregation had prompted President Dwight Eisenhower to use federal troops to restore order. They complimented their North Carolina colleagues: "You . . . have devised one of the cleverest techniques of perpetuating segregation that we have seen. . . . If we could be half as successful as you have been, we could keep this thing to a minimum for the next fifty years."¹²⁵

The Little Rock admirer put his finger on a lesson that is as true today as it was in the 1950s. White supremacy, often violent and inflexible, can also be subtle and adaptive. A tobacco

¹²² *Report of the North Carolina Advisory Committee on Education, April 5, 1956*, 7 and 9, <<http://bit.ly/2LTNQXw>>, September 5, 2019.

¹²³ *Session Laws and Resolutions, 1955*, chapt. 366, 310.

¹²⁴ *Report of the North Carolina Advisory Committee on Education, April 6, 1956*, 8-10; Wettach, "North Carolina School Legislation, 1956," 7; and Batchelor, *Race and Education in North Carolina*, 108-9. The U.S. District Court for the Western District of North Carolina struck down the voucher plan in 1966. See Batchelor, 110.

¹²⁵ Batchelor, *Race and Education in North Carolina*, 73, and Chafe, *Civilities and Civil Rights*, 97 and 106.

worker from eastern North Carolina said it best: "My experience . . . is that if you beat the white man at one trick, he will try another."¹²⁶

E. Stalled Revolution

When most Americans think about the history of civil rights, they tend to view the past through a rearview mirror. They see a series of struggles that led inevitably to the demise of Jim Crow in the mid-1960s. But for an observer on the ground at the beginning of that decade, the future seemed far less certain. The U.S. Supreme Court had effectively embraced the North Carolina way. In *Lassiter v. Northampton County Board of Elections*, the court affirmed the constitutionality of the literacy test, and in *Brown II*, its ruling on the enforcement of school desegregation, the court embraced the go-slow approach proposed in an amicus curiae brief filed by North Carolina's attorney general.

North Carolina State Assistant Attorney General I. Beverly Lake Sr. drafted the brief and presented it along with oral arguments in April 1955. He urged the court to "allow the greatest possible latitude to . . . District Judges in drafting final [desegregation] decrees." It stood to reason, he explained, that "only a court conversant with local conditions and granted wide discretion [could] tailor [a] decree to fit the local variations." Lake also offered a dire warning against any "attempt to compel the intermixture of the races." Such action would result in "violent opposition" and place the public schools in "grave danger of destruction." In its ruling in *Brown II*, the high Court heeded Lake's advice. The Justices left it to lower courts to determine the pace and process of desegregation, guided by "their proximity to local conditions" and understanding of the need for "practical flexibility in shaping remedies." That was the essence of *Brown II*'s vague directive that desegregation proceed "with all deliberate speed."¹²⁷

Congress was even less inclined to effect sweeping change, thanks in significant measure to the outsized influence wielded by southern lawmakers. In the decades after Black disenfranchisement, national leaders ignored Section 2 of the Fourteenth Amendment, which requires a reduction in representation for states that deny voting rights on the basis of race. Political scientist Richard Valelly estimates that had Section 2 been enforced, the Jim Crow South would have lost as many as twenty-five seats in the U.S. House of Representatives between 1903 and 1953. But the disenfranchisers never paid that penalty; instead, they expanded their influence in national politics. "That itself," Valelly writes, "was a major if silent constitutional change, a tacit, extraconstitutional [revision] of the Fourteenth Amendment."¹²⁸

The denial of Black voting rights and the systematic suppression of two-party politics in the South also limited dissent and ensured that Democratic incumbents in Congress would be re-elected term after term. Over time, southern politicians accrued seniority and gained control of key committees in both the House of Representatives and the Senate. Their power was obvious in contests over civil rights issues, but much of it was otherwise out of view. As the chairmen of committees charged with administrative oversight, they permitted unchecked racial discrimination by government agencies, from the Federal Housing Administration's use of red lining to enforce

¹²⁶ Korstad, *Civil Rights Unionism*, 384.

¹²⁷ Brief of Harry McMullen, Attorney General of North Carolina, Amicus Curiae, 3 and 6, <<http://bit.ly/36PHJfd>>, November 29, 2020, and *Brown v. Board of Education of Topeka*, 347 U.S. 483 (1954).

¹²⁸ Valelly, *Two Reconstructions*, 146-47.

racial segregation in America's cities and suburbs to the Veterans Administration's biased allocation of resources under the G.I. Bill and the U.S. Department of Agriculture's denial of subsidized loans and other resources to Black farmers. Examples abound. In every instance, willful neglect helped to entrench Jim Crow not only in the life of the South, but in that of the nation as well.¹²⁹

X. Civil Rights at Last

A. Sit-Ins and Direct Action

By the late 1950s, most white southerners understood that the world they had built over the last half century would not last forever, but they were determined to preserve it as long as they could. They had reason to be confident and optimistic. The *Brown* decision had not integrated public schools, Martin Luther King Jr.'s Montgomery movement had accomplished little more than the desegregation of city buses, and despite increases in voter registration, Black political power was still negligible. On top of that, most whites outside the South were content with the racial status quo.

Then a civil insurrection broke out. The uprising drew strength from Black moral anger and frustration with white recalcitrance, and it was given form and direction by years of preparation and social learning in Black communities across the South. Clear in hindsight, but less so at the time, the signal event took place on February 1, 1960, when four students at the Agricultural and Technical College of North Carolina – Ezell Blair Jr., David Richmond, Franklin McCain, and Joseph McNeil – demanded service at a Woolworth's lunch counter in Greensboro. Sit-ins quickly spread across the state and throughout the South. Two months later, college students, Black and white, gathered at Shaw University in Raleigh – North Carolina's oldest Black institution of higher learning – to organize the Student Nonviolent Coordinating Committee (SNCC).¹³⁰

Inspired by North Carolina native and Shaw graduate Ella Baker, SNCC embraced a grass-roots strategy for mobilizing ordinary citizens as leaders in the struggle for civil rights. Volunteers from every corner of the nation fanned out across the South to register voters, to build alternative schools for Black children, and to press for the desegregation of public facilities. Other civil rights organizations – including King's Southern Christian Leadership Conference, the Congress on Racial Equality (CORE), and the NAACP – adopted similar strategies of direct action. What these groups set in motion was a second Reconstruction in which Black people reached up not to receive but to seize their freedom.¹³¹

In the years between 1960 and 1965, Black protests forced issues of race and democracy to the center of national attention. As in the first Reconstruction, whites responded with state-sanctioned and extra-legal violence, which were not always distinguishable. The stories that filled columns of newsprint and the images that flooded television screens have become iconic: the fire-bombing and brutal beating of Freedom Riders; the assassination of Medgar Evers; the death of four little girls in the Klan bombing of the Sixteenth Street Baptist Church in Birmingham; the exhumation of the bodies of James Chaney, Andrew Goodman, and Michael Schwerner, CORE organizers murdered by Klansmen and law officers in Neshoba County, Mississippi; and the police attack on protestors attempting to cross Selma's Edmund Pettis Bridge. These and other outrages

¹²⁹ Ibid. See also Katznelson, *When Affirmative Action Was White*, and Daniel, *Dispossession*.

¹³⁰ Chafe, *Civilities and Civil Rights*, 98-141.

¹³¹ Hogan, *Many Minds One Heart*.

ultimately swayed public opinion and shamed majorities in Congress to pass the landmark Civil Rights Act of 1964 and the Voting Rights Act of 1965.

B. A Second Emancipation


Each state has its own history of dealing with the moral and civic crisis brought on by the mass mobilization for democratic rights and equal citizenship. Though it had the largest Klan organization in the South, North Carolina did not experience the widespread violence that beset the Deep South. In large part, that was because of a critical gubernatorial election in 1960, won by moderate Democrat Terry Sanford. Throughout his administration, Sanford, a protégé of Frank Graham, preached a message of opportunity for all and used the police power of the state to surveil and restrain the Klan.¹³²

Sanford won the Democratic gubernatorial nomination in a bitter primary contest with former Assistant Attorney General I. Beverly Lake Sr., a respected jurist who had taught law at Wake Forest College and was widely admired for his defense of Jim Crow. After his appearance before the U.S. Supreme Court in *Brown II*, Lake had proposed an amendment to the state constitution that would have made desegregation a moot issue by removing the Reconstruction-era mandate for publicly funded schools. In his campaign for governor, Lake assured supporters that "The PRINCIPLES for which we fight are ETERNAL!"¹³³

IF YOU REALLY KNOW ...

Dr. BEVERLY LAKE

YOU'LL VOTE FOR HIM ON MAY 28



**This Is The Man
North Carolina
Needs As Her
Governor**

He Is "The Man Who Lets You Know
Where HE Stands"

AGRICULTURE BASIC TO ECONOMY
Dr. Lake supports the work of our Federal, State and Local agricultural leaders.
"I shall seek the advice of farm organizations and the Department of Agriculture."
"The problem of the small farmer is the most crucial issue facing North Carolina agriculture and we must work to help the small farmer because he is the backbone of our economy."

I. BEVERLY LAKE
BALANCED BUDGET NECESSARY—
Dr. Lake favors a balanced State budget; he is opposed to deficit State spending; and is strongly against raising our already burdensome taxes for desirable but non-essential improvements.
Dr. Lake proposes a "Policy of spending for current operating expenses no more than can be produced by our tax laws not unduly burdensome".

SCHOOL INTEGRATION OPPOSED—
Dr. Lake is opposed to the mixing of white and Negro children in the schools in North Carolina.
"The mixing of our two great races in the classroom and then in the home is not inevitable and is not to be tolerated."

**COURT AND HIGHWAY
CHANGES NEEDED—**
Dr. Lake favors certain reforms in our court system directed toward a uniform, more efficient and less costly system of justice for our people.
"Dr. Lake favors election of all judges, Justices and Justices of Peace, by the people and is against proposals which would eliminate this plan."
"I favor a highway commission of fifteen members, one appointed from each of the 14 engineering divisions."

Political Adv Paid for by Perquimans Lake For Governor Committee

"The PRINCIPLES
for which we fight
are ETERNAL!"
I. Beverly Lake

"The mixing of our two great races in the classroom and then in the home is not inevitable and is not to be tolerated."

I. Beverly Lake campaign ad, *Perquimans Weekly*, May 27, 1960, and campaign card. Courtesy of the North Carolina Collection, Wilson Library, University of North Carolina at Chapel Hill.

¹³² Covington, *Terry Sanford*, 342-43. Klan membership in North Carolina exceeded that of Alabama and Mississippi combined. See Cunningham, *Klansville, U.S.A.*

¹³³ "N.C. Bar Association Award Carries Legacy of Explicit Racism," *Raleigh News and Observer*, June 28, 2016.

Sanford was a different breed of politician. He belonged to the generation who had fought in World War II and had seen horrifying reflections of American racism in German concentration camps and in the concepts of common blood and ethnic nationalism that shaped Japan's imperial project in Asia. Veterans like Sanford came home full of confidence in their ability to make the world a better place, and they were convinced that the South had to change – as a matter of what was just and right, and as an economic imperative if the region was to lift itself out of the misery that had long defined it as the most impoverished section of the nation.¹³⁴

When Lake challenged his allegiance to Jim Crow, Sanford refused to be race baited. He pivoted to the "bright look of the future" and invited voters to join him in building for a "New Day" in North Carolina. That required improving public schools, not excising them from the state constitution. "We are going to continue to go forward," Sanford declared, "to give our children a better chance, to build a better state through better schools." That appeal was persuasive and reassuring. Sanford bested Lake and went on to win the general election.¹³⁵

Soon after taking office, Sanford embarked on a tour of schools across the state. When he visited students – particularly at Black schools – he began to question his faith in education as a corrective for the damage wrought by Jim Crow. "I had a sickening feeling," he later recalled, "that I was talking about opportunities that I knew, and I feared [the children] knew, didn't exist, no matter how hard they might work in school." The "improvement of schools wasn't enough," he concluded. "Not nearly enough."¹³⁶

By his own account, the governor was learning hard lessons – from school-aged children and from their older siblings who filled the streets with urgent demands for equal rights. He began to comprehend the connections between poverty and racial injustice that tobacco workers in Winston-Salem had exposed in the 1940s, that the biracial Fusion alliance had grasped during the 1890s, and that Black and white Republicans had identified as a central concern of Reconstruction. "We must move forward as one people or we will not move forward at all," Sanford told Black college students in Greensboro. "We cannot move forward as whites or Negroes . . . We can only move forward as North Carolinians."¹³⁷

Sanford's words were a direct refutation of the foundational principle of Jim Crow, which Charles Aycock had explained in 1901 to an audience at the Negro State Fair in Raleigh. "It is absolutely necessary that each race should remain distinct," he said, "and have a society of its own. . . . The law which separates you from the white people of the State . . . always has been and always will be inexorable."¹³⁸

In the winter of 1962-63, as the nation marked the centenary of Abraham Lincoln's Emancipation Proclamation, Sanford shared a "bold dream for the future." He startled white educators at a meeting in Dallas, Texas when he declared, "We need our own . . . emancipation proclamation which will set us free to grow and build, set us free . . . from hate, from demagoguery." Back home, he urged members of the North Carolina Press Association to join him in a campaign to make good on the unfulfilled promise of freedom and equality. "We can do this," Sanford declared.

¹³⁴ See Covington, *Terry Sanford*, chapt. 5.

¹³⁵ Drescher, *Triumph of Good Will*, 67, 171, and 175.

¹³⁶ Manuscript containing notes for an abandoned book on Terry Sanford's term as governor, subseries 3.1, box 174, Records and Papers of Terry Sanford.

¹³⁷ "Fraternity's Award Goes to Sanford," *Greensboro Daily News*, April 28, 1963.

¹³⁸ "A Message to the Negro," in Connor and Poe, eds., *Life and Speeches of Charles Brantley Aycock*, 249-50.

"We should do this. We will do it because we are concerned with the problems and the welfare of our neighbors. We will do it because our economy cannot afford to have so many people fully and partially unproductive. We will do it because it is honest and fair for us to give all men and women their best chance in life."¹³⁹

As he spoke to the journalists, and through them the citizens of North Carolina, Sanford must have been mindful of another southern governor who had been in the headlines just days before. In his inaugural address, delivered from the steps of the state capitol in Montgomery, Alabama, George C. Wallace exclaimed, "Segregation now, segregation tomorrow, segregation forever."¹⁴⁰

C. Lifting the Economic Burden of Jim Crow

Six months later, Sanford called on his friends in the press once again, this time to publicize the launch the North Carolina Fund, a non-governmental organization that would use private resources – from the Ford Foundation and North Carolina's own Z. Smith Reynolds and Mary Reynolds Babcock Foundations – to attack the state's "poverty-segregation complex." That plan was audacious. Nearly 40 percent of North Carolinians lived below the poverty line, and in eastern counties where slavery and later sharecropping dominated the economy, Black poverty was so deep and pervasive that outsiders referred to the region as "North Carolina's 'little Mississippi.'" As the Fund took on this challenge, it became a model for the national war on poverty, which President Lyndon Johnson and Congress launched with the Economic Opportunity Act of 1964, the establishment of Medicare and Medicaid in 1965, and the expansion of multiple programs that sought to educate, feed, clothe, and house the poor. In subsequent years, the Fund was an important conduit for millions of dollars in federal aid that flowed into North Carolina.¹⁴¹

From the beginning, the Fund modeled a future built on equal citizenship. Its staff and board of directors were remarkable for the number of women and Blacks who served in leadership roles, and its headquarters was located in Durham's Black business district, an intentional sign of the organization's guiding principles. The Fund also adopted the direct-action techniques of the civil rights movement. Its community partners led boycotts of businesses that refused to hire Black workers, staged rent strikes to demand that landlords repair sub-standard housing, registered voters, and taught poor people how to pressure politicians and government officials for a fair share of social provision: more and better public housing; job training; paved streets, clean water, and sewer lines for neighborhoods that had been denied those services on account of race; and low-interest mortgages and community development grants from the U.S. Department of Agriculture and other federal agencies.¹⁴²

¹³⁹ Address to the Commission on Secondary Schools of the Southern Association of Colleges and Schools, Dallas, Texas, November 28, 1962, in Mitchell, ed., *Messages, Addresses, and Public Papers of Terry Sanford*, 302; "Observations for a Second Century," subseries 3.1, box 174, Records and Papers of Terry Sanford; and film of Sanford's address to the North Carolina Press Association, series 6.2, VT3531/1a, Terry Sanford Papers.

¹⁴⁰ On Wallace's gubernatorial inauguration, see Carter, *Politics of Rage*, 104-9.

¹⁴¹ Untitled document on the Choanoke Area Development Association, series 4.11, folder 4825, North Carolina Fund Papers, and John Salter to Jim Dombrowski, April 28, 1964, folder 22, Gray (Salter) Papers. On conditions of poverty in North Carolina and the North Carolina Fund's relationship to the national war on poverty, see Korstad and Leloudis, *To Right These Wrongs*, 57-59, and 115-19.

¹⁴² For a detailed account of the North Carolina Fund's antipoverty work, see Korstad and Leloudis, *To Right These Wrongs*, chaps. 3-5.

Through these efforts, the Fund attempted to create an interracial movement of the poor, but it had only limited success. By time the organization closed its doors in 1968, national politics had begun to take a sharp conservative turn. For many whites, civil rights victories amplified Jim Crow dogma, which insisted that Blacks could advance only at white expense.

Fund staff often pointed to the resurgence of the Ku Klux Klan in North Carolina as evidence of that tragic worldview. For more than half a century, Jim Crow had all but quashed the possibility of interracial cooperation and one-party government had denied poor and working-class whites a say in politics. Similarly, fierce antiunionism, defended by lawmakers and employers as a means of protecting white jobs, left working-class whites without a collective voice. Throughout the 20th century, North Carolina was one of the least unionized states in the nation and ranked near the bottom for manufacturing wages. These circumstances, in ways that echoed the past, made it easy for firebrands to channel economic grievances into racial animosity.¹⁴³

D. Rise of a New Republican Party

The North Carolina Fund – and more particularly, the challenge it posed to the economic and political structures of Jim Crow – became the social irritant around which a new conservative movement took shape. Republican Congressman James C. Gardner, who represented eastern North Carolina's Fourth District, pointed the way. His election in 1966 marked the beginning of a party realignment that over the next two decades profoundly altered the state's political landscape.

In the summer of 1967, Gardner launched a public assault on the North Carolina Fund. He charged that it had become "a political action machine" and called for an investigation of its "meddling in the affairs of local communities." Gardner also played on racial fears that dated back to the era of Reconstruction and the white supremacy politics of the late 1890s. In a press release, he shared reports from eastern North Carolina that Fund staff were promoting "'revolutionary . . . attitudes'" by speaking openly of the need for a "coalition . . . between poor whites and Negroes to give political power to the disadvantaged."¹⁴⁴

A subsequent audit by federal authorities cleared the Fund of any wrongdoing, but Gardner had achieved his purpose. He positioned himself on the national stage as a leading critic of social welfare programs, and he made the war on poverty and its connections to Black political participation a wedge issue that could draw disaffected white Democrats into an insurgent Republican movement.

Republican Party elders in North Carolina recognized the promise of Gardner's leadership and the shrewdness of his strategy. They had named him party chairman a year before his congressional bid. Sim A. DeLapp, the party's general counsel and himself a former chairman, wrote to encourage Gardner. "From the standpoint of voter sentiment," he advised, "we are in the best shape that we have ever been [in] during my lifetime. People are permanently angry at the so-called Democratic Party. . . . They are mad because [Lyndon] Johnson has become the President of the negro race and of all the left wingers." I. Beverly Lake Sr., who was now a Justice on the North Carolina Supreme Court, expressed the depth of white anger. "The apostles of appeasement . . .

¹⁴³ See Salter, "The Economically Deprived Southern White," box 2, folder 7, Gray (Salter) Papers. David Cunningham makes a similar argument in *Klansville, U.S.A.*

¹⁴⁴ Gardner press release, July 25, 1967, series 1.2.2, folder 318, North Carolina Fund Records. For more on Gardner's criticisms of the Fund, see Korstad and Leloudis, *To Right These Wrongs*, 290-306.

must be removed from positions of public trust," he advised Gardner. "We must clean up the whole foul mess and fumigate the premises."¹⁴⁵

In 1968, Republican presidential candidate Richard Nixon tapped this racial animosity to flip the once solidly Democratic South. He secured an endorsement from Strom Thurmond, U.S. Senator from South Carolina, who had led the 1948 Dixiecrat revolt in defense of states' rights and had left the Democratic Party in 1964 to become a Republican. Nixon also cast his campaign in racially coded language. He offered himself as a spokesman for the "great majority of Americans, the forgotten Americans, the non-shouters, the non-demonstrators" who played by the rules, worked hard, saved, and paid their taxes. This strategy won Nixon the keys to the White House and marked the beginning of the Republican Party's new reliance on the white South as a base of support.¹⁴⁶

Four years later, Nixon made a clean sweep of the region by winning the states that third-party segregationist candidate George Wallace carried in 1968: Alabama, Arkansas, Georgia, Louisiana, and Mississippi. This was the "white uprising" predicted by one of Congressman Gardner's constituents. Like her, most of the white voters who turned out for Nixon in North Carolina were still registered as Democrats, but they elected James E. Holshouser Jr. governor – the first Republican to win the office since Fusion candidate Daniel Russell in 1896 – and sent Jesse Helms to the U.S. Senate. Helms, who served for six terms, quickly rose to prominence as a national leader of what came to be called the New Right.¹⁴⁷

E. Conservative Democrats Hold the Line on Black Voting Rights

Conservatives in the state Democratic Party held on through the 1970s and fought a rear-guard battle against civil rights advocates who used the courts to challenge suppression of the Black vote. In late 1965, the U.S. District Court for the Middle District of North Carolina ruled that the system for apportioning seats in both houses of the state legislature on the basis of geography rather than population violated the principle of "one man, one vote." That standard, derived from the Fourteenth Amendment's equal protection clause, holds that all votes cast in an election should carry roughly equal weight.¹⁴⁸

The state constitution guaranteed each of North Carolina's one hundred counties a seat in the state House of Representatives. That privileged small rural counties, where whites were most firmly in control, and diluted Black votes in urban areas. The largest legislative district had nearly twenty times more residents than the smallest. That meant that a majority in the House "could be assembled from members who represented only 27.09 percent of the state's population." The state Senate was apportioned more evenly. The constitution required that Senate districts contain equal populations, though a separate provision that no county was to be divided created some imbalance. The largest Senate districts had nearly three times more residents than the smallest. The court

¹⁴⁵ DeLapp to James Gardner, September 1, 1965, box 9, DeLapp Papers, and Lake to Gardner, August 5, 1967, box 23, Gardner Papers.

¹⁴⁶ Perlstein, *Nixonland*, 283-85, and Nixon, Nomination Acceptance Address, August 8, 1968, <<http://bit.ly/2HPCoel>>, September 5, 2019.

¹⁴⁷ Quotation from Doris Overman to Gardner, undated, box 14, Gardner Papers.

¹⁴⁸ *Drum v. Seawell*, 249 F. Supp. 877 (M.D.N.C. 1965).

ordered that both chambers be redistricted immediately, and that the populations of the largest new districts not exceed those of the smallest by more than a factor of 1.3.¹⁴⁹

Lawmakers convened in special session in 1966 to draw new district maps. They reduced population ratios as directed by the court but did so by creating a large number of multimember districts – fifteen of thirty-three in the Senate, which previously had thirty-six districts, eleven of which were multimember; and forty-one of forty-nine in the House, which previously had one hundred districts, twelve of which were multimember. Initially, seats in all of the multimember districts were to be filled through at-large elections. This was a familiar means of disadvantaging Black candidates. Lawmakers had used it effectively in the 1950s when they changed county and municipal governments from ward to at-large systems of representation.¹⁵⁰

In 1967, lawmakers did two things that further walled off the General Assembly. First, they approved a constitutional amendment, ratified by voters in the next election, that required that counties be kept whole in the creation of state House as well as Senate districts. This effectively made multimember districts a permanent feature of legislative apportionment, since it was mathematically difficult to base house and senate seats on equal measures of population without resorting to such a solution.¹⁵¹

Second, lawmakers added a numbered-seat plan in twenty of the forty-one multimember House districts and three of the fifteen multimember districts in the Senate. Taken together, these districts covered nearly all of the heavily Black counties in the eastern section of the state. The apportionment law directed that in multimember districts each seat would be treated as a separate office. When citizens went to the polls, they would no longer vote for a set number of candidates out of a larger field of contenders – for instance, three out of five. Instead, their ballots would list separate races within the district, and they would vote for only one candidate in each race.¹⁵² This enabled election officials to place individual minority candidates in direct, one-to-one competition with the strongest white candidates.

Proponents explained that the numbered-seat scheme was designed to "cure the problem of 'single-shot' voting," which was still legal in legislative elections. With conservative Democrats' critique of Black bloc voting clearly in mind, one lawmaker explained that in a numbered-seat election, "you are running against a man and not a group." Another added that numbered seats all but guaranteed "that no Negro could be elected to the General Assembly." The numbered-seat plan was, indeed, so effective that in 1971 the General Assembly had only two Black members: Henry E. Frye, a lawyer from Guilford County, who was elected to his first term in 1968 through a single-shot campaign, and Joy J. Johnson, a minister from Robeson County, who ran in one of the few eastern districts without numbered seats. Frye was the first Black lawmaker to serve in the General Assembly since 1898.¹⁵³

¹⁴⁹ Ibid., and O'Connor, "Reapportionment and Redistricting," 32-33.

¹⁵⁰ *Session Laws and Resolutions, State of North Carolina, Extra Session, 1966*, chaps. 1 and 5, and *Session Laws of the State of North Carolina, Regular Session, 1965*, 9–11.

¹⁵¹ *Session Laws and Resolutions, State of North Carolina, Regular Session, 1967*, chap. 640.

¹⁵² Ibid., chap. 106.

¹⁵³ "Seat Numbering Bill Produced Hot Debate," *Raleigh News and Observer*, July 8, 1967; "Senate Endorses 'Numbered Seats,'" *Raleigh News and Observer*, July 30, 1967; "Numbered Seat Bill Advances," *Raleigh News and Observer*, June 22, 1967; "Numbered Seats Measure Given House Approval," *Raleigh News and Observer*, June 13,

Conservative Democrats attempted to expand the scope of the numbered-seat plan in 1971. They reapportioned the state House to have forty-five districts. Thirty-five were multimember, and of those, twenty-three had numbered seats. In the Senate, there were twenty-seven districts. Eighteen were multimember, and within that group, eleven districts had numbered seats. Had these changes been implemented, the numbered-seat plan would have covered all North Carolina counties with populations that were 30 percent or more Black. But the U.S. Department of Justice blocked the move. It did so under authority of section 5 of the Voting Rights Act, which stipulated that in affected jurisdictions, changes to voting and representation had to be precleared by either the U.S. Attorney General or the U.S. District Court for the District of Columbia to ensure that they would not discriminate against protected minorities. In 1972, the U.S. District Court for the Middle District of North Carolina affirmed the Justice Department's decision. Ruling in *Dunston v. Scott*, the court struck down both the numbered-seat plan and the anti-single-shot laws that regulated elections in certain counties and municipalities. A three-judge panel concluded that "selective and arbitrary application" of both provisions "in some districts and not in others, denies to the voters of North Carolina the equal protection of the laws and is unconstitutional."¹⁵⁴

Though not a basis for their decision, the judges also suggested that the single-shot prohibition violated the U.S. Constitution by constraining voters' choice in use of the ballot. They wrote, "We are inclined to believe that the right to vote includes the right of the voter to refuse to vote for someone he does not know, may not agree with, or may believe to be a fool, and under the Fourteenth and Fifteenth Amendments, we doubt that the state may constitutionally compel a voter to vote for a candidate of another race or political philosophy in order to get his vote counted."¹⁵⁵

In subsequent elections, Black representation in the General Assembly grew from two members in 1970 to a high of six in both 1974 and 1976. The number then fell back to five in 1978 and to four in 1980. Numbered seats or not, Black candidates were still hard-pressed to win in multimember districts.¹⁵⁶

XI. Judicial Intervention and Battles Over a More Inclusive Democracy

A. *Gingles v. Edmisten* and Black Electoral Gains

In 1981, four Black voters filed suit in *Gingles v. Edmisten* to challenge the legislative redistricting plan that the General Assembly had crafted after the 1980 Census and the 1968 constitutional provision that counties not be divided when apportioning state House and Senate seats. Lawmakers had not submitted the plan or the amendment for preclearance by the U.S. Department of Justice; when they did so after the plaintiffs' filing, both were denied approval.¹⁵⁷

1967; Towe, *Barriers to Black Political Participation*, 28; *National Roster of Black Elected Officials*; "The Negro Vote," *Greensboro Daily News*, November 11, 1968; and "Failure of Singleshot Ban May Strengthen Black Vote," *Raleigh News and Observer*, January 17, 1972.

¹⁵⁴ *Session Laws and Resolutions, State of North Carolina, Regular Session, 1971*, chaps. 483, 1177, 1234, and 1237; Towe, *Barriers to Black Political Participation*, 61–62; Manderson, "Review of the Patterns and Practices of Racial Discrimination," 31; Watson, "North Carolina Redistricting Process, 1965–1966," 8; and *Dunston v. Scott*, 336 F. Supp. 206 (E.D.N.C. 1972).

¹⁵⁵ *Dunston v. Scott*, 336 F. Supp. 206 (E.D.N.C. 1972).

¹⁵⁶ "North Carolina African-American Legislators, 1969–2019," <<http://bit.ly/38KWF0u>>, November 29, 2020.

¹⁵⁷ Keech and Siström, "Implementation of the Voting Rights Act in North Carolina," 14.

Lawmakers reacted quickly by drafting a new plan that included five majority-Black House districts and one majority-Black Senate district. The creation of those districts aided the election of eight new Black members of the House, raising the total from three to eleven. As the court later noted, however, the legislature's change of heart was in some measure cynical. "The pendency of this very legislation," the court observed, "worked a one-time advantage for Black candidates in the form of unusual organized political support by white leaders concerned to forestall single-member districting." The U.S. District Court for the Eastern District of North Carolina ruled for the plaintiffs in April 1984. Acting in an extra session, the General Assembly subsequently divided a number of multimember districts into new single-member districts that improved the prospects of Black candidates. In November balloting, two additional Black lawmakers were elected to the General Assembly, bringing the total to thirteen.¹⁵⁸

By 1989, nineteen Black lawmakers served in the General Assembly, more than were elected during either Reconstruction or the Fusion era. Two years later, members elected state Representative Dan Blue Speaker of the House, at that time the highest state office held by a Black politician in North Carolina. Blacks also made substantial gains at the local level, largely as a result of legal challenges to at-large elections and multimember districts that followed the *Gingles* decision. At the end of the decade, more than four hundred Black elected officials served in county and municipal governments across the state.¹⁵⁹

Growing Black political influence was also evident in 1991, when the General Assembly redrew North Carolina's congressional districts on the basis of the 1990 census. Under pressure from the U.S. Department of Justice and Black leaders in the Democratic Party, legislators created two districts with slim Black majorities. They explained that had they not done so, the state would have been vulnerable to legal challenge for violating the Voting Rights Act of 1965. The issue was dilution of the Black vote. In most parts of the state, the geographical scope of congressional districts submerged Black voters in sizable white majorities. Statewide, whites also had a long, well-documented history of refusing to support Black candidates. As a result, it was difficult for Black voters to make their voices heard in federal elections. To remedy this marginalization, lawmakers created a new First Congressional District in the heavily Black northeastern corner of the state and a new Twelfth District that snaked along a narrow, 160-mile path from Durham to Charlotte. In 1992, voters in these districts elected Eva Clayton and Mel Watt, the first Black North Carolinians to serve in the U.S. House of Representatives since George Henry White, who ended his second term in 1901.¹⁶⁰

B. Jesse Helms and Racial Polarization

By the mid-1980s, North Carolina once again had a tightly contested two-party political system. A visitor from a similar time a century before would have been confounded by the way that party labels had flipped. Democrats now resembled the party of Lincoln, and Republicans looked like Democrats of old. But the visitor would easily have recognized the competing social visions the parties offered voters. One party stressed the importance of balancing individual rights

¹⁵⁸ *Ibid.*, 13-14, and *Gingles v. Edmisten*, 590 F. Supp. 345 (1984).

¹⁵⁹ Earls, Wynes, and Quattrucci, "Voting Rights in North Carolina," 581; "Two Blacks Join N.C.'s U.S. House Delegation," *Raleigh News and Observer*, November 4, 1992; and Keech and Siström, "Implementation of the Voting Rights Act in North Carolina," 14-17.

¹⁶⁰ Kousser, *Colorblind Injustice*, 243-76.

against social responsibility, contended that government had an indispensable role to play in promoting the general welfare, and viewed the prerogatives of citizenship as the birthright of every American. The other party was wary of government infringement on personal choice and thought of equal citizenship as a privilege to be earned rather than an entitlement. In a society that for most of its history had stood on a foundation of slavery and Jim Crow, contests over these competing ideals were centered, more often than not, on the question of racial equality. Conservatives – whatever their party label – took a narrow view on that issue, partly out of racial animus but also because they understood that Black enfranchisement led to progressive social policies.

This was at no time more obvious than in 1984 and 1990, when U.S. Senator Jesse Helms faced two Democratic challengers: Governor James B. (Jim) Hunt Jr. in the first contest, and, in the second, former Charlotte mayor Harvey B. Gantt.

After his first-term election in 1972, Helms had quickly established himself as a leading spokesman of the new Republican Party that was ascendant in North Carolina and across the nation. He did so by holding true to what I. Beverly Lake Sr. had described as the "eternal principles" of white southern conservatism. Helms championed individualism and free enterprise; he opposed labor unions and attributed inequality to the values and behaviors of people who lived on society's margins; and he characterized social welfare programs as instruments of theft that rewarded the takers rather than the makers of wealth. "A lot of human beings have been born bums," Helms famously declared at the height of the civil rights movement and war on poverty. "Most of them – until fairly recently – were kept from behaving like bums because work was necessary for all who wished to eat. The more we remove penalties for being a bum, the more bumism is going to blossom."¹⁶¹

Helms had a talent for capturing the anger of white Americans who felt aggrieved by their fellow citizens' demands for rights and respect. He was also an innovative campaigner. His North Carolina Congressional Club, founded in 1978, was a fund-raising juggernaut that pioneered targeted political advertising of the sort that began with mass mailing in Helms's era and today is conducted via the internet and social media. Added to all of that, Helms was unwavering in his convictions. Supporters and adversaries alike knew him as "Senator No." He was, in the words of one sympathetic biographer, "an uncompromising ideologue."¹⁶²

Jim Hunt, Helms's opponent in 1984, was cut from different cloth. Born in 1937, he belonged to a new generation of Democrats whose politics had been shaped by the progressive currents of the post–World War II era. Hunt followed in the footsteps of his parents, who had been devout New Dealers and supporters of Frank Graham. In 1960, while studying at North Carolina State University, he managed Terry Sanford's gubernatorial campaign on campuses statewide. As Sanford's protégé, he also learned to appreciate the ways that Jim Crow blighted North Carolina with illiteracy, hunger, sickness, and want. During two terms as governor – from 1977 to 1985 – Hunt put those lessons to work. He established a reputation as one of the South's most progressive leaders by persuading lawmakers to appropriate \$281 million in new spending on public education. He also recruited high-wage industries to shift North Carolina away from its traditional cheap-

¹⁶¹ Viewpoint, December 5, 1966, Jesse Helms Viewpoint editorial transcripts.

¹⁶² Link, *Righteous Warrior*, 9 and 144–46.

labor economy, appointed former Chapel Hill mayor Howard Lee as the first Black cabinet secretary in state history, and named pioneering Black lawmaker Henry Frye to the North Carolina Supreme Court.¹⁶³

As Hunt began his campaign to unseat Senator Helms in the 1984 election, he had reason to expect victory. Polls conducted in early 1983 showed him leading Helms by more than twenty percentage points. Hunt enjoyed particularly enthusiastic support among low-income whites earning less than \$15,000 a year. They preferred him over Helms by a margin of 64 to 21 percent. That was a testament to the popularity of Hunt's policies on education and economic development.¹⁶⁴

Events later in the year warned how quickly that lead could be undone. In early October, Helms led a four-day filibuster against legislation that eventually created a national Martin Luther King Jr. holiday. He revived a line of attack on King that he had honed during the 1960s as a nightly editorialist on Raleigh's WRAL-TV. King, he charged, was a communist revolutionary, not a peacemaker, and his actions and ideals were "not compatible with the concepts of this country." When President Ronald Reagan signed the King holiday bill into law a month later, many in the press reported a humiliating defeat for Helms. But the senator knew his audience back home. Even negative headlines helped him solidify his image as an uncompromising defender of conservative values. The effectiveness of that ploy showed in the polls. At the beginning of the race, Hunt had led Helms by 30 percentage points in counties where Blacks made up less than 10 percent of the population and whites were inclined to worry more about economic opportunities than civil rights. In the months after the filibuster, that deficit turned into a ten-point lead for Helms.¹⁶⁵

As one senior adviser acknowledged, the Helms campaign knew that they "couldn't beat Jim Hunt on issues," so they came out guns blazing on race. The campaign ran thousands of newspaper and radio ads that linked Hunt to the threat of a "bloc vote" being organized by Black Democratic presidential candidate Jesse Jackson and other civil rights leaders. One print ad showed Hunt and Jackson sitting together in the governor's residence and warned, "Gov. James B. Hunt Jr. wants the State Board of Elections to boost minority voter registration in North Carolina. . . . Ask yourself: Is this a proper use of taxpayer funds?"¹⁶⁶

As a means of courting evangelical Christian voters, Helms and his allies focused similar attacks on the emerging gay rights movement. The *Landmark*, a right-wing paper supported largely by advertising income from the Helms campaign, charged that Hunt was a closeted homosexual and had accepted contributions from "faggots, perverts, [and] sexual deviates." In a move reminiscent of the 1950 contest between Frank Graham and Willis Smith, Helms distanced himself from the specifics of those charges but reminded voters at every turn that his enemies were "the atheists, the homosexuals, the militant women's groups, the union bosses, the bloc voters, and so on." This enemies list endeared Helms to enough North Carolinians to best Hunt with 52 percent of the vote.¹⁶⁷

¹⁶³ Pearce, *Jim Hunt*, 11–41, 145–46.

¹⁶⁴ Link, *Righteous Warrior*, 268, and Kellam, "Helms, Hunt, and Whiteness," 53.

¹⁶⁵ Kellam, "Helms, Hunt, and Whiteness," 53, and Link, *Righteous Warrior*, 262–69.

¹⁶⁶ Link, *Righteous Warrior*, 274 and 284, and Goldsmith, "Thomas Farr, Jesse Helms, and the Return of the Segregationists.," <<http://bit.ly/36QLq4c>>, November 29, 2020.

¹⁶⁷ Link, *Righteous Warrior*, 290–91 and 304; "Pro-Helms Newspaper Publishes Rumor That Hunt Had a Gay Lover," *Raleigh News and Observer*, July 6, 1984; and "Article Stirs New Charges in Carolina Senate Race," *New York Times*, July 7, 1984.

Six years later, race became an issue by default when Harvey Gantt won the Democratic senatorial nomination. His very presence on the ticket testified to the gains that Blacks had made in access to the ballot box and political influence. Gantt was born in 1943 in the South Carolina Lowcountry, where cotton and rice barons had built their fortunes from the labor of his enslaved forebears. His parents moved the family to Charleston when he was still an infant. There his father found a job in the city's shipyard, thanks to Roosevelt's executive order opening war industries to Black workers. Gantt grew up in public housing and was educated in the city's segregated public schools. He traced his fascination with politics to his father's membership in the NAACP and to dinner table conversations about civil rights. As a high school student, Gantt joined his local NAACP Youth Council, and in April 1960, shortly after sit-in demonstrations began in North Carolina, he led similar protests in downtown Charleston.¹⁶⁸

When Gantt thought about college, an obvious option was to attend a historically Black institution, such as Howard University or the Tuskegee Institute. But he believed that America's future was going to be "all about" integration, so he headed off to Iowa State University, where he expected to get "an integrated education." Iowa State turned out to be as white as Howard was Black. Disappointed, Gantt returned home to create the future he longed for. He tried three times to gain admission to Clemson Agricultural College (now Clemson University) but was denied. With support from the NAACP Legal Defense Fund, Gantt sued, and in 1963 he won a federal court order that he be admitted as the school's first Black student. He graduated with a degree in architecture and then earned an M.A. in city planning from the Massachusetts Institute of Technology. Gantt made his way to Charlotte in 1971, opened an architectural firm, and quickly became involved in politics. He served on the city council from 1974 to 1983 and won election as mayor for two terms, from 1983 to 1987. When he challenged Helms in 1990, Gantt was the first Black Democrat in the nation's history to run for the U.S. Senate.¹⁶⁹

Helms's campaign against Gantt echoed his attacks on Hunt. When Gantt raised issues of education, health, and the environment, Helms pointed to Gantt's financial ties to "militant homosexuals." One newspaper ad asked, why are "homosexuals buying this election?" The answer: "Because Harvey Gantt will support their demands for mandatory gay rights." At a campaign rally, Helms echoed the "White People Wake Up" warning from Willis Smith's campaign against Frank Graham. "Think about it," he said. "Homosexuals and lesbians, disgusting people marching in our streets demanding all sorts of things, including the right to marry each other. How do you like them apples?"¹⁷⁰

Still, that only got Helms so far. In mid-October, some polls had him trailing Gantt by as many as 8 percentage points. It was time to play what one of Helms's advisers called "the race card." In the run-up to Election Day, the Helms campaign aired a television ad that played on white anxiety over Black access to desegregated workplaces. The ad showed a white man's hands crumpling a rejection letter. He wore a wedding band and presumably had a family to support. And he was dressed in a flannel shirt, not a button-down and tie. He obviously worked with those hands. The voice-over lamented, "You needed that job and you were the best qualified. But they had to give it to a minority because of a racial quota. Is that really fair? Harvey Gantt says it is. Harvey Gantt supports . . . [a] racial quota law that makes the color of your skin more important than your

¹⁶⁸ Gantt interview, <<https://unc.live/31hWV3N>>, November 29, 2020.

¹⁶⁹ *Ibid.*, and *Gantt v. Clemson Agricultural College of South Carolina*, 320 F.2d 611 (4th Cir. 1963).

¹⁷⁰ Link, *Righteous Warrior*, 375.

qualifications. You'll vote on this issue next Tuesday. For racial quotas, Harvey Gantt. Against racial quotas, Jesse Helms." The reference to quotas arose from debate over the proposed Civil Rights Act of 1990. Conservatives charged that it included such strict antidiscrimination rules that employers would feel compelled to adopt minority hiring goals in order to preempt potential lawsuits. President George H. W. Bush vetoed the law on October 22, days before the Helms ad ran on television. There was in all of this striking irony for anyone who cared to notice it. The ad attacked the very thing that Helms and his supporters sought to protect – economic privilege based on skin color.¹⁷¹

At the same time, the state Republican Party attempted to suppress Black voter turnout by mailing postcards to one hundred and twenty-five thousand voters in heavily Black precincts, warning recipients incorrectly that they would not be allowed to cast a ballot if they had moved within thirty days, and that if they attempted to vote, they would be subject to prosecution and imprisonment. Helms subsequently won the election with 65 percent of the white vote and 53 percent of the vote overall. When Gantt challenged him again in 1996, the results were the same.¹⁷²

These battles over Helms's seat in the U.S. Senate made it clear that the political realignment that had begun in the mid-1960s was all but complete. White conservatives now identified as Republicans, and a coalition of minority voters and liberal whites constituted the Democratic Party's base. Contests between the two camps were often decided by slim margins. That was evidence of how closely divided North Carolinians were in the ways that they imagined the state's future. It also revealed the profound difference that racially prejudicial appeals could make in the outcome of elections and the character of governance.

C. Progressive Democrats and Expansion of the Franchise

Despite his loss to Jesse Helms in 1984, Jim Hunt remained popular with North Carolina voters. They knew him as a reformer and modernizer who had improved the public schools and recruited new jobs that offset the loss of employment in the state's traditional manufacturing sector – textiles, tobacco, and furniture. In 1992, Hunt presented himself for an encore in the governor's office. On the campaign trail, Hunt spoke in optimistic terms. He told voters that he wanted "to change North Carolina," to "build a state that would be America's model." Hunt bested his Republican opponent, Lieutenant Governor Jim Gardner, by 10 percentage points. In 1996, he went on to win a fourth term by an even larger margin.¹⁷³

Over the course of eight years, Hunt and fellow Democrats in the General Assembly built on the accomplishments of his first administration. They established Smart Start, a program that pumped \$240 million into local communities to provide preschool education and improved health care to young children; raised teacher salaries by a third and increased state spending on public education from 76 to 86 percent of the national average; launched Health Choice, a state program for uninsured children who were ineligible for Medicaid or other forms of federal assistance; and created a new Department of Juvenile Justice to address the underlying causes of youth crime.

¹⁷¹ Goldsmith, "Thomas Farr, Jesse Helms, and the Return of the Segregationists"; Helms, Hands ad, <<http://bit.ly/2Q5zJnr>>, September 5, 2019; and "President Vetoes Bill on Job Rights, Showdown Is Set," *New York Times*, October 23, 1990.

¹⁷² Link, *Righteous Warrior*, 380; Earls, Wynes, and Quatrucci, "Voting Rights in North Carolina," 589; and Christensen, *Paradox of Tar Heel Politics*, 278.

¹⁷³ Pearce, *Jim Hunt*, 210, quotations at 217 and 220.

Hunt also continued to champion inclusive governance. When he left office in 2001, 22 percent of his appointees to state agencies and commissions were minorities, a figure that matched the state's demography.¹⁷⁴

Between 1992 and 2009, Democratic lawmakers worked to sustain these achievements by expanding minority citizens' access to the franchise. Many of their reforms echoed the Fusion election law of 1895. Key legislation created an option for early voting; allowed voters who went to the wrong precinct on Election Day to cast a provisional ballot; permitted same-day registration during early voting; and created a system for preregistering sixteen- and seventeen-year-olds, so that their names would be placed on the voter rolls automatically when they turned eighteen. The net effect of these reforms was a steady increase in voter participation. In 1996, North Carolina ranked forty-third among the states for voter turnout; it rose to thirty-seventh place by 2000 and to eleventh place in 2012.¹⁷⁵

Most of the increase was driven by higher rates of Black political participation. Between 2000 and 2012, Black voter registration surged by 51.1 percent, as compared to 15.8 percent among whites. Black turnout followed apace. Between 2000 and 2008, it jumped from 41.9 to 71.5 percent. In the 2008 and 2012 elections, Blacks registered and voted at higher rates than whites for the first time in North Carolina's history. That level of participation was critically important in the 2008 presidential contest, when Barack Obama won North Carolina with a slim margin of 14,171 votes out of 4,271,125 ballots cast. He was the first Democrat running for President to carry the state since Jimmy Carter in 1976.¹⁷⁶

D. Emergence of a New Multiracial Majority

The history of North Carolina and the South has been marked so profoundly by race that it is tempting to read the politics of the early twenty-first century solely in terms of Black and white. But there is, in fact, a new multiracial majority emerging. It bears resemblance to the biracial alliances of the Reconstruction and Fusion eras but has been shaped by the arrival of a new, rapidly expanding population of Hispanic citizens and immigrants.

Close observers of North Carolina politics noted that Hispanic voters were also "indispensable" to Obama's victory. The state's Hispanic population grew more than tenfold, from just over 75,000 to roughly 800,000, between 1990 and 2010. By 2018, that number exceeded 996,000, just shy of 10 percent of the state's total population. That expansion was driven by the economic boom of the 1990s and early 2000s, when immigrants poured into North Carolina to work jobs in pork and poultry processing, construction, building maintenance, and hospitality. By 2010, Hispanics represented 8.5 percent of the state's total population and 1.3 percent of registered voters. In a tight election, even that small number could change the outcome. North Carolina's Hispanic voters,

¹⁷⁴ Ibid., 145-46 and 263-66. In 1977, Hunt appointed Howard Lee, former mayor of Chapel Hill, to serve as Secretary of the Department of Natural Resources and Community Development. Seven years later, he named Henry E. Frye to the State Supreme Court, and in 1999 elevated Frye to chief justice.

¹⁷⁵ Berman, *Give Us the Ballot*, 290-91.

¹⁷⁶ For increases in Black voter registration and turnout, see *North Carolina State Conference v. McCrory*, No. 16-1468 (4th Cir. 2016), 13, and Berman, *Give Us the Ballot*, 291.

most of whom favored Democrats, cast 20,468 ballots in 2008, a figure larger than Obama's winning margin.¹⁷⁷

Hispanic voters' influence in state politics is likely to increase dramatically in the coming decade. Today the population stands at 997,000, roughly 10 percent of the state total, and the annual growth rate, at 24.6 percent, is a third higher than in the United States overall. Moreover, nearly 40 percent of North Carolina's current Hispanic residents are children or young teenagers who – unlike many of their parents' generation – were born in this country. Under the terms of the Fourteenth and Fifteenth Amendments, ratified during Reconstruction, and the Twenty-Sixth, ratified in 1971, they will be entitled to vote when they reach the age of eighteen. Taken together, these figures point to the potential for a new multiracial alliance of Hispanic, Black, and progressive white voters.¹⁷⁸

XII. Retrenchment

A. Polarized Politics of Race and Ethnicity

By the early 2000s, North Carolina voters had become as racially polarized as they were at the end of the nineteenth century. Whites, by a wide margin, associated with the party that favored a restricted franchise, limited government, tax cuts, and reduced spending on education and social services. For their part, the majority of Blacks and Hispanics gave their allegiance to the party that advocated for enlarged access to the franchise, education, and healthcare; equal job opportunities; and a broad social safety net that offers protection from poverty and misfortune. National polling data on registered voters' party affiliation, collected by Gallup in 2012, tell the story:

	White	Black	Hispanic	Asian	Other	Undesignated
Republicans	89%	2%	6%	1%	1%	1%
Democrats	60%	22%	13%	2%	1%	2%

Republican and Democratic Party demographics. Newport, "Democrats Racially Diverse; Republicans Mostly White." Gallup, 2012.

In tight elections, this polarization heightened the importance of two related factors: newly enfranchised voters' access to the ballot box and the effectiveness of racial strategies for limiting turnout.¹⁷⁹

How had this happened? As historian Carol Anderson argues, the 2008 election was the tipping point. At the national level, Barack Obama attracted a larger share of the white vote than Democrat John Kerry in 2004. He also won substantial majorities among Hispanic, Asian, youth, and women voters, along with 95 percent of Blacks. This loose coalition had gone to the polls to

¹⁷⁷ Ross, "Number of Latino Registered Voters Doubles in North Carolina," <<http://bit.ly/2I3lGID>>, September 5, 2019; "North Carolina's Hispanic Community: 2019 Snapshot," <<http://bit.ly/2SY8Rpd>>, November 29, 2020; and "Latinos in the 2016 Election: North Carolina," <<https://pewrsr.ch/2HOyFNV>>, September 5, 2019.

¹⁷⁸ "North Carolina's Hispanic Community: 2019 Snapshot," <<http://bit.ly/2SY8Rpd>>, November 29, 2020, and Tippet, "Potential Voters Are Fastest-Growing Segment of N.C. Hispanic Population," <<http://bit.ly/2QRRpQh>>, November 29, 2020.

¹⁷⁹ Newport, "Democrats Racially Diverse; Republicans Mostly White," <<http://bit.ly/2HOkDvH>>, September 5, 2019.

voice support for an expansive vision of government that Republicans had opposed since the days of the New Deal. They rallied to Obama's hopeful slogan, "Yes We Can," and his belief that Washington could improve people's lives with achievable reforms, such as raising the minimum wage, expanding the Earned Income Tax Credit, protecting the rights of labor, investing in public education, and guaranteeing universal access to affordable health care. Looking back on the election, Republican U.S. Senator Lindsey Graham identified the problem: his party was "not generating enough angry white guys to stay in business for the long term."¹⁸⁰

An economy in crisis offered the makings of a solution. When Obama took the oath of office in January 2009, a near collapse of the banking system was threatening to plunge America and the rest of the world into a second Great Depression. North Carolina was one of the states hit hardest. Within a year, the unemployment rate soared to 10.9 percent. That caused pain in every corner of the labor market, but the situation in manufacturing and construction became particularly grim. Between 2007 and 2012, those sectors experienced job losses of 18 and 32 percent, respectively. The banking crisis had begun with the implosion of the market for subprime mortgages. As more people lost their jobs, they fell behind on payments that under the best of circumstances had strained their budgets. Between 2006 and 2014, nine million American families lost their homes; in 2008 alone, the number in North Carolina was 53,995.¹⁸¹

Voters grew angry, particularly at politicians they felt had let the crisis happen and now sought to fix it with bailouts for financial institutions and corporations that were ostensibly "too big to fail." That fury fueled the Tea Party revolt that erupted in 2009. The movement was overwhelmingly white, and its supporters' grievances echoed principles that had defined a century of conservative thought and politics. Tea Partiers rallied against big government; denounced the 2010 Affordable Care Act as a socialist violation of individual liberty; criticized social welfare programs as a waste of taxpayers' money; and launched a xenophobic attack on immigrants who they claimed were stealing American jobs, dealing in illicit drugs, and perpetrating violent crime. The Tea Party sprang from the grassroots, but soon many of its rallies were financed and orchestrated by Americans for Prosperity, a conservative political action group backed by billionaire brothers Charles G. and David A. Koch and a national network of wealthy donors and like-minded organizations.¹⁸²

Tea Partiers channeled much of their anger through racial invective. They hailed President Obama as "primate in chief"; they donned T-shirts that demanded, "Put the White Back in White House"; and at rallies in Washington, D.C., they carried placards that exclaimed, "We came unarmed [this time]." In North Carolina, a member of the Charlotte-Mecklenburg Board of Education argued against increases in school spending on grounds that costs had been inflated by what he called "Obama Bucks" – a pejorative term initially applied to food stamps but soon attached to a wide variety of federal social welfare programs. Three years later, when Charlotte hosted the Democratic National Convention, V. R. Phipps, a self-styled "patriot" from eastern North Carolina, captured headlines when he parked his truck and a trailer near delegates' downtown hotels. The trailer contained effigies of the president and state political figures, each strung up lynching-style

¹⁸⁰ C. Anderson, *White Rage*, 138–39; 2008 Democratic Party Platform, <<http://bit.ly/2ti7IhI>>, November 29, 2020; and "As Republican Convention Emphasizes Diversity, Racial Incidents Intrude," *Washington Post*, August 29, 2012.

¹⁸¹ Gitterman, Coclanis, and Quintero, "Recession and Recovery in North Carolina," 7, <<https://unc.live/2HSb8vw>>, September 5, 2019; Samuels, "Never-Ending Foreclosures," <<http://bit.ly/35X96mZ>>, November 29, 2020; and "N.C. Foreclosures Jumped 9% in 2008," *Triad Business Journal*, January 5, 2009.

¹⁸² Mayer, "Covert Operations," <<http://bit.ly/30m6w8Z>>, November 29, 2020.

in a hangman's noose. Phipps later took his display on tour in the Midwest and up and down the East Coast.¹⁸³

Republican leaders embraced white voters' anger and presented themselves as the party that would defy the Black president and his supporters. Shortly before the 2010 midterm elections, in which Republicans won control of the U.S. House of Representatives, Mitch McConnell, the Republican majority leader in the Senate, pledged to voters, "The single most important thing we want to achieve is for President Obama to be a one-term president. . . . You need to go out and help us finish the job." Writing a year later, Ron Unz, publisher of the *American Conservative*, an influential online political forum, described that racial logic in approving terms: "As whites become a smaller and smaller portion of the local population in more and more regions, they will naturally become ripe for political polarization based on appeals to their interests as whites. And if Republicans focus their campaigning on racially charged issues such as immigration and affirmative action, they will promote this polarization, gradually transforming the two national political parties into crude proxies for direct racial interests, effectively becoming the 'white party' and the 'non-white party.'" Unz predicted that since white voters constituted a majority of the national electorate, "the 'white party' – the Republicans – will end up controlling almost all political power and could enact whatever policies they desired, on both racial and non-racial issues."¹⁸⁴

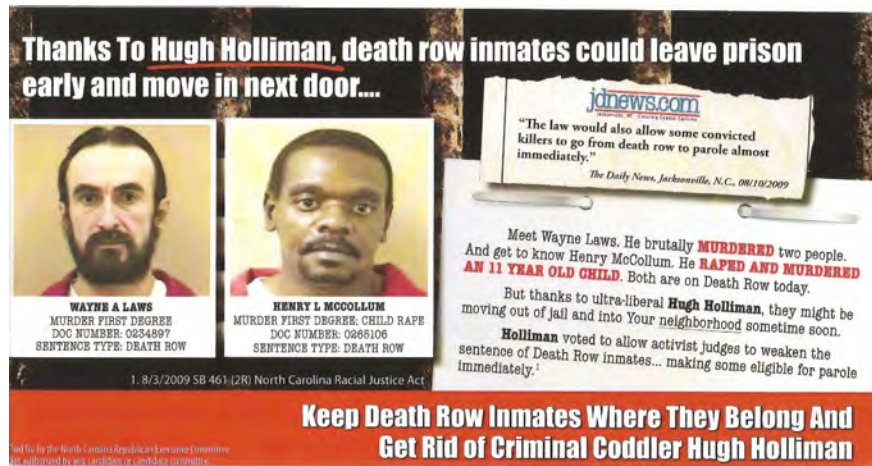
Unz's assessment read like a script for the future of North Carolina politics. Voter discontent offered Republicans an opportunity to extend their success in presidential and senatorial elections downward into campaigns for seats in the state legislature.

Racial appeals figured prominently in the 2010 election. Take, for example, the effort to unseat John J. Snow Jr., a state senator from western North Carolina, and L. Hugh Holliman, Democratic majority leader in the state House of Representatives. Both had voted for the 2009 Racial Justice Act, which Democrats passed after decades of effort to reform or abolish capital punishment. The law gave inmates the right to challenge imposition of the death penalty by using statistical evidence to prove that race was a factor in their sentencing. In the closing weeks of the campaign, the executive committee of the state Republican Party produced a mass mailing that attacked the law and its backers. An oversized postcard featured a photograph of Henry L. McCollum, who had been convicted of raping and killing an eleven-year-old girl. It played to the same ugly stereotypes of Black men's bestial sexuality that had been front-and-center in the white supremacy campaigns of 1898 and 1900, warning that "thanks to ultra-liberal lawmakers" like Holliman and Snow, McCollum might "be moving out of jail and into Your *neighborhood* (emphasis in the original) sometime soon." The not-so-subtle message was that recipients who cared

¹⁸³ Blake, "What Black America Won't Miss about Obama," <<https://cnn.it/2tXfX2E>>, November 29, 2020; "Racial Resentment Adds to GOP Enthusiasm," <<https://on.msnbc.com/378OX1r>>, November 29, 2020; Okun, *Emperor Has No Clothes*, 151; Charlotte-Mecklenburg Board of Education, meeting minutes, September 8, 2009, <<http://bit.ly/2LQCjYX>>, September 5, 2019; "GOP Mailing Depicts Obama on Food Stamps, Not Dollar Bill," <<https://n.pr/34GHRHT>>, September 5, 2019; and "'Hanging Obama' Truck Makes Way into Charlotte," <<http://bit.ly/32sZJu4>>, September 5, 2019.

¹⁸⁴ "GOP's No-Compromise Pledge," <<https://politi.co/2IyrixL>>, November 29, 2020, and Unz, "Immigration, the Republicans, and the End of White America," <<http://bit.ly/32sEyYY>>, September 5, 2019.

for their families' safety would vote to "get rid of criminal coddler[s]" and keep predators like McCollum "where they belong."¹⁸⁵



Republicans used this postcard and a similar mailing to target Democrats Hugh Holliman and John Snow for their support of the 2009 Racial Justice Act. Courtesy of WRAL.com.

There was a double layer of tragedy in this racial appeal. Holliman, a staunch defender of the death penalty, had lost a sixteen-year-old daughter to murder decades earlier. He and many of the public found the postcard so offensive that they demanded an apology from Tom Fetzer, state chairman of the Republican Party. Fetzer obliged but also took the opportunity to criticize Holliman's vote for the racial justice law. Then, in 2014, McCollum was exonerated and released from prison. The *New York Times* reported that the case against him, "always weak, fell apart after DNA evidence implicated another man" who "lived only a block from where the victim's body was found" and "had admitted to committing a similar rape and murder around the same time."¹⁸⁶

Conservative activists disparaged North Carolina's growing Hispanic population in comparable ways. In 2009, Jeff Mixon, legislative director in the Raleigh office of Americans for Prosperity, attacked Hispanic immigrants as deadbeats and thugs. He described North Carolina as a "magnet for illegals" who came to America to "take advantage [of a] vast array of benefits . . . from food stamps and free medical care to in-state tuition at our community colleges." He also played on historically familiar prejudices that associate dark skin with criminality. "Poor illegal aliens" deserved no sympathy, he argued, because they provided cover for "wolves among the sheep" – members of Mexican "narco gangs" who threatened to "ruin our communities."¹⁸⁷

A year later, the executive committee of the North Carolina Republican Party played on such anti-immigrant sentiments in a mailer it distributed to support candidate Thomas O. Murray, who was running against sitting Democrat John Christopher Heagarty for the District 41

¹⁸⁵ Roth, *Great Suppression*, 96–98, and "GOP Featured McCollum in 2010 Attack Ad," <<http://bit.ly/37Sa1WG>>, September 5, 2019.

¹⁸⁶ "GOP Featured McCollum in 2010 Attack Ad," <<http://bit.ly/37Sa1WG>>, September 5, 2019; Mayer, "State for Sale," <<http://bit.ly/37VMm96>>, November 29, 2020; "Flier Opens an Old Wound," *Winston-Salem Journal*, October 21, 2010; and "DNA Evidence Clears Two Men in 1983 Murder," *New York Times*, September 2, 2014.

¹⁸⁷ Mixon, "Just Look at the Results," <<http://bit.ly/32tZmj1>>, September 5, 2019; "Narco Gangs in North Carolina," <<http://bit.ly/2HNmPnq>>, September 5, 2019; and "Who Benefits from Illegal Immigration?" <<http://bit.ly/2I3fLTV>>, September 5, 2019.

House seat in the General Assembly. With a sombrero atop his head and his skin darkened by clever photo editing, "Señor" Heagarty exclaims, "Mucho taxo" – a reference to policies that Republicans charged were driving away jobs.¹⁸⁸



Republicans produced this postcard to insinuate that Democrat Chris Heagarty's stance on tax issues was connected to the interests of Hispanic immigrants. Courtesy of *IndyWeek*.

On Election Day, Snow, Holliman, Heagarty, and fifteen of the other Democrats lost their seats, giving Republicans a majority in both houses of the state legislature. Republican lawmakers subsequently consolidated their hold on power. The timing of Republican gains in North Carolina was fortuitous. The nation's decennial census was complete, and lawmakers would now take up the job of redistricting the state.

B. 2011 Redistricting

In 2011, Republican lawmakers redrew state legislative districts in a way that exposed the centrality of race in their strategy for extending and securing their partisan advantage. Managers of the process claimed – falsely – that in order to comply with the Voting Rights Act of 1965, the General Assembly was required to create majority-minority legislative districts in equal proportion to North Carolina's Black population. They instructed an outside consultant, Republican Party strategist Thomas Hofeller, to create such districts wherever geographically possible, and to complete that task before drawing other district lines. The plan that Hofeller designed, and the General Assembly ultimately approved, included thirty-six districts – twenty-four in the House and twelve in the Senate – in which Blacks constituted more than fifty percent of the voting age adults. These districts accounted for twenty-one percent of seats in the General Assembly, a figure that matched the percentage of Blacks in the state's population.¹⁸⁹

Republican leaders presented the redistricting plan as evidence of their commitment to civil rights, but that was a sleight of hand. The new majority-minority districts were bizarrely shaped; they sprawled across county lines, divided municipalities, and split precincts – all for the purpose

¹⁸⁸ "Anti-Heagarty Ads", <<http://bit.ly/2tmNfZ3>>, November 29, 2020.

¹⁸⁹ *Covington v. the State of North Carolina*, 316 F.R.D. 117 (M.D.N.C. 2016), 2, 4-6; *Covington v. North Carolina* (M.D.N.C.) 1:15-cv-00399, 3.

of packing Black voters together as tightly as possible. These configurations dismissed "traditional race-neutral districting principles" established by the U.S. Supreme Court, including "compactness contiguity, and respect for . . . communities defined by actual shared interests." The effect was to separate many Black voters from the interracial alliances that the Democratic Party had been building since the mid 1980s. In the 2012 election, Black candidates gained seven seats in the General Assembly, but nineteen of their white allies suffered defeat.¹⁹⁰ This gave Republicans a super majority in both chambers of the legislature, which, along with the election of Republican governor Patrick L. (Pat) McCrory, sharply diminished Black North Carolinians' ability to influence public policies that mattered to their communities.¹⁹¹

B. *Shelby County v. Holder* and House Bill 589

The severity of that setback quickly became apparent when the new Republican-controlled legislature convened. For more than a year, party leaders had been gathering information that might help them roll back Democratic reforms that had expanded access to the ballot box. As early as January 2012, a member of the Republican legislative staff had asked the State Board of Elections, "Is there any way to get a breakdown of the 2008 voter turnout, by race (white and Black) and type of vote (early and Election Day)?" A year later, a Republican lawmaker wondered, "Is there no category for 'Hispanic' voter?" Another questioned University of North Carolina officials "about the number of Student ID cards that [were] created and the percentage of those who [were] African American," and in April 2013, an aide to the Speaker of the House requested "a breakdown, by race, of those registered voters [who] do not have a driver's license number."¹⁹²

Two months later, the U.S. Supreme Court gave white conservatives an opening to make wholesale changes to state elections law. In *Shelby County v. Holder*, a 5-4 majority of justices struck down Section 5 of the Voting Rights Act, which had required that the U.S. Department of Justice preclear changes in voting procedures in portions of North Carolina and other affected jurisdictions to ensure that they would not disadvantage protected minorities. Within hours of the ruling, Republican leaders in North Carolina announced that they planned to introduce an omnibus bill that would dramatically modify the ways that citizens registered to vote and cast their ballots.¹⁹³

What eventually emerged was House Bill 589, legislation that targeted the electoral clout of the alliance of Black, Hispanic, and progressive white voters within the Democratic Party. Like

¹⁹⁰ *North Carolina General Assembly, 149th Session 2011-2012: House of Representatives*, <https://www.ncleg.gov/DocumentSites/HouseDocuments/2011-2012%20Session/2011%20Demographics.pdf>; *North Carolina General Assembly, 150th Session 2013-2014: House of Representatives*, <https://www.ncleg.gov/DocumentSites/HouseDocuments/2013-2014%20Session/2013%20Demographics.pdf>; *North Carolina General Assembly 2011 Senate Demographics*, <https://www.ncleg.gov/DocumentSites/SenateDocuments/2011-2012%20Session/2011%20Demographics.pdf>; *North Carolina General Assembly 2013 Senate Demographics*, <https://www.ncleg.gov/DocumentSites/SenateDocuments/2013-2014%20Session/2013%20Senate%20Demographics.pdf>.

¹⁹¹ "North Carolina Election Results 2012: McCrory Wins Governor's Race; Hudson Tops Kissell for House Seat; Romney Gets Narrow Victory," *Washington Post*, November 7, 2012, https://www.washingtonpost.com/politics/decision2012/north-carolina-election-results-2012-mccrory-wins-governors-race-hudson-tops-kissell-for-house-seat-romney-gets-narrow-victory/2012/11/07/201e8c1c-23a8-11e2-ac85-e669876c6a24_story.html.

¹⁹² "Inside the Republican Creation of the Norther Carolina Voting Bill Dubbed the 'Monster' Law," *Washington Post*, September 2, 2016.

¹⁹³ *Ibid.*

the Act to Regulate Elections that opponents of Fusion crafted in 1899, House Bill 589 made no explicit reference to race or ethnicity; nevertheless, it threatened to limit political participation by non-white minorities. The law included a number of provisions that would have made voting harder for Black and Hispanic electors.

- House Bill 589 required that in-person voters provide one of eight approved forms of photo identification in order to cast a ballot. Blacks constituted 22 percent of North Carolina's population, but according to an analysis of State Board of Elections data by political science and election scholars Michael Herron and Daniel Smith, they represented more than a third of the registered voters who at the time did not possess the two most common forms of photo identification: a valid driver's license or a state-issued nonoperator's ID card.¹⁹⁴
- The law also eliminated the first week of early voting, same-day registration, and straight-ticket voting. Statistics from the 2008 election in North Carolina suggested that these changes would have a disproportionately negative effect on Black voter participation. In the run-up to Election Day, 71 percent of Black voters cast their ballots early, including 23 percent who did so within the first week of the early voting period. That compared, respectively, to 51 and 14 percent of whites. Thirty-five percent of same-day voter registrants were Black, a figure 50 percent higher than what might have been predicted on the basis of population statistics, and Democrats voted straight-ticket by a two-to-one ratio over Republicans.¹⁹⁵
- House Bill 589 targeted young future voters in similar fashion. It ended a program that permitted sixteen and seventeen-year-olds to pre-register at their high schools and other public sites. That opportunity had been particularly popular among Black teenagers. Blacks constituted 27 percent of the pool of pre-registered youth, once again a figure that was significantly higher than Black representation in the general population.¹⁹⁶

Many observers at the time noted this potentially disproportionate effect on Black electors, but most missed something equally important. The elimination of pre-registration for sixteen and seventeen-year-olds was remarkably forward looking: it stood to diminish the impact of rapid growth in the number of Hispanic voters – growth that observers identified as the "future of Progressive strength in America."¹⁹⁷

A report from the University of North Carolina's Population Center explained the details. In 2012, as illustrated in the graph below, most of the state's Hispanic residents were non-citizens and only one if four was eligible to vote, but just over the horizon, Republicans faced a large population of young Hispanics who had been born in the United States, who would soon cast a ballot, and data showed were inclined to support Democrats. Of the

¹⁹⁴ Herron and Smith, "Race, *Shelby County*, and the Voter Information Verification Act in North Carolina," 497.

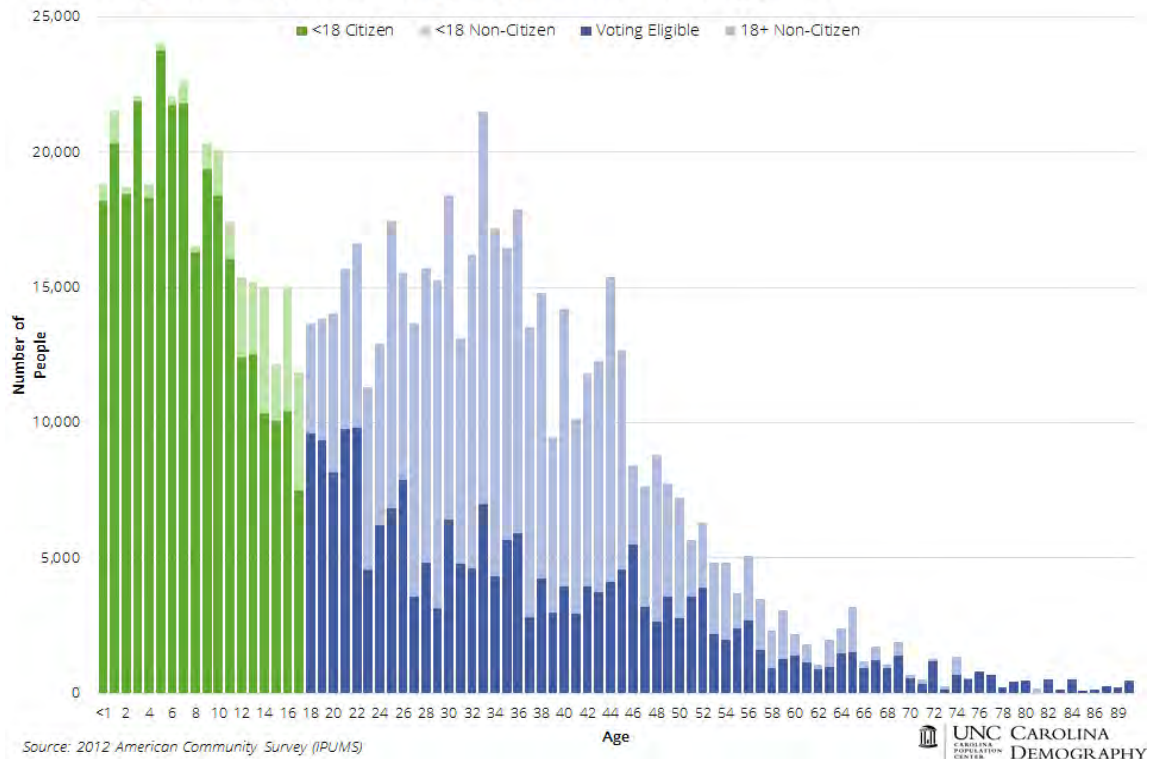
¹⁹⁵ and Heberling and Greene, "Conditional Party Teams," 117.

¹⁹⁶ Herron and Smith, "Race, *Shelby County*, and the Voter Information Verification Act in North Carolina," 505.

¹⁹⁷ Broockman and Roeder, "Hispanics Are the Future of Progressive Strength in America, New Organizing Institute, <<http://bit.ly/2HPJ3Fn>>, September 5, 2019; "Republicans Have a Major Demographic Problem, and It's Only Going to Get Worse," *Washington Post*, April 22, 2014; "The South is Solidly Republican Right Now; It Might Not Be that Way in 10 Years," *Washington Post*, April 29, 2014; and "Immigration is Changing the Political Landscape in Key States," <<http://ampr.gs/32wwPsW>>, September 5, 2019.

Hispanics who had or would turn eighteen between 2012 and 2015, 72 percent were citizens. That figure rose to 84 percent of those who would turn eighteen between 2015 and 2019, and to 98 percent of those who would do so between 2020 and 2030. For Republicans politically, there was little to be gained and much to be risked by pre-registering these future voters.¹⁹⁸

NC Hispanic Population by Age & Citizenship, 2012



Blue bars represent voting-age Hispanics, with dark shading for citizens and light shading for non-citizens. Green bars represent Hispanics under age eighteen, again with dark shading for citizens and light shading for non-citizens. Courtesy of Carolina Demography, University of North Carolina at Chapel Hill.

- Finally, House Bill 589 changed the rules for challenging voters' eligibility to cast a ballot and, by doing so, heightened the potential for intimidation. Three revisions were important in this regard. First, residents throughout the state were now allowed to inspect and challenge registration records in any of North Carolina's one hundred counties. In the past, challengers were permitted to act only in the counties in which they resided. Second, residents of a county were permitted to challenge voters' eligibility to cast a ballot at polling sites countywide, not just in the precincts where they themselves were registered. Third, the chair of each political party in a county were permitted to appoint ten at-large observers to monitor voting at any polling place they believed warranted close supervision. These poll watchers would be appointed in addition to the election judges assigned to specific voting sites.

¹⁹⁸ Tippet, "North Carolina Hispanics and the Electorate," <<http://bit.ly/2UDvIVC>>, September 5, 2019.

Worry that these provisions would encourage frivolous challenges and voter intimidation was based on more than speculation. During the 2012 election, a loose confederation of conservative activists mobilized by True the Vote, state-level Voter Integrity Projects, and the Madison Project launched a campaign they called Code Red USA. Their aim was to marshal a "cavalry" of volunteer poll watchers to police alleged voter fraud in battleground states, including North Carolina. In one incident, self-appointed watchdogs in Wake County petitioned to have more than five hundred voters, most of them people of color, removed from the registration rolls.

Though the attempt failed, it echoed in disturbing ways a similar episode during Reconstruction, when a group of whites in the same county challenged one hundred and fifty Black voters on grounds that they had registered fraudulently. As a researcher from the Brennan Center for Justice at the New York University School of Law observed, the 1872 challenge was "one of the first organized attempts by private citizens . . . to systematically undermine Black political participation in North Carolina – a practice that would continue throughout the Jim Crow era." The mechanism to allow and facilitate this practice was reintroduced by the enactment of House Bill 589.¹⁹⁹

When pressed on these issues, Republican lawmakers insisted that their intent was not to infringe on voting rights. Thom Tillis, Speaker of the House, encouraged the public to think of House Bill 589 instead as a means of "restoring confidence in government."²⁰⁰

C. Rolling Back Reform, Restricting Social Provision

The new Republican-led North Carolina Legislature wanted to roll back reforms that previous Democratic-led legislatures had fought so hard for, reforms that brought equity back into electoral politics. *Shelby County* and the nullification of the Federal Government's preclearance regime gave the new legislature the impetus to put forth discriminatory laws such as HB 589 and its successor SB 824, but also set up a decade of fights over the suppression of Black voters in various ways and has ultimately led to this lawsuit over the new 2021 district maps.

The Republicans' sweeping revision of state election law was a key element in a broader legislative agenda designed to roll back decades of reform that had made state government more responsive to the economic and social needs of minority populations who had been politically and economically marginalized throughout much of the state's history.

One of Republicans' top priorities was to repeal the 2009 Racial Justice Act. Democrats defended the law by pointing to a simple set of numbers: between 1977 and 2010, North Carolina courts had sent three hundred and ninety-two people to death row, 49 percent of whom were Black – a figure more than double Blacks' representation in the general population. Opponents were not impressed. Thomas Goolsby, a Republican in the state Senate, insisted that the Racial Justice Act was unnecessary because inmates on death row already had "multiple avenues of appeal." Governor Pat McCrory seconded that claim, arguing that the law did nothing more than create a new "judicial loophole to avoid the death penalty and not a path to justice." Timothy K.

¹⁹⁹ "Looking, Very Closely, for Voter Fraud," *New York Times*, September 17, 2012; "The Madison Project Launches the Code Red USA Project"; and Riley, "Lesson from North Carolina on Challengers," <<http://bit.ly/32uhGbN>>, September 5, 2019.

²⁰⁰ Berman, *Give Us the Ballot*, 290.

(Tim) Moore, who later became the state's Speaker of the House, heaped ridicule atop McCrory's scorn. "The Racial Justice Act tries to put a carte blanche solution on the problem," he said. "A white supremacist who murdered an African American could argue he was a victim of racism if Blacks were on the jury." There was, of course, no evidence that Blacks had systematically persecuted white supremacists in the past, or that prosecutors were eager to empanel Black jurors. In fact, district attorneys in North Carolina struck eligible Black jurors at roughly 2.5 times the rate they excluded

all others. In early June 2013, lawmakers voted largely along party lines to rescind the Racial Justice Act, and Governor McCrory quickly signed the repeal into law.²⁰¹

North Carolina's minority schoolchildren also ran afoul of Republican lawmakers, who mounted a stepwise campaign to weaken public education and expand private alternatives. The starting point was an issue that had been front and center in the 2012 election: a projected \$3 billion shortfall in the state budget. There were obvious ways to address that problem – raise taxes, cut spending, or do some of both. The Republican majority in the General Assembly chose austerity, and because expenditures on education accounted for nearly 40 percent of North Carolina's annual budget, public schools were in the bullseye. For fiscal year 2014, the total appropriation for K-12 education, when adjusted for inflation, fell \$563 million short of school spending in fiscal year 2008. Included in that figure were deep cuts in funding for pre-K programs, transportation, textbooks, and construction. The reductions hit teachers particularly hard. Their pay effectively stagnated as compensation in North Carolina fell from twenty-second to forty-seventh place in the nation. Soon teachers were fleeing the state's public schools; some dropped out of the profession, and others were lured away by better pay in neighboring states.²⁰²

Spending cuts and teacher attrition created a public perception of crisis, which was amplified by changes in the way that state officials had begun to report school performance. In 2012, the General Assembly created a simplified system that distilled a variety of measurements into letter grades that ranged from A to F. A year later, seven hundred and seven public schools received a grade of D or F. Parents and educators were shocked, in part because officials failed to tell them that nearly all of the underperforming schools were also high-poverty, majority-minority schools, where children needed more, not less, funding for supplemental instruction, pre-K and after-school programs, lower student-teacher ratios, and reduced class size.²⁰³

Republican lawmakers ignored those needs and instead used the low grades to argue for increased public support for charter schools and implementation of a new freedom-of-choice

²⁰¹ Kotch and Mosteller, "Racial Justice Act," 2035 and 2088; "North Carolina Repeals Law Allowing Racial Bias Claim in Death Penalty Challenges," *New York Times*, June 5, 2013; Grosso and O'Brien, "Stubborn Legacy," 1533; Florsheim, "Four Inmates Might Return to Death Row," <<http://bit.ly/37qiEss>>, September 5, 2019; and "McCrory Signs Repeal of Racial Justice Act," *Winston-Salem Journal*, June 20, 2013.

²⁰² "North Carolina's Step-by-Step War on Public Education," *Washington Post*, August 7, 2015; Johnson and Ellinwood, *Smart Money*, <<http://bit.ly/37tcQo>>, November 29, 2020; 2013–2015 North Carolina Budget Short-Changes Students, Teachers, and Public Education, <<http://bit.ly/2RTBUrA>>, November 29, 2020; Gerhardt, "Pay Our Teachers or Lose Your Job," <<http://bit.ly/2ROO19t>>, November 29, 2020; Wagner, "North Carolina Once Again Toward the Bottom in National Rankings on Teacher Pay," <<http://bit.ly/2TZHA67>>, November 29, 2020; and Brenneman, "Teacher Attrition Continues to Plague North Carolina," <<http://bit.ly/2uuLBVu>>, November 29, 2020.

²⁰³ 2013–14 School Performance Grades (A–F) for North Carolina Public Schools. On the grading scheme, see *Unraveling*, <<http://bit.ly/2TYTpcG>>, November 29, 2020.

voucher program for private and religious academies. These policy decisions threatened to accelerate school re-segregation, which had been gathering speed since 2000, when the U.S. Supreme Court overturned its earlier decision in *Swann v. Charlotte-Mecklenburg Board of Education*. The Swann ruling, issued in 1971, had made busing a preferred means of desegregation and, in Charlotte, led to the creation of one of the nation's most integrated school systems. But behind that success lay deep racial anxiety, which led a group of white parents to initiate the court challenge to *Swann* in 1997 and, more broadly, informed the creation of North Carolina's charter school program a year later. A Duke University study of charter schools in the period between 1998 and 2012 offered insight into these developments and their role in re-segregation. The Duke researchers found that white parents preferred schools that were no more than 20 percent Black. Beyond that tipping point, they began to look for alternatives. The results showed in the demography of North Carolina schools. In 2012, only about 30 percent of students in the traditional public education system attended highly segregated schools that were more than 80 percent or less than 20 percent Black. In charter schools, the figures were reversed; more than two-thirds of students were enrolled in schools that were overwhelmingly white or Black. The Duke team concluded from these numbers that "North Carolina's charter schools have become a way for white parents to secede from the public school system, as they once did to escape racial integration orders."²⁰⁴

North Carolina's voucher program also undermined confidence in public schools and encouraged re-segregation. The program used public school funds to offer Opportunity Scholarships to low-income families that earned less than 133 percent of the federal poverty line. The State Department of Public Instruction marketed the vouchers, valued at up to \$4,200 a year, as assistance for parents who wished to remove their students from high-poverty, under resourced schools – that is, underperforming schools created by state policies. Today, 93 percent of voucher recipients attend religious schools, which, on average, do not serve them particularly well. North Carolina accountability standards for voucher-eligible schools are among the most lenient in the nation. Those schools are not required to seek accreditation, employ licensed teachers, comply with state curriculum standards, or administer end-of-year evaluations of student learning. Given that lax oversight, it is not surprising that in the small number of voucher-eligible schools that do report results from standardized reading and math tests, 54 percent of students score below national averages. Enrollment data for voucher-eligible schools is not readily available, but information from disparate sources suggests that they are an increasingly attractive choice for white families who are looking for an alternative to integrated public schools. Between the 2014-15 and 2016-17 academic years, the share of vouchers claimed by Black students fell from 49 to 35 percent, while the share used by whites increased from 27 to 41 percent. One fact provides at least a partial explanation of that shift: in large religious schools with more than eighty voucher students, average enrollment was 89 percent white.²⁰⁵

Restoring "blindfolded" justice that dismissed four centuries of racial inequity in American jurisprudence and defaulting on North Carolina's constitutional obligation to provide all children equal opportunities in school – this was the agenda that Republicans enacted after their sweep of

²⁰⁴ Ladd, Clotfelter, and Holbein, "Growing Segmentation," 11, 35, <<https://ampr.gs/32wwPsW>>, September 5, 2019, and "White Parents in North Carolina Are Using Charter Schools to Secede from the Education System," *Washington Post*, April 15, 2015.

²⁰⁵ *School Vouchers*, 1–2, 7, 11–13, and 21n2, <<http://bit.ly/2Sbg03j>>, November 29, 2020; Opportunity Scholarship Program, 2019–20 School Year, <<http://bit.ly/2GoFFzZ>>, November 29, 2020; and Private School Minority Statistics in North Carolina, <<http://bit.ly/3aJN8I4>>, November 29, 2020.

the General Assembly and governor's office in 2012. On election night in 2016, as he celebrated Donald J. Trump's presidential victory, Tim Moore, the state Speaker of the House, looked back on his party's handiwork and declared, "We've had a great four years since we took the majority." But even in that moment, Moore and other party leaders surely knew that candidates with different priorities might prevail in future elections and sweep away Republicans' accomplishments. How, then, to make the conservative revolution permanent? One answer – the answer that Charles Aycock and white-rule Democrats had imposed in 1900 – was to disenfranchise dissenting voters. That was the threat posed by House Bill 589, which a federal court would later describe as "the most restrictive voting law North Carolina has seen since the era of Jim Crow."²⁰⁶

D. House Bill 589 in the Federal Courts

In 2016, the North Carolina NAACP, League of Women Voters, and U.S. Department of Justice lost their challenge to House Bill 589 in the U.S. District Court for the Middle District of North Carolina. But on appeal, the Fourth Circuit ruled for the plaintiffs and reversed the district court's decision. A three-judge panel found compelling evidence of discriminatory intent in the Republican election law. Among other considerations, the court pointed to "the inextricable link between race and politics in North Carolina," Republican lawmakers' consideration and use of race-specific data on voting practices, and the bill's timing. In addition to following closely on the heels of the *Shelby County* decision, House Bill 589 was also situated at a critical juncture in North Carolina politics. The appellate court judges noted that "after years of preclearance and expansion of voting access, by 2013 African American registration and turnout rates had finally reached near-parity with white registration and turnout rates. African Americans were poised to act as a major electoral force." Republican lawmakers "took away that opportunity because [Blacks] were about to exercise it," and they did so, the judges added, "with almost surgical precision."²⁰⁷

From this and other evidence, the Fourth Circuit panel concluded "that, because of race, the legislature enacted one of the largest restrictions of the franchise in modern North Carolina." They did not directly cite North Carolina's 1900 disenfranchisement amendment to the state constitution, but that was the obvious historical reference point. No other change to election law had been so sweeping in its effect. The judges remanded the House Bill 589 case to the district court, with instructions to enjoin the voter ID requirement and changes made to early voting, same-day registration, out-of-precinct voting, and teen preregistration.²⁰⁸

Republican leaders quickly regrouped after the Fourth Circuit ruling. They began to prepare an appeal to the Supreme Court and, in the interim, attempted to salvage some of the advantage that House Bill 589 would have given them in the upcoming 2016 general election. In mid-August, Republican governor Pat McCrory petitioned Chief Justice John G. Roberts Jr. to reinstate the law's photo ID requirement, which had been implemented months earlier in the spring primaries. Roberts declined. At the same time, Dallas Woodhouse, executive director of the state

²⁰⁶ "North Carolina's 'Racial Justice Act,'" Civitas Institute, November 16, 2010, <<http://bit.ly/38K467o>>, November 29, 2029; "Berger and Moore Celebrate Majority Victory in State Legislature," *Raleigh News and Observer*, (updated online, <<http://bit.ly/2tIJPjJ>>, November 29, 2020); *North Carolina State Conference of the NAACP v. McCrory*, 831 F.3d 204, 229 (4th Cir. 2016).

²⁰⁷ *North Carolina State Conference of the NAACP v. McCrory*, 831 F.3d 204, 214, 215 (4th Cir. 2016); see also *North Carolina State Conference of the NAACP v. McCrory*, 182 F. Supp. 3d 320 (M.D.N.C. 2016); *North Carolina State Conference of the NAACP v. McCrory*, 997 F. Supp. 2d 322 (M.D.N.C. 2014).

²⁰⁸ *North Carolina State Conference of the NAACP v. McCrory*, 831 F.3d 204, 239–241 (4th Cir. 2016).

Republican Party, encouraged county election boards to press ahead with what he called "party line changes" to early voting. The boards no longer had legal authority to shorten the early-voting period, but they could achieve much the same effect by reducing the number of early-voting sites and cutting the hours they would be open.²⁰⁹

Seventeen county boards, mostly in the east, did just that. Had Section 5 of the Voting Rights Act still been in place, the changes would have required preclearance from the U.S. Department of Justice, but that was no longer a hurdle. In the affected counties, Black voter turnout sagged significantly through much of the early voting period and caught up to 2012 levels only after a Herculean get-out-the-vote effort. Tellingly, state Republican Party officials reported that news in explicitly racial terms. The "North Carolina Obama coalition" was "crumbling," they reported in a news release. "As a share of Early Voters, African Americans are down 6.0%, (2012: 28.9%, 2016: 22.9%) and Caucasians are up 4.2%, (2012: 65.8%, 2016: 70.0%)." ²¹⁰

On appeal in 2017, the U.S. Supreme Court declined to review the Fourth Circuit's ruling on House Bill 589.²¹¹

E. Redistricting in Federal and State Courts

As House Bill 589 wound its way through the federal courts, plaintiffs raised related objections to the redistricting plan enacted by Republican lawmakers in 2011. In *Covington v. North Carolina*, twenty-eight plaintiffs contested the configuration of the same number of new, majority-minority districts in the General Assembly. They charged that those districts had been created "through the predominant and unjustified use of race." State defendants answered the complaint by insisting that "race was not the primary factor used in the redistricting, and that even if it was, their use of race was necessary to serve a compelling state interest – namely, compliance with Section 2 and Section 5 of the Voting Rights Act."²¹²

In August 2016, the U.S. District Court for the Middle District of North Carolina rejected that defense. The court ruled against the Section 2 claim, noting that Republican lawmakers presented no evidence that they had created majority-minority districts to remedy situations in which "vote dilution" – as in at-large elections, or as a consequence of white bloc voting – restricted minority citizens' "opportunity . . . to participate in the political process and to elect representatives of their choice." In fact, the court observed, Black legislators had a strong record of electoral success in "non-majority-Black" districts. It noted that "in three election cycles preceding the 2011 redistricting, African-American candidates for the North Carolina House won thirty-nine general elections in districts without a majority [Black voting age population] . . . and African-American candidates for the North Carolina Senate won twenty-four such elections." The court took a similarly jaundiced view of Republican lawmakers' Section 5 claim. It pointed out that "eleven of the

²⁰⁹ "McCrory Asks Supreme Court to Restore Voter ID Law," *Raleigh News and Observer*, August 16, 2016, and "N.C. Republican Party Seeks 'Party Line Changes' to Limit Early Voting Hours," *Raleigh News and Observer*, August 18, 2016.

²¹⁰ Newkirk, "What Early Voting in North Carolina Actually Reveals," <<http://bit.ly/2ULBchm>>, September 5, 2019, and North Carolina Republican Party, "NCGOP Sees Encouraging Early Voting," <<http://bit.ly/2HS9B8J>>, September 5, 2019.

²¹¹ *North Carolina v. North Carolina State Conference of the NAACP*, 137 S. Ct. 1399 (2017).

²¹² *Covington v. North Carolina*, 316 F.R.D. 117, 124, 126, 174 (M.D.N.C. 2016).

[twenty-eight] challenged districts [did] not include any county, in whole or in part, that was covered by Section 5 in 2011, and therefore those districts could not have been drawn to remedy a Section 5 violation."²¹³

The court concluded that Republican lawmakers could point to "no strong basis in evidence" that they had acted to correct voting practices or procedures that limited racial minorities' "effective exercise of the electoral franchise."²¹⁴ In fact, the 2011 redistricting plan appeared to have been designed to do just the opposite. In Guilford County, for example, the Republican map split forty-six precincts in order to cram 88.39 percent of Greensboro's Black voting-age residents into three majority-minority state House districts. Similarly, Senate district 28 split Greensboro and neighboring High Point along racial lines, and by doing so captured 82.45 percent of the Black voting age population in Greensboro, along with 60 percent of that population in High Point.²¹⁵

Based on these observations, the court ruled that the 2011 redistricting plan "constitute[d] racial gerrymandering in violation of the [Fourteenth Amendment's] Equal Protection Clause." North Carolina "citizens have the right to vote in districts that accord with the Constitution," the court declared. "We therefore order that new maps be drawn that comply with the Constitution and the Voting Rights Act."²¹⁶ In 2017, the General Assembly adopted a new redistricting plan that included 116 revised districts. *Covington* plaintiffs objected that twelve of the new districts failed to remedy original instances of racial gerrymandering, or were otherwise unconstitutional. The district court found that nine of those complaints had merit and appointed a Special Master to make additional revisions. On appeal in 2018, the U.S. Supreme Court upheld four of the Special Master's revised maps.²¹⁷

As the *Covington* case came to closure in the federal courts, Common Cause and twenty-three individual plaintiffs sued in state court to block the 2017 redistricting plan. They charged that despite revisions intended to correct racial gerrymandering, redrawn legislative districts still advantaged Republicans over the Democratic challengers that most Black and progressive white voters preferred. In their court filing, the plaintiffs explained how this was done:

To maximize the number of Republican seats in the General Assembly, the 2017 Plan meticulously 'pack[ed] and crack[ed]' Democratic voters. Packing and cracking are the two primary means by which mapmakers carry out a partisan gerrymander. 'Packing' involves concentrating one party's backers in a few districts that they will win by overwhelming margins to minimize the party's votes elsewhere. 'Cracking' involves dividing a party's supporters among multiple districts so that they fall comfortably short of a majority in each district.²¹⁸

The configuration of legislative districts in Charlotte and Mecklenburg County offered a striking example of these practices in action. The 2017 plan broke Mecklenburg County into twelve House

²¹³ Ibid., 125.

²¹⁴ Ibid., 174.

²¹⁵ Ibid., 47–48 and 164.

²¹⁶ Ibid., 178.

²¹⁷ Order, *Covington v. North Carolina*, 316 F.R.D. 117 (M.D.N.C. 2016) (No. 1:15-cv-399); Memo. Op. and Order, *Covington v. North Carolina*, 316 F.R.D. 117 (M.D.N.C.) (No. 1:15-cv-399); *North Carolina v. Covington*, 137 S. Ct. 1624 (2017); *North Carolina v. Covington*, 138 S. Ct. 2548, 2550, 2555 (2018).

²¹⁸ Amended Compl., 33, *Common Cause v. Lewis*, 2019 N.C. Super. LEXIS 56, 18 CVS 014001 (N.C. Super. Ct. Sept. 3, 2019).

districts. Democratic voters were packed into eight of the districts, seven of which included no Republican-leaning precincts. Conversely, Charlotte's Republican voters were packed into three districts in southern Mecklenburg County, and the last remaining district, in north Mecklenburg, was drawn to give Republicans an advantage by dodging adjacent Democratic-leaning precincts. Senate districts followed a similar pattern. All of Charlotte's Republican-leaning precincts were packed into two districts that overlapped the southern House districts, and Democrat-leaning precincts were concentrated in three districts that included heavily minority, inner city neighborhoods.²¹⁹ Given the sharp racial polarization in political party membership, this configuration worked to disadvantage minority citizens, the overwhelming majority of whom affiliate as Democrats.

The effectiveness of packing and cracking was apparent in the 2018 statewide election results. In contests for "both the state House and state Senate . . . Democratic candidates won a majority of the statewide vote." Even so, Republicans secured "a substantial majority of seats in each chamber": 29 of 50 in the Senate and 65 of 120 in the House.²²⁰ "The [electoral] maps," Common Cause and its allies complained, "are impervious to the will of the voters." So was policy making. "In today's state legislatures—and particularly in North Carolina," the Common Cause plaintiffs observed, "Republican representatives are simply not responsive to the views and interests of Democratic voters. Regardless of whether gerrymandering has caused this increased partisanship, such extreme partisanship magnifies the effects of partisan gerrymandering. When Democratic voters lose the ability to elect representatives of their party as a result of partisan gerrymandering, those voters lose not only electoral power, but also the ability to influence legislative outcomes – because Republican representatives pay no heed to these voters' views and interests once in office."²²¹

In September 2019, a three-judge panel of the Wake County Superior Court affirmed these claims. They ruled that the 2017 redistricting plan violated the North Carolina state constitution on three counts. "First, the court wrote that partisan gerrymandering 'strikes at the heart' of the Free Elections Clause, a provision of the North Carolina Constitution stating that 'all elections shall be free.' Second, the court held that partisan gerrymandering violated the North Carolina Equal Protection Clause, which [state] courts have interpreted to include the fundamental 'right to vote on equal terms.' . . . Finally, the court declared that under the North Carolina Constitution, partisan gerrymandering unconstitutionally burdens the free speech and assembly rights of those who vote for the disfavored party by diluting their votes and their ability to effectively organize."²²² Based

²¹⁹ *Common Cause v. Lewis*, N. C. General Court of Justice, Superior Court Division, 18 CVS 014001, Complaint, November 13, 2018, 1, 28, 109-17, 186-91.

²²⁰ Amended Compl. 1, *Common Cause v. Lewis*, N. 2019 N.C. Super. LEXIS 56, 18 CVS 014001 (N.C. Super. Ct. Sept. 3, 2019); Millhisser, "Cracks in the GOP's Gerrymandering Firewall," <<http://bit.ly/35Tq1qL>>, November 29, 2020. See also North Carolina General Assembly 2019 Senate Demographics, <<https://cutt.ly/IUsQoPw>>.

²²¹ Amended Compl. 64, *Common Cause v. Lewis*, 2019 N.C. Super. LEXIS 56, 18 CVS 014001 (N.C. Super. Ct. Sept. 3, 2019); *Common Cause v. Lewis*, Common Cause North Carolina blog, December 17, 2019, <<https://cutt.ly/qUenOvR>>.

²²² Recent Case: *Common Cause v. Lewis*, Harvard Law Review Blog, October 15, 2019, <<https://cutt.ly/cUem59X>>.

on these findings, the court ordered that legislative maps be redrawn once more. The General Assembly complied, without legal objection, in October 2019.²²³

Taken together, these judicial rulings underscore the fact that in North Carolina politics, extreme partisan gerrymandering is a highly effective means of discriminating against racial minorities. It works to restrict minority voting power, and, by doing so, weakens the influence of interracial and multiethnic coalitions, particularly within the Democratic Party. The ultimate effect is to entrench white conservatives' control of the General Assembly and public policy.

F. Constitutional Amendment – A New Old Strategy

Republican leaders – including party chairman Robin Hayes, Senate President Pro Tempore Phil Berger, and Speaker of the House Tim Moore – answered these defeats with public declarations that they would "continue to fight." Having failed to secure a comprehensive revision of election law with House Bill 589, they narrowed their focus to voter ID and shifted the battle to the state constitution, where similar struggles over voting rights, race, and democracy had been waged in 1868 and again in 1900. In 2018, Republican lawmakers drafted a constitutional amendment that would require photographic identification of all electors "offering to vote in person." They placed it on the ballot for ratification in the upcoming November election.²²⁴

That was a shrewd tactical move. As Gerry Cohen, retired special counsel to the General Assembly, observed, Republicans viewed the amendment as a means of "immuniz[ing] voter ID, specifically photo voter ID, from [court challenges on] state constitutional grounds." A future legislature dominated by Democrats would also find it far more difficult to reverse a constitutional amendment than to repeal an election law like House Bill 589. These were live concerns for Republicans who faced a Democratic majority on the North Carolina Supreme Court and, if opinion polls in advance of Election Day had any predictive power, were at risk of losing their supermajority in the state House of Representatives.²²⁵

Over the course of the campaign, Republicans argued for the voter ID amendment as a reasonable, necessary, and common-sense reform. It was reasonable, they said, because the state had made adequate provision for its citizens to acquire a photo ID. The amendment was necessary,

²²³ *Common Cause v. Lewis*, N. C. General Court of Justice, Superior Court Division, 18 CVS 014001, Judgment, September 3, 2019; *Common Cause v. Lewis*, Common Cause North Carolina blog, December 17, 2019, <<https://cutt.ly/qUenOvR>>.

²²⁴ "Supreme Court Won't Rescue N.C. Voter ID Law; GOP Leaders Say They Will Try Again with New Law," *Raleigh News and Observer*, May 15, 2017; Act to Amend the North Carolina Constitution to Require Photo Identification to Vote in Person, S.L. 2018-128, H.B. 1092, <<http://bit.ly/2LRAE5p>>, September 5, 2019; and "Voter ID to Go on N.C. Ballots," <<http://bit.ly/2LVTh8c>>, September 5, 2019.

²²⁵ Cohen interview, <<http://bit.ly/34VsJXc>>, September 5, 2019; Act to Amend the North Carolina Constitution to Require Photo Identification to Vote in Person, S.L. 2018-128, House Bill 1092, <<http://bit.ly/2LRAE5p>>, September 5, 2019; and "Voter ID to Go on N.C. Ballots," <<http://bit.ly/2LVTh8c>>, September 5, 2019. In June 2018, National Research Inc. conducted a poll for the conservative Civitas Institute, headquartered in Raleigh. When asked which party they would support if the "election for [the] North Carolina State Legislature were held today," 42 percent of respondents favored Democrats and only 34 percent supported Republicans. That was a dramatic change from February and May, when Democrats and Republicans were locked in a tie. The poll, labeled Generic Ballot, General Assembly, was made public on the Longleaf Politics web site, <<http://bit.ly/34Gp8CB>>, September 5, 2019. The online link is no longer active.

proponents claimed, because widespread voter fraud threatened the integrity of elections. And requiring a photo ID to vote made sense because similar proof of identity was required to "board an airplane, see an R-rated movie, cash a check, or use a credit card."²²⁶



Voter ID campaign card, Republican John Bell,
Raleigh *News and Observer*, November 1, 2018.

These arguments for the amendment did not stand up to close scrutiny. On the point of reasonableness, the fact remained that Blacks made up 23 percent of registered voters but accounted for 34 percent of voters without photo ID. And widespread voter fraud was simply a myth. In April 2017, the State Board of Elections released an audit of the previous year's general election in which it reported that questionable ballots accounted for just over 0.01 percent of the 4.8 million total votes cast. Of the five hundred and eight cases of fraudulent voting that the board identified, only one involved the kind of in-person deception that a photo ID requirement was designed to expose and prevent. In that instance, a voter impersonated her recently deceased mother, whom she described to election officials as "a tremendous Donald Trump fan." Of the remaining ineligible ballots, four hundred and forty-one were cast by people with felony records whose right to vote had not been restored; forty-one were cast by non-citizens; twenty-four were cast by people who double voted; and one was cast by mail.²²⁷

The notion of common sense was equally misleading. Theaters have no legal obligation to check moviegoers' photo IDs; the Transportation Safety Administration routinely allows passengers to board planes without a photo ID, so long as they can present other forms of identification; the American Express merchant guide imposes no photo ID requirement on authorized credit card

²²⁶ "Voter ID: A Form of Suppression or Necessary Protection?" <<http://bit.ly/2IR8wOL>>, November 29, 2020; "Support Voter ID Today," <<http://bit.ly/33mJf8x>>, November 29, 2020; "Voter ID Is Back in North Carolina, and the Justifications Are as Lamé as Ever," *Charlotte Observer*, June 7, 2018; and "North Carolina Voter ID Amendment Debate Features Misleading Claims," <<http://bit.ly/32A2tpJ>>, September 5, 2019.

²²⁷ "County-by-County Data Reveal Dramatic Impact of Proposed Election Changes on Voters," <<https://bit.ly/3nj4fpK>>, November 29, 2020; and *Postelection Audit Report: General Election 2016*, 2, appendix 4.2, and appendix 5, <<http://bit.ly/2LQ3TFP>>, November 29, 2020. See also Citizens Without Proof, 3, <<http://bit.ly/34QpHtJ>>, September 5, 2019; Atkeson et. al., "New Barriers to Participation," <<http://bit.ly/2LSocT6>>, September 5, 2019.

customers; and Visa and Mastercard require a photo ID only for face-to-face cash disbursements, not purchases.²²⁸

These points of fact notwithstanding, voters approved the constitutional amendment in November 2018 by a margin of 55.49 to 44.51 percent. Republicans carried the day, in part because they had effectively undermined faith in the electoral process by convincing voters that fraud was widespread but remained invisible because there were no laws to expose it. Dallas Woodhouse put it this way: "Millions of North Carolinians believe that there is voter fraud. Now, somebody can disagree with them, but they believe it. So, adding confidence into the system is a very important thing."²²⁹

Republican leaders had also broken with the General Assembly's well-established practice of appointing study commissions to evaluate the impact of constitutional changes and of drafting legislation to make the details of implementation public and transparent. The bill that authorized the photo ID amendment stipulated that it would be presented as a single declarative sentence on which voters were to decide 'yes' or 'no.' Under pressure from critics, the North Carolina Constitutional Amendments Publication Commission, provided a lengthier explanation:

This amendment requires you to show photographic identification to a poll-worker before you can vote in person. It does not apply to absentee voting.

The Legislature would make laws providing the details of acceptable and unacceptable forms of photographic identification after passage of the proposed amendment. The Legislature would be authorized to establish exceptions to the requirement to present photographic identification before voting. However, it is not required to make any exceptions.

There are no further details at this time on how voters could acquire valid photographic identification for the purposes of voting. There is no official estimate of how much this proposal would cost if it is approved.

Even though it still lacked specifics, and did not change what voters saw on the ballot itself, this description weakened voter support for photo ID. Shortly before the election, an Elon University poll found that "based upon that language," voter approval dropped from 63 to 59 percent. Had the General Assembly followed past practice and offered a draft of enabling legislation, support might have eroded further.²³⁰

²²⁸ "Voter ID Is Back in North Carolina, and the Justifications Are as Lamé as Ever," *Charlotte Observer*, June 7, 2018; "North Carolina Voter ID Amendment Debate Features Misleading Claims," <<http://bit.ly/32A2tpJ>>, September 5, 2019; American Express Merchant Reference Guide – U.S., <<https://amex.co/2HKPqtq>>, September 5, 2019; Visa Core Rules and Visa Product and Services Rules, <<https://vi.sa/2HKJGzJ336>>, September 5, 2019; and Mastercard Transaction Processing Rules, 75, <<http://bit.ly/32w1iaI>>, September 5, 2019.

²²⁹ "North Carolina Voter ID Amendment (2018)," <<http://bit.ly/32tAl1Z>>, September 5, 2019. Woodhouse's comments are transcribed from a video recording of a press conference he held on July 29, 2016. See "N.C. Voter ID Law Overturned," *Raleigh News and Observer*, February 9, 2018, (updated online, <<http://bit.ly/32oS3cm>>), September 5, 2019.

²³⁰ Schofield, "Former Legislative Counsel Gerry Cohen on N.C.'s Six Proposed Constitutional Amendments," <<http://bit.ly/34NR8Ea>>, September 5, 2019; North Carolina Constitutional Amendments Publication Commission, Official Explanation of the Proposed Constitutional Amendment to Require Photographic Identification to Vote, S.L. 2018-128, <<http://bit.ly/34PG5KX>>, September 5, 2019; and "N.C. Voters Know Little About Proposed Constitutional Amendments," <<http://bit.ly/34VCCnM>>, September 5, 2019.

Shortly after Thanksgiving, Republican leaders convened a special session of the General Assembly to pass Senate Bill 824, legislation crafted to implement the photo ID amendment. They were in a hurry, because in the 2018 general election they had lost their super-majority in the state House of Representatives and would soon be unable to counter Democratic Governor Roy Cooper's opposition. When Cooper vetoed the bill, the lame duck legislature quickly overrode him and made it into law.²³¹

In December 2018, plaintiffs in *Holmes v. Moore* challenged Senate Bill 824 in state Superior Court. They noted that the new law had been shepherded through the legislature by the same Republican leaders who crafted House Bill 589 five years earlier. Thus, there was no surprise that Senate Bill 824 "retain[ed] many of the harmful provisions" from the voter photo ID section of the prior legislation, and, by doing so, "reproduced the . . . racially discriminatory intent" identified by the Fourth Circuit Court of Appeals. More specifically, the plaintiffs contended that Senate Bill 824 violated the North Carolina Constitution's equal protection and free elections clauses, its property qualification clause, and its protection of free speech and the right of assembly and petition.²³²

A three-judge panel ruled, two to one, for the plaintiffs in September 2021. Senate Bill 824, they wrote, "was enacted in part for a discriminatory purpose and would not have been enacted in its current form but for its tendency to discriminate against African American voters." The legislation therefore violated Article 1, section 19, of the North Carolina State Constitution, which affords all citizens "equal protection of the laws" and specifies that no person "shall . . . be subjected to discrimination by the State because of race, color, religion, or national origin." In reaching this conclusion, authors of the majority opinion pointed to a "totality of circumstances" that included North Carolina's "history of voting and election laws." That history, they observed, "shows a recurring pattern in which the expansion of voting rights and ballot access to African Americans is followed by periods of backlash and retrenchment that roll back those gains for African American voters." In the judges' view, this "historical context" supported plaintiffs' claims the Republican legislature "intended to discriminate against African American voters."²³³

G. Redistricting Redux

Over the course of a decade, Republican legislators have largely failed in their efforts to use the power of the law to restrict minority political participation and influence in shaping public policy. But the fight is hardly over. As noted above, *Shelby v. Holder* gave conservatives new freedom to rewrite election law, and by nullifying the federal preclearance regime, has significantly disadvantaged voting rights advocates, who must now contest discriminatory practices after the fact and on a case-by-case basis. In that respect, the voting rights landscape in North Carolina today bears a troubling resemblance to that of the 1950s.

Republicans retained control of the General Assembly in the 2020 election, and in the subsequent legislative session used the decennial redistricting process to make another run at partisan gerrymandering. In early November of this year, they released maps of new Congressional and

²³¹ "House Enacts Voter ID with Veto Override," <<http://bit.ly/2HNXXf0>>, November 29, 2020, and Civitas Statement on Overriding Governor Cooper's Voter ID Veto, <<https://bit.ly/33Fc5RH>>, November 20, 2020.

²³² *Holmes v. Moore*, N. C. General Court of Justice, Superior Court Division, 18 CVS 15292, Verified Complaint, December 19, 2018, 3, 20- 15292, Verified Complaint, December 19, 2018, 3-5.

²³³ *Holmes v. Moore*, N. C. General Court of Justice, Superior Court Division, 18 CVS 15292, Judgment and Order, September 17, 2021, 76, 78; *Constitution of the State of North Carolina, 1868*.

legislative districts that, in the view of critics and partisans alike, will give Republicans a wide advantage over Democratic challengers. Pundits predict that in the 2022 election, Republicans are likely to win ten or eleven of North Carolina's congressional seats and may re-establish a veto-proof super majority in the state legislature.²³⁴

In court challenges to the new district maps, plaintiffs charge that Republican lawmakers have once again manipulated the redistricting process in order suppress minority political participation and deny political influence to Black and Hispanic voters, who constitute fifty percent of the Democratic electorate. Republican leaders answer that charge by insisting that they "did not look at race" while drawing new district maps.²³⁵

That claim to colorblindness is cynical and pernicious. It asks us to believe that history has ended; that in a society deeply scarred by slavery and Jim Crow, race no longer matters; and that politicians vying for public office in the racially polarized America of the twenty-first century lack an intimate knowledge of where people live and how they vote.

As historian Morgan Kousser has observed, redistricting will always be informed by race – "formally or informally, precisely or approximately" – because racial divisions "are the single most salient social and political facts in contemporary America, as they have been in much of the nation's past. Redistricting cannot be race-unconscious until the country ceases to be, and pretending that society or politics has become colorblind can only allow discrimination to go unchecked." That is particularly true in North Carolina, where conservatives have long relied on racial discrimination to secure partisan advantage. As the state Superior Court judges noted in *Holmes v. Moore*, "this history of restricting African American voting rights . . . is not ancient; it is a twenty-first-century phenomenon."²³⁶

XIII. Conclusion

Today's contests over access to the ballot box and representation in government are the latest chapters in North Carolina's long and cyclical history of suppressing minority political participation. Over the last century and a half, white conservatives have employed a variety of measures to limit the rights of racial and ethnic minorities. In the process, they have imposed a heavy burden of injustice. Historically, when minority rights have been constrained, North Carolina's government has been decidedly unresponsive to minority concerns and interests related to social and economic policy. This lack of accountability has perpetuated stark racial disparities in education, employment, health, and general well-being. These circumstances undermine the principles enshrined in North Carolina's constitution by newly emancipated slaves and their white al-

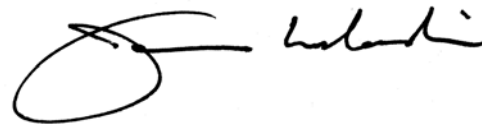
²³⁴ "North Carolina Passes New Maps Giving GOP and Edge in Congress, State Legislature," *News and Observer* (Raleigh, N.C.), November 4, 2021.

²³⁵ "N.C. Redistricting Suits Challenges Lack of Race Data for Maps," WFAE 90.7, October 30, 2021, <<https://cutt.ly/YUyjoDF>>; "Map by Map, GOP Chips Away at Black Democrats' Power," *New York Times*, December 18, 2021.

²³⁶ J. Morgan Kousser, *Colorblind Injustice: Minority Voting Rights and the Undoing of the Second Reconstruction* (Chapel Hill: University of North Carolina Press, 1999), 270; *Holmes v. Moore*, N. C. General Court of Justice, Superior Court Division, 18 CVS 15292, Judgment and Order, September 17, 2021, 77.

lies of good conscience. "All political power is vested in, and derived from the people," that document still proclaims, and "all government of right originates from the people, is founded upon their will only, and is instituted solely for the good of the whole."²³⁷

I declare under penalty of perjury under the laws of North Carolina that the foregoing is true and correct.

A handwritten signature in black ink, appearing to read "Leloudis", written over a horizontal line.

James L. Leloudis II

December 23, 2021

²³⁷ Constitution of North Carolina, Article I, Section 2.

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Appendix

Curriculum Vitae

James L. Leloudis II

ADDRESSES

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Honors Carolina (919) 966-5110
CB# 3510, Graham Memorial

University of North Carolina
Chapel Hill, NC 27599-3510 E-mail: leloudis@unc.edu

EDUCATION

Ph.D., University of North Carolina at Chapel Hill, May 15, 1989

M.A., Northwestern University, June 16, 1979

B.A., with highest honors, University of North Carolina at Chapel Hill, May 14, 1977

ACADEMIC APPOINTMENT

Professor, Department of History, University of North Carolina at Chapel Hill

ADMINISTRATIVE APPOINTMENTS (in reverse chronological order)

Co-Chair, University Commission on History, Race, and a Way Forward, University of North Carolina at Chapel Hill, January 2020 to present.

Peter T. Grauer Associate Dean for Honors Carolina and founding Director, The James M. Johnston Center for Undergraduate Excellence, College of Arts and Sciences, University of North Carolina at Chapel Hill. Appointed July 1, 1999-June 30, 2004; re-appointed July 1, 2004-June 30, 2009, appointment revised and extended July 1, 2007-June 30, 2012; reappointed July 1, 2012-June 30, 2017; appointment revised and extended July 1, 2014-June 30, 2019; reappointed July 1, 2019-June 30, 2024.

Interim Director, Center for the Study of the American South, University of North Carolina at Chapel Hill, July 1, 1998-June 30, 1999.

Associate Chair, Department of History, University of North Carolina at Chapel Hill, July 1, 1996-June 30, 1998.

SCHOLARSHIP

Books

Co-author, *Fragile Democracy: The Struggle Over Race and Voting Rights in North Carolina* (Chapel Hill: University of North Carolina Press, 2020).

Co-author, *To Right These Wrongs: The North Carolina Fund and the Battle to End Poverty and Inequality in 1960s America* (Chapel Hill: University of North Carolina Press, 2010).

Schooling the New South: Pedagogy, Self, and Society in North Carolina, 1880-1920 (Chapel Hill: University of North Carolina Press, 1996).

Co-author, *Like a Family: The Making of a Southern Cotton Mill World* (Chapel Hill: University of North Carolina Press, 1987 and 2000; New York: W.W. Norton, 1989).

Historical Exhibits

"Fragile Democracy: The Struggle Over Race and Voting Rights in North Carolina," <https://adobe.ly/3c8WJsL>.

"Silent Sam: The Confederate Monument at the University of North Carolina," <https://silent-sam.online> and <https://adobe.ly/3dT3XRe>.

"The Carolina Hall Story," a permanent exhibit on race, politics, and historical memory at the University of North Carolina at Chapel Hill, installed in Carolina Hall, November, 2016.

"Like a Family: The Making of a Southern Cotton Mill World," Teaching and Learning in the Digital Age, American Historical Association, 2001 (no longer available online).

Articles

Co-author, "Citizen Soldiers: The North Carolina Volunteers and the South's War on Poverty," in Elna C. Green, ed., *The New Deal and Beyond: Social Welfare in the South since 1930* (Athens: University of Georgia Press, 2003), pp. 138-62.

"A Classroom Revolution: Graded School Pedagogy and the Making of the New South," in Czeslaw Majorek and Erwin V. Johanningsmeier, eds., *Educational Reform in International Perspective: Past, Present, and Future* (Krakow: Polish Academy of Sciences, 2000), pp. 245-60.

Co-author, "Citizen Soldiers: The North Carolina Volunteers and the War On Poverty," *Law and Contemporary Problems* 62 (No. 4, Autumn 1999): 178-96.

"Schooling the New South: Pedagogy, Self, and Society in North Carolina, 1880-1920," *Historical Studies in Education/Revue d'histoire de l'éducation* 5 (Fall 1993): 203-229.

"Oral History and Piedmont Mill Villages, 1880-1940," *International Journal of Oral History* 7 (November 1986): 163-80.

"Cotton Mill People: Work, Community, and Protest in the Textile South, 1880-1940," (with Jacquelyn Hall and Robert Korstad) *American Historical Review* 91 (April 1986): 245-86.

"School Reform in the New South: The Woman's Association for the Betterment of Public School Houses in North Carolina, 1902-1919," *Journal of American History* 69 (March 1983): 886-909.

"Subversion of the Feminine Ideal: The *Southern Lady's Companion* and White Male Morality in the Antebellum South, 1847-1854," in Rosemary S. Keller, Louise L. Queen, and Hilah F. Thomas, eds., *Women in New Worlds: Historical Perspectives on the Wesleyan Tradition*, vol. 2 (Nashville: Abingdon Press, 1982), pp. 60-75.

Legal Consulting

Plaintiffs' expert witness, *Holmes v. Moore*. Paul, Weiss, Rifkind, Wharton, and Garrison LLP, New York, N.Y., and Southern Coalition for Social Justice, representing Jabari Holmes, Fred Culp, Daniel E. Smith, Brendon Jayden Peay, and Paul Kearney Sr. 2020 and ongoing.

Plaintiff's expert witness. *North Carolina State Conference of the NAACP v. Cooper*, 1:18-cv-01034, U.S. District Court, Middle District of North Carolina. Arnold and Porter LLP, Washington, D.C., and Forward Justice. 2019 and ongoing.

Plaintiffs' expert witness, *Hall v. Jones County Board of Commissioners*, 4:17-cv-00018, U.S. District Court, Eastern District of North Carolina. Cleary Gottlieb Steen and Hamilton LLP, New York, N.Y., representing John Hall, Elaine Robinson-Strayhorn, Lindora Toudle, and Thomas Jenkins. 2018.

Plaintiff's expert witness. *North Carolina State Conference of the NAACP v. McCrory*, 182 F. Supp. 3d 320 (M.D.N.C. 2016), and *North Carolina State Conference of the NAACP v. McCrory*, No. 16-1468 (4th Cir. 2016). Kirkland and Ellis LLP, Washington, D.C., and North Carolina State Chapter of the NAACP.

TEACHING

Courses

U.S. Since 1865 North Carolina Since 1865 The New South (1865-present)

History of Poverty Slavery and the University Oral History Methodology

Recent Doctoral Advisees

R. Joshua Sipe, "Evolving Jim Crow: An Analysis of the Consolidation Movement on the Virginia Peninsula, 1940-1958," M.A. thesis, 2019.

Elizabeth Lundeen, "Brick and Mortar: Historically Black Colleges and the Struggle for Equality, 1930-1960," Ph.D. dissertation, 2018.

Evan Faulkenbury, "Poll Power: The Voter Education Project and the Financing of the Civil Rights Movement, 1961-1992," Ph.D. dissertation, 2016. Published as *Poll Power: The Voter Education Project and the Movement for the Ballot in the American South* (University of North Carolina Press, 2019).

Willie J. Griffin, "Courier of Crisis, Messenger of Hope: Trezzvant W. Anderson and the Black Freedom Struggle for Economic Justice," Ph.D. dissertation, 2016. Forthcoming, Vanderbilt University Press, 2021.

Brandon K. Winford, "'The Battle for Freedom Begins Every Morning': John Hervey Wheeler, Civil Rights, and New South Prosperity," Ph.D. dissertation, 2014. Published as *John Hervey Wheeler: Black Banking and the Economic Struggle for Civil*

Rights (University Press of Kentucky, 2020). Winner of the Lillian Smith Award, 2020.

PROFESSIONAL AWARDS AND FELLOWSHIPS

Faculty Service Award, General Alumni Association, University of North Carolina at Chapel Hill, 2019.

Engaged Scholarship Award, Office of the Provost, University of North Carolina at Chapel Hill, 2011.

Senior Fellow, Kenan Institute for Ethics, Duke University, “Moral Challenges of Poverty and Inequality,” 2010-2011.

North Caroliniana Society Book Award, 2010. Awarded for *To Right These Wrongs*.

Academic Leadership Fellow, Institute for the Arts and Humanities, University of North Carolina at Chapel Hill, 2003. Included participation in the Leadership Development Program, Center for Creative Leadership, San Diego, California.

Commencement Speaker, University of North Carolina at Chapel Hill, December 2003 (selected by Senior Class officers and marshals).

Chapman Family Fellowship, Institute for the Arts and Humanities, University of North Carolina at Chapel Hill, 1997.

Fellow of the Academy of Distinguished Teaching Scholars, University of North Carolina at Chapel Hill, inducted in 1996.

Mayflower Cup, awarded by the North Carolina Literary and Historical Association for the year's best work in non-fiction, 1996. Awarded for *Schooling the New South*.

Ruth and Phillip Hettleman Award for Outstanding Scholarly or Artistic Accomplishment by Young Faculty, University of North Carolina at Chapel Hill, 1995.

Fellow of the Institute for the Arts and Humanities, University of North Carolina at Chapel Hill, 1992.

Students' Undergraduate Teaching Award, University of North Carolina at Chapel Hill, 1991.

Claude A. Eggertsen History of Education Dissertation Award, 1989, presented by the Rackham School of Graduate Studies, University of Michigan, for the best dissertation on the history of education.

Albert J. Beveridge Award, 1988, presented by the American Historical Association for *Like a Family*.

Merle Curti Social History Award, 1988, presented by the Organization of American Historians for *Like a Family*.

Philip Taft Labor History Award, 1988, presented by the New York State School of Industrial and Labor Relations, Cornell University for *Like a Family*.

Honorable mention, John Hope Franklin Award, 1988, presented by the American Studies Association for *Like a Family*.

Honorable mention, Research on Women in Education Award, 1984, presented by Women Educators, American Educational Research Association, for "School Reform in the New South."

Louis Pelzer Memorial Award, 1982, presented by the Organization of American Historians for "School Reform in the New South."

STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
21 CVS 015426
21 CVS 500085

NORTH CAROLINA LEAGUE OF
CONSERVATION VOTERS, et al.,

Plaintiffs,

vs.

REPRESENTATIVE DESTIN HALL, in his
official capacity as Chair of the House
Standing Committee on Redistricting, et al.,

Defendants.

REBECCA HARPER, et al.,

Plaintiffs,

vs.

REPRESENTATIVE DESTIN HALL, in his
official capacity as Chair of the House
Standing Committee on Redistricting, et al.,

Defendants.

**EXPERT REPORT OF
DR. JEFFREY B. LEWIS**

Pursuant to the North Carolina Rules of Civil Procedure and the Case Management Orders of the Court in the above-captioned matter, I, Jeffrey B. Lewis, provide the following written report:

1. I am a Professor of Political Science at the University of California, Los Angeles (UCLA). I am also the past department chair of UCLA's political science department and past president of the Society for Political Methodology. I have been a member of the UCLA faculty since 2001. Prior to that, I was an Assistant Professor of Politics and Public Affairs at Princeton University from 1998 to 2001. I earned my B.A. in Political

NCLCV v. Hall

21 CVS 15426

LDTX109

Science and Economics from Wesleyan University in 1990 and my Ph.D. in Political Science from the Massachusetts Institute of Technology (MIT) in 1998. My main area of specialization is quantitative political methodology with a focus on making inferences about preferences and behavior from the analysis of voting patterns in the mass public and in legislatures. I have published on the topic of ecological inference – the challenge that arises when one wants to know how individuals of different types voted in an election, but one can only observe electoral data aggregated to the precinct, county or other summary level. A true, accurate, and complete copy of my curriculum vitae is attached as Exhibit A.

2. I have previously been retained as an expert in relation to nine court cases: one involving allegations of voting machine failure in Florida (Jennings v. Elections Can-vassing Commission of State of Florida), four involving claims of minority vote dilution in California (Avitia v. Tulare Local Healthcare District; Satorre et al. v. San Mateo County Board of Supervisors et al.; Ladonna Yumori-Kaku v. City of Santa Clara); and Pico Neighborhood Association and Maria Loya v. City of Santa Monica), one involving claims of minority vote dilution in Texas (Perez, et al. v. Abbott, et al.), one involving claims of minority vote dilution in North Carolina (Common Cause, et al. v. Lewis), one involving claims of minority vote dilution in Washington (Aguilar v. Yakima County), and one involving the compactness of legislative districts in Illinois (Radogno et al v. Illinois State Board of Elections, et al.). I testified as an expert in the cases of Ladonna Yumori-Kaku v. City of Santa Clara and Pico Neighborhood Association and Maria Loya v. City of Santa Monica.
3. I am being compensated at a rate of \$550/hour.
4. In the attached tables and spreadsheet, at Exhibit B, I present summaries of the results of North Carolina general and Democratic primary election contests held in 2014, 2016, 2018, and 2020. In particular, I consider how each contest would have turned out if only the votes of those residing in each current and in each enacted State House, State Senate, and Congressional district had been counted.
5. This exercise allows us to consider the voting strength of the Black voters in each existing and proposed legislative district.

6. For each of these “reconstituted” election contest in each district, I used weighted ecological regression (ER) to estimate the degree of Black voter cohesion and non-Black voter crossover (hereafter “white crossover”). In some cases, the number of voting precincts available for the analysis was too small or Black share of voters was too small to meaningfully apply ER. I omit such contest-district combinations.
7. I further narrow the set of contests to partisan races for executive and legislative offices. And, I only “reconstitute” a given contest within a given district if the data indicate that at least 80 percent of the voters in the given election who resided the district, voted in the given contest.
8. I identify the “Black-preferred” candidate in each contest as the candidate estimated by ER to have received the largest share of Black votes in the given contest or, in the case of single-candidate elections, that candidate if they are a Democrat (single-candidate elections without a Democrat are considered not to have a Black-preferred candidate).
9. I also note whether each candidate is Black and whether each contest includes at least one Black candidate.
10. The tabulations and estimates are based on datasets that I downloaded from the North Carolina Board of Elections (SBOE) website with the exception of a crosswalk between the current and enacted legislative districts and voting precincts used in the 2014, 2016, 2018, and 2020 elections and estimates of Black Voting-Age population (VAP) by district that were provided by Clark Bensen of POLIDATA.
11. The race of each candidate was determined by looking up each candidate listed in the SBOE’s candidate list datasets on the North Carolina voter list (also from the SBOE). In some cases, a candidate’s race could not be determined because: their legal name matched no voter on the voter list, no race was indicated on the voter list, or they were matched to several voters of different races on the voter list. In total, over 1,800 Black candidates were identified (including many competing in contests not subsequently analyzed for the reasons described above).
12. The demographic composition of voters from each precinct needed to perform ER was derived by merging vote history records from the SBOE to the precinct election returns. Because some counties do not allocate “One Stop” and absentee votes back to precincts (and for other reasons), not all voters can be matched to a voting precinct and not all

precincts can be placed in legislative districts. Where One Stop and absentee ballots were allocated to regular voting precincts, the voting and demography within each precinct was broken down by voting method when performing ER. This is possible because the vote history records (which are used to estimate the fraction of voters in each precinct who were Black) are broken down by voting method (as sometimes are the election returns within each precinct). When a county reported One Stop or absentee votes without allocating them to precincts and where feasible, I aggregated the One Stop and absentee votes in the election returns and the One Stop and absentee voters into a single One Stop and a single absentee precinct. Given the need to break down the votes by legislative district, this was only feasible in counties that fall entirely within a single State House, State Senate, or Congressional district.

13. The attached tables summarize the reconstituted elections analysis. For each district, the tables show averages of many of the quantities described above as well as: the Black-preferred candidate “win rate” (the fraction of Black-preferred candidates who would have won if the contest had only been held in the given district); the percent of Black-preferred candidates who were Democrats; the average number of major-party candidates in the reconstituted contests; the average fraction of voters who were Black; and, an estimate of the average minimum fraction of those voting in the district that would have had to be Black in order for the Black-preferred candidate to expect to get at least 50 percent of the vote (based on the ER estimates and only applied in contests involving two major-party candidates).
14. The tables present separate results for primary and general elections. Separate tallies are also presented that include only those contests that included at least one Black candidate.
15. The attached spreadsheet *minority_preferred_candidates.csv* identifies the minority-preferred candidate in each of the reconstituted contests considered. It includes the following fields:
 - a. *district*, an identifier of the district including its chamber, plan, and number in which the contest is reconstituted.
 - b. *election_date*, the date of the election
 - c. *election_type*, primary or general
 - d. *contest*, the electoral contest being reconstituted.

- e. *minority_preferred_candidate*, the name of the minority preferred candidate (as identified by ER).
 - f. *minority_preferred_party*, the party of the minority-preferred candidate.
 - g. *cand_is_black*, whether the Black-preferred candidate is Black.
 - h. *has_minority_candidate*, whether the contest included a Black candidate.
 - i. *wonlost*, identifies the Black-preferred candidate as a “winner” or “loser” of the reconstituted election (highest-vote getter).
 - j. *pct_vote*, percent of vote won by the Black-preferred candidate in the reconstituted contest.
 - k. *ER.pct_black*, average share of voters in the ER analyses who were Black.
 - l. *ER.black_cohesion*, weighted Ecological Regression (ER) estimates of support for Black-preferred candidate among Black voters in the reconstituted election.
 - m. *ER.white_crossover*, weighted Ecological Regression (ER) estimates of support for the Black-preferred candidate among white (non-Black) voters in the reconstituted election.
 - n. *ER.black_pct_needed_for_majority*, Uses the ER estimates to infer the minimum share of the voters in the reconstituted election that would generate majority support for the minority-preferred candidate in the reconstituted election. Note that this is the estimated average percentage of Black voters in the contest needed for a majority, not the percentage of Black VAP existing in the district.
 - o. *Coverage*, the ratio of the total votes cast in the reconstituted election to the most votes cast in any reconstituted contest in the same district and election expressed as a percentage. In many cases, eligibility to participate in a particular contest will only partially overlap with the district in which the reconstituted election is considered. Because the area of overlap may encompass a set of voters who are not representative of the voters a district as whole when the overlap is small, I consider only contests for which this overlap or “coverage” exceeds 80 percent (for example, this include contests for statewide offices).
 - p. *number_of_candidates*, The number of major-party candidates in the contest.
16. This analysis goes beyond Professor Dunchin’s analysis to consider not just 4 primary and 4 general election contests, but over 420 individual contests including over 190 that

include a Black candidate. These contests include both endogenous and exogenous contests for legislative and executive offices ranging from a Recorder of Deeds to the US President. The analysis also expands on Professor Duchin’s analysis by estimating the rate of support of each candidate in each contest within each district to capture variation in Black voter cohesion and white cross-over voting across the districts (whereas Professor Duchin estimates a single rate of cohesion and of cross-over voting statewide for the 8 contests that she considers).

17. Using (without endorsing) Professor Duchin’s definition of “effective” Black districts (greater than 75 percent Black preferred win rate in races with minority candidates combined with greater than 25 percent Black voting-age population), an analysis of this larger set of election contests identifies as “effective” the enacted districts that Professor Duchin enumerates (with the exceptions of State Senate District 12 and State House District Districts 066 which do not exhibit a 75 percent win rate in the larger dataset and House District 039 for which too few data precinct points were available to apply ER to identify the Black-preferred candidates). It also identifies as “effective” by Duchin’s definition as many as seven additional State House districts and four additional State Senate districts. *See* Table 1.
18. Relaxing Professor Duchin’s requirement that an “effective” district must have more than 25 percent Black voting-age population, my more expansive analysis suggests the existence of one additional “effective” Congressional district, four additional “effective” State House districts, and two additional “effective” State Senate districts.
19. Further relaxing the definition of “effective” to those districts in which the Black preferred win rate exceeds 66 percent suggests the existence of seven more “effective” State Senate districts and 16 additional “effective” State House districts. *See* Table 1.
20. Increasing the set of contests considered to include contests without Black candidates further lifts the number of apparently “effective” districts under Duchin’s definition.
21. Only two of the “effective” districts (by any of the above definitions) are majority Black VAP. Districts with Black-preferred win rates of over 75 percent in the reconstituted elections include two districts with Black voting-age populations below 7 percent and five districts with Black voting-age populations below 20 percent.

Table 1 – Duchin “Effective” Black Districts in Enacted Plans

	House	Senate	Congress
Number of “Effective” Black Districts in enacted plans using Duchin definition	29	12	2
Number of “Effective” Black Districts in enacted plans using Duchin definition but relaxing 25% BVAP and applying win rate of 66%	49	21	5
Number of “Effective” Black Districts in enacted plans using Duchin definition but relaxing 25% BVAP and applying win rate of 50%	88	40	11

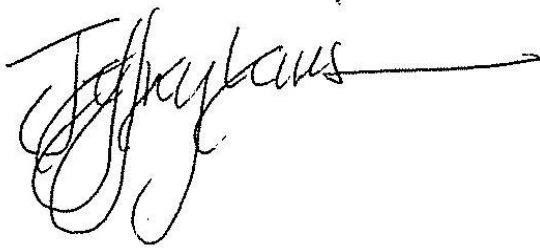
22. In no district, enacted or in 2020, does it appear that a majority Black VAP is needed for that district to regularly generate majority support for minority-preferred candidates in the reconstituted elections.

23. Black voters constitute a powerful political force in North Carolina electoral politics because of their numerical size and highly cohesive voting as well as the sizeable white (non-Black) cross-over vote for Black-preferred candidates that exists particularly in areas of the state in which Black voters are concentrated. As Professor Duchin documents, contemporary Black voting power in North Carolina is such that it is now even possible to draw a set of districts in which Black voters would have effective control (by her definition) of a share of the state’s legislative districts that meaningfully exceeds the size of the Black population.

24. I reviewed the “Addendum to Primary Expert Report of Jonathan C. Mattingly, Ph.D.” Dr. Mattingly appears to have reconstituted election results in different county cluster options and identified Black VAP in those same clusters. Dr. Mattingly’s Addendum is not a racially polarized voting analysis.

CERTIFICATION

I certify that the statements and opinions provided in this report are true and accurate to the best of my knowledge, information, and belief.

A handwritten signature in black ink, appearing to read "Jeffrey B. Lewis", with a long horizontal stroke extending to the right.

Jeffrey B. Lewis, Ph.D.

December 28, 2021

Date

Exhibit A

JEFFREY B. LEWIS

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Los Angeles CA 90064
310.467.7685
email:jblewis@ucla.edu

Education Massachusetts Institute of Technology Cambridge, MA
Ph.D., Department of Political Science, February 1998.

Wesleyan University Middletown, CT
B.A., Political Science and Economics with Honors in General Scholarship.
June 1990.

Academic Experience

University of California Los Angeles Los Angeles, CA
Professor of Political Science. July 2012–present.

University of California Los Angeles Los Angeles, CA
Director, Center for American Politics and Public Policy. July 2017–July 2018.

University of California Los Angeles Los Angeles, CA
Chair, Department of Political Science. July 2011–June 2017.

University of California Los Angeles Los Angeles, CA
Associate Professor of Political Science. July 2007–June 2012.

University of California Los Angeles Los Angeles, CA
Assistant Professor of Political Science. July 2001–June 2007.

Dartmouth College,
Rockefeller Center for the Social Sciences Hanover, NH
Research Fellow. July 2000–June 2001.

Princeton University Princeton, NJ
Assistant Professor of Politics and Public Affairs. July 1997–July 2001.

Teaching Interests

Quantitative methods
Elections & Direct democracy
California politics

Grants & Awards

Fellow, Society for Political Methodology, Elected 2019.

Research grant, “For Modernizing the VoteView Website And Software.”
Madison Initiative. William and Flora Hewlett Foundation (Grant #2016-3870). January 2016. \$200k.

Conference/training grant, “Support for Conferences and Mentoring of Women and Underrepresented Groups in Political Methodology,” National Science Foundation (NSF-SBE-1628102 with Kosuke Imai), \$308k.

Research grant. “Collaborative Research on Dynamic Models of Roll Call Voting.” National Science Foundation (NSF-SBS-0611974, with Keith Poole and Howard Rosenthal). July 2006. \$394k total (\$182k UCLA).

Brian P. Copenhaver Award for Innovation in Teaching with Technology, College of Letters and Sciences, University of California Los Angeles. 2007.

Warren Miller Prize for best article in volume 11 of *Political Analysis*. 2003 (article co-authored with Ken Schultz).

Research grant. “Empirical Testing of Crisis Bargaining Models.” National Science Foundation (NSF-SBS-0241647, with Ken Schultz). February 2003. \$200k.

Research grant, “Term limits in California.” John Randolph and Dora Haynes Foundation, May 2000. \$27k.

Research grant, Princeton University Committee on Research in the Humanities and Social Sciences, May 1998.

Harvard/MIT Research Training Group for Positive Political Economy Dissertation Fellowship, 1995-1996.

Sigma Xi Honorary Society, Wesleyan University, 1990.

White Prize for excellence in economics, Wesleyan University, 1990.

Ford Foundation Summer Research Fellowship, Wesleyan University, 1988.

Publications “The new Voteview.com: preserving and continuing Keith Poole’s infrastructure for scholars, students and observers of Congress,” *Public Choice*. 2018, 176:17–32 (with Adam Boche, Aaron Rudkin, and Luke Sonnet).

“Recovering a Basic Space from Issue Scales in R.” *Journal of Statistical Software*. 2016, 69(7) (Keith T. Poole, Howard Rosenthal, James Lo, Royce Carroll).

“The Structure of Utility in Spatial Models of Voting,” *American Journal of Political Science*. 2013, 56(4):1008–1028 (with Royce Carroll, James Lo, Keith T. Poole, and Howard Rosenthal).

“Economic Crisis, Iraq, and Race: A Study of the 2008 Presidential Election.” (*Election Law Journal*. 2010, 9(1): 41–62 (with Michael Herron and Seth Hill).

“Comparing NOMINATE and IDEAL: Points of difference and Monte Carlo tests.” *Legislative Studies Quarterly*. 2009, 34:555–592 (with Royce Carroll, James Lo, Keith T. Poole, and Howard Rosenthal).

“Measuring Bias and Uncertainty in DW-NOMINATE Ideal Point Estimates via the Parametric Bootstrap”, *Political Analysis*. 2009, 17(3):261–275 (with Royce Carroll, James Lo, Keith T. Poole, and Howard Rosenthal).

“poLCA: An R Package for Polytomous Variable Latent Class Analysis.” *Journal of Statistical Software*. 2011, 42(10) (with Drew A. Linzer).

“Scaling Roll Call Votes with Wnominate in R.” *Journal of Statistical Software*. 2011, 42(14) (with Keith Poole, James Lo, and Royce Carroll).

“Ballot Formats, Touchscreens, and Undervotes: A Study of the 2006 Midterm Elections in Florida.” *Election Law Journal*. 2008. 7(1):25–47 (with Laurin Frisana, Michael C. Herron, and James Honaker).

“An Estimate of Risk Aversion in the U.S. Electorate.” *Quarterly Journal of Political Science*. 2007, 2(2):139–154. (with Adam J. Berinsky).

“Ideological Adaptation? The Survival Instinct of Threatened Legislators.” *Journal of Politics*. 2007, 69(3):823–843 (with Thad Kousser and Seth Maskett).

“Did Ralph Nader Spoil a Gore Presidency? A Ballot-Level Study of Green and Reform Party Voters in the 2000 Presidential Election.” *Quarterly Journal of Political Science*. 2007, 2(3):205–226 (with Michael Herron).

“A Return to Normalcy? Revisiting the Effects of Term Limits on Competitiveness and Spending in California Assembly Elections” *State Politics and Policy Quarterly*. 2007, 7(1):20–38 (with Seth Maskett).

“Learning about Learning: A Response to Wand.” *Political Analysis*. 2006, 14: 121–129 (with Kenneth Schultz).

“Estimating Regression Models in Which the Dependent Variable Is Based on Estimates” *Political Analysis*. 2005, 13(4) (with Drew A. Linzer)

“Beyond the Median: Voter Preferences, District Heterogeneity, and Representation.” *Journal of Political Economy*. 2004, 106(6):1364–1383 (with Liz Gerber).

“Measuring Bias and Uncertainty in Ideal Point Estimates via the Parametric Bootstrap.” *Political Analysis*. Spring 2004. 12:105–127 (with Keith Poole)

“Extending King’s Ecological Inference Model to Multiple Elections using Markov Chain Monte Carlo,” Chapter in Gary King, Ori Rosen, and Martin Tanner, Eds. *Ecological Inference: New Methodological Strategies*. Cambridge: Cambridge University Press. 2004.

“Revealing Preferences: Empirical Estimation of a Crisis Bargaining Game with Incomplete Information.” *Political Analysis*. 2003, 11(4):345–365 (with Kenneth A. Schultz).

“Understanding King’s Ecological Inference Model: A Method-of-moments Approach,” *Historical Methods*. 2001, 34(4):170–188.

“Estimating Voter Preference Distributions from Individual-Level Voting Data,” *Political Analysis*. 2001, 9(3):275-297.

“No Evidence on Directional vs. Proximity Voting,” *Political Analysis*. 1999, 8(1):21-33 (with Gary King).

“Reevaluating the Effect of N-Ach (Need for Achievement) on Economic Growth,” *World Development*. 1991, 19(9):1269–1274.

Other Publications

Comment on “McCue, K. F. (2001), ‘The Statistical Foundations of the EI method,’ *The American Statistician*. 2002, 55(3):250.

“Veteran’s Adjustment.” Chapter in *After the Cold War: Living with Lower Defense Spending*, Congress of the United States, Office of Technology Assessment, OTA-ITE-524. 1992.

Working Papers

Has Joint Scaling Solved the Achen Objection to Miller and Stokes? (with Christopher Tausanovitch, under revision).

Residual Votes in the 2008 Minnesota Senate Race (with Jonathan W. Chipman and Michael C. Herron)

From Punchcards to Touchscreens: Some Evidence from Pasco County, Florida on the Effects of Changing Voting Technology (with Michael C. Herron)

Voting in Low Information Elections: Bundling and Non-Independence of Voter Choice (with Liz Gerber, April 2002)

Dangers of Measurement Error in Non-linear Models: The Case of Directional versus Proximity Voting (April 2002)

A Reply to McCue’s Reply to My Comment on “The Statistical Foundations of the EI method”

PhD Students

Committees Chaired or Co-chaired: Ryan Enos (Harvard), Seth Hill (UCSD), James Lo (USC), stonegarden grindlife.

Currently chairing or co-chairing five committees.

Committee member on over 35 PhD students (including as an outsider member in Economics and Statistics).

Conference Presentations

American Political Science Association, Philadelphia, September 2016.

Annual Meetings of the Midwest Political Science Association, Chicago, April 2014.

Annual Meetings of the Midwest Political Science Association, Chicago, April 2011.

Summer Meetings of the Political Methodology Society, New Haven, 2009

Annual Meetings of the Midwest Political Science Association, Chicago, April 2006.
American Political Science Association, Chicago, September 2004.
American Political Science Association, Philadelphia, September 2003.
Annual Meetings of the Midwest Political Science Association, Chicago, April 2003.
Summer Meeting of the Political Methodology Society, Seattle, 2002
Annual Meetings of the Public Choice Society, Houston, San Diego, 2002.
Annual Meetings of the Midwest Political Science Association, Chicago, April 2002.
Annual Meetings of the Midwest Political Science Association, Chicago, April 2001.
Annual Meetings of the Midwest Political Science Association, Chicago, April 2000.
Summer Meeting of the Political Methodology Society, College Station Texas, 1999.
Annual Meetings of the Social Science History Association, Chicago, November 1998.
American Political Science Association, Boston, September 1998.
Annual Meetings of the Midwest Political Science Association, Chicago, April 1997.
Annual Meetings of the American Political Science Association, San Francisco, August 1996.
Annual Meetings of the Public Choice Society, Houston, April 1996.
American Political Science Association, Atlanta, August 1989.

Software

Voteview: US Roll call votes and legislator ideologies, 1789–2021: Provides interactive search and visualization of every roll call vote ever taken in the United States Congress. See <https://voteview.com>.

WNominate (v1.2): R package implementing Poole and Rosenthal’s W-Nominate estimator co-authored with Keith Poole and James Lo. (<http://cran.r-project.org/web/packages/wnominate/index.html>)

PoLCA (v1.4.1): R package for Polytomous Variable Latent Class Analysis. Co-authored with Drew Linzer. (<http://dlinzer.github.io/poLCA/>)

Data collections

US Congressional roll call voting and related data, 1789–2021: Provides data on every roll call vote ever taken in the United States Congress. See <https://voteview.com>.

US Congressional District Boundaries, 1789–2017. Detailed GIS descriptions of every district in US history (with Brandon DeVine (UCLA), Lincoln Pritcher (UCLA), and Ken Martis (UWV)). See <http://cdmaps.polisci.ucla.edu/>.

109th – 114th Congress Data Project. UCLA. Webpage allows download of up to the hour roll call voting matrices for the current US Congress [Now included in the Voteview project].

California Roll Call Project. UCLA. Collection of roll call voting data from the California Assembly from 1850 to the present. Ongoing (with Seth Masket).

Crisis Bargaining Data Base. UCLA. Codings of post-World War I international crises outcomes in terms of a simple game theoretic model of coercive diplomacy (supported by NSF-SBS-0241647) (with Ken Schultz).

Record of American Democracy Project Harvard University. One of several project leaders. Summer 1995.

University Service

Chair: Executive Committee, Faculty of Letters and Science, UCLA (September 2019–Present)

Vice Chair: Executive Committee, Faculty of Letters and Science, UCLA (2018–2019)

Member: Executive Committee, Faculty of Letters and Science, UCLA (2017–2018); Council on Academic Planning and Budget, UCLA (2019–Present); Classroom Advisory Committee, UCLA (2018–2020); Pathways to Commencement Task Force, UCLA (2013–2014).

Professional Experience

President: Society for Political Methodology (2015–2017).

Vice President/President elect: Society for Political Methodology (2013–2015).

Co-editor: *The American Political Science Review* July 2008–July 2011; *The Political Methodologist*, the APSA Methodology section newsletter. 2004–2007 (with Adam Berinsky and Michael Herron).

Editorial Board Member: *Journal of Politics*, 2005–2008; *Political Analysis* 2005–present.

Panelist: National Science Foundation ad hoc peer review panels (June 2004, February 2008, October 2010); National Science Foundation Political Science Panel (2009–2010).

Departmental review visiting committee member: University of Colorado, 2013; London School of Economics, 2015; University of Michigan, 2015.

Nominations committee member: American Political Science Association, 2011–12, 2012–13.

Program committee member: American Political Science Association Annual Meetings 2003, Political Methodology division head.

Anonymous Referee: *American Political Science Review*, *American Journal of Political Science*, *Journal of Law and Economics*, *World Politics*, *Political Analysis*, *Legislative Studies Quarterly*, *Sociological Methods Review*,

Journal of Politics, *Journal of Theoretical Politics*, and *Political Behavior*, *Perspectives on Politics*, *Public Opinion Quarterly*, *Journal of Political Economy*.

Discussant/Panel Chair Political Methodology Conference (1997, 2004, 2005, 2015), Midwest Political Science Association meetings (1998, 2005, 2006). American Political Science Association meetings (1998, 2002, 2003, 2006, 2010, 2016). Public Choice Society (1996, 2002)

Work Experience

Polimetrix Palo Alto, CA
Director of Statistics, 2003–2007.

Office of Technology Assessment, U.S. Congress Washington, DC
Research Analyst, Industry Technology and Employment program. October 1990 – August 1992.

Selected Invited Lectures

American Politics Seminar, Political Science Department, Columbia University, 1998

Political Economy Seminar, Political Science Department, Michigan University, 1999

Political Economy Seminar, Graduate School of Business, Stanford University, 1999

Political Economy Seminar, Politics & Economics Departments, Princeton University, 1998

Southern California Methods Program, UC Riverside, November 2001.

Ideal-Point Estimation Conference, Washington University St. Louis, September 2002.

American Politics Seminar, Political Science Department, Yale University, 2003.

Political Economy Seminar, Politics & Economics Departments, Princeton University, Spring 2004.

Political Economy Seminar, Politics Department, Massachusetts Institute of Technology, Spring 2004.

Empirical Implications of Theoretical Models Program, Washington University, St. Louis, June 2004.

Multilevel Methods Conference, Center for the Study of Democratic Politics, Woodrow Wilson School of Public and International Affairs, Princeton University, October 2004.

Empirical Implications of Theoretical Models Program, University of California Berkeley (one week module co-taught with Kenneth A. Schultz). June 2005.

Roll Call Voting Conference, Department of Political Science, University of California, San Diego. May 2006.

Measures of Legislators' Policy Preferences and the Dimensionality of Policy Spaces Conference Department of Political Science, Washington University, St. Louis. November 2007.

Causal Inference. Business School. University of Southern California. June 2010.

How to Scrape Web Pages. Summer Methods Program. Department of Sociology. Stanford University, July 2010, 2011, 2012, 2013, 2014, 2015.

Lectures on Ecological Inference. Summer Methods Training Program, Academia Senica, Taipei, Taiwan. July 2010.

Applied Statistics Workshop. Department of Government. Harvard University, April 2011.

Methods Workshop. Department of Political Science, Stanford University. June 2011.

Conference on “Political Representation: Fifty Years After Miller & Stokes.” Vanderbilt University, March 2013

Center for the Study of Democratic Politics (CSDP) Workshop, Princeton University, April 2015.

Ideal Point Models in Political Science Workshop, MIT, April 2015.

Interdisciplinary Seminar in Quantitative Methods (ISQM) Workshop, University of Michigan, September 2015.

Political Economy Seminar, Graduate School of Business, Stanford University, April 2019,

Exhibit B

Table 1: General Elections

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
CD20-001	41.9	17	100	2.0	100	56	39	100	24	35
CD20-002	18.2	35	100	2.0	43	49	14	100	41	15
CD20-003	18.7	18	100	2.0	0	38	18	99	24	35
CD20-004	24.4	17	100	2.0	100	68	22	94	40	19
CD20-005	10.7	16	100	2.0	0	34	10	100	25	33
CD20-006	32.0	17	100	2.0	100	60	30	100	42	14
CD20-007	15.4	17	100	2.0	0	42	13	93	33	29
CD20-008	25.9	19	100	2.0	11	48	29	100	27	32
CD20-009	17.4	18	100	2.0	0	44	15	100	32	27
CD20-010	10.1	17	100	2.0	0	32	11	100	26	33
CD20-012	34.1	22	100	1.9	100	72	39	100	54	6
CD20-013	13.9	17	100	2.0	0	33	12	100	23	35
CD21-001	22.4	19	100	2.0	0	39	19	97	25	35
CD21-002	39.1	16	100	2.0	94	55	35	100	25	33
CD21-003	15.7	17	100	2.0	0	43	14	95	33	27
CD21-004	27.5	16	100	2.0	38	49	34	100	27	31
CD21-005	23.2	35	100	2.0	46	50	18	100	39	17
CD21-006	20.4	17	100	2.0	100	66	17	100	42	13
CD21-007	15.3	17	100	2.0	0	39	13	100	27	31
CD21-008	16.5	17	100	2.0	0	40	14	100	29	30
CD21-009	36.3	22	100	1.9	100	75	42	100	58	2
CD21-010	16.2	16	100	2.0	0	35	12	100	24	34
CD21-011	19.2	16	100	2.0	0	37	16	100	27	31
CD21-012	17.1	16	100	2.0	0	43	18	100	33	25
CD21-013	14.8	16	100	2.0	0	38	14	100	29	30
LD20-001	36.6	19	100	2.0	21	48	28	100	20	37
LD20-002	25.7	20	100	2.0	5	43	25	100	25	33
LD20-003	19.2	24	100	2.0	4	41	19	98	28	31
LD20-004	20.6	20	100	2.0	0	38	17	100	17	39

Table 1: General Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD20-005	41.0	20	100	2.0	100	56	34	100	20	37
LD20-006	7.1	21	100	2.0	0	36	7	84	28	43
LD20-007	22.4	27	100	2.0	15	46	24	100	29	29
LD20-008	42.5	23	100	2.0	65	54	35	100	30	31
LD20-009	27.9	23	100	2.0	9	45	21	100	31	31
LD20-010	22.0	20	100	2.0	0	37	21	100	17	40
LD20-011	15.4	37	100	2.0	89	57	13	100	50	5
LD20-012	36.9	23	100	2.0	39	49	38	100	18	39
LD20-013	7.9	11	100	2.0	0	30	9	95	22	39
LD20-014	17.8	14	100	2.0	0	40	19	100	26	33
LD20-015	10.7	14	100	2.0	0	32	12	100	22	36
LD20-016	18.3	22	100	2.0	0	37	17	95	25	36
LD20-017	10.1	33	100	2.0	0	37	10	88	31	33
LD20-018	21.1	24	100	1.9	100	66	21	100	56	5
LD20-019	6.3	8	100	2.0	0	39	6	100	35	22
LD20-020	5.5	1	100	1.0	100	100	3	.	.	.
LD20-021	37.4	22	100	2.0	36	47	32	99	23	36
LD20-022	29.3	19	100	2.0	11	45	29	100	19	38
LD20-023	50.6	19	100	2.0	100	62	37	100	18	39
LD20-024	38.2	21	100	2.0	95	55	36	100	26	32
LD20-025	42.6	13	100	2.0	15	43	34	100	18	39
LD20-026	16.5	25	100	2.0	0	32	11	100	24	34
LD20-027	51.6	23	100	1.9	100	67	45	100	29	35
LD20-028	15.8	23	100	2.0	0	29	10	100	21	37
LD20-029	37.2	26	100	1.8	100	82	40	100	70	0
LD20-030	28.2	19	100	1.9	100	60	25	100	47	12
LD20-031	39.8	24	100	1.8	100	80	48	100	62	1
LD20-032	48.1	25	100	1.9	100	67	50	100	35	29
LD20-033	39.9	36	100	2.0	100	64	37	100	43	12

Table 1: General Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD20-034	11.5	36	100	2.0	19	43	6	100	39	16
LD20-035	18.0	37	57	2.0	43	45	11	66	43	31
LD20-036	7.5	14	50	2.0	50	52	6	65	52	16
LD20-037	11.3	36	100	2.0	0	36	9	100	30	28
LD20-038	39.4	43	100	1.9	100	77	42	98	62	2
LD20-040	11.3	38	100	2.0	8	40	7	100	35	22
LD20-041	7.1	13	92	2.0	46	50	6	88	47	8
LD20-042	38.1	25	100	1.9	100	71	49	100	40	24
LD20-043	33.9	23	100	2.0	30	50	29	100	30	32
LD20-044	48.1	26	100	1.9	100	75	54	100	45	19
LD20-045	31.4	26	100	2.0	65	52	32	99	30	32
LD20-046	25.0	21	100	2.0	29	45	27	98	25	33
LD20-047	23.8	30	100	1.9	47	55	24	98	42	25
LD20-048	35.5	19	100	2.0	100	56	40	100	28	30
LD20-049	12.3	36	100	2.0	61	52	7	100	49	7
LD20-050	17.5	17	100	2.0	12	43	23	89	28	34
LD20-052	11.0	26	100	2.0	0	29	10	99	22	36
LD20-054	12.9	30	53	2.0	3	44	9	91	39	21
LD20-055	26.2	20	100	2.0	0	43	23	100	23	35
LD20-056	10.2	36	100	1.7	100	79	10	100	76	0
LD20-057	39.7	30	100	1.9	100	66	39	99	45	17
LD20-058	43.1	29	100	1.9	100	73	44	98	54	6
LD20-059	28.6	26	100	2.0	0	39	23	100	21	36
LD20-060	34.6	26	100	2.0	96	60	36	100	36	21
LD20-061	40.0	30	100	1.9	100	70	32	100	55	6
LD20-062	13.7	28	100	2.0	0	36	11	100	28	30
LD20-063	24.8	28	100	2.0	39	49	24	100	33	25
LD20-064	15.1	27	100	2.0	0	40	14	100	30	29
LD20-065	19.6	26	100	2.0	0	36	19	99	22	37

Table 1: General Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD20-066	24.0	18	100	2.0	11	44	20	100	25	33
LD20-067	7.9	23	100	2.0	0	23	6	100	17	39
LD20-068	8.4	24	100	2.0	0	35	8	100	30	28
LD20-069	11.6	25	100	2.0	0	35	11	100	27	32
LD20-070	7.2	30	100	2.0	0	24	6	100	19	38
LD20-071	40.3	25	100	2.0	100	73	46	99	50	4
LD20-072	34.4	25	100	2.0	100	71	34	100	56	1
LD20-073	14.6	21	100	2.0	0	36	19	100	28	31
LD20-074	11.4	26	100	2.0	0	45	11	100	38	19
LD20-075	15.3	26	100	2.0	0	38	15	100	27	31
LD20-076	21.6	23	100	2.0	0	41	20	100	26	32
LD20-077	7.3	20	100	2.0	0	26	6	100	19	38
LD20-078	6.1	1	100	2.0	0	24	7	100	19	38
LD20-079	22.3	23	100	2.2	4	37	16	98	19	39
LD20-080	9.5	24	100	2.0	0	23	8	100	16	40
LD20-081	9.6	25	100	2.0	0	26	8	100	20	38
LD20-082	20.2	13	100	1.9	8	45	18	100	34	30
LD20-083	19.5	24	100	2.0	46	48	12	100	26	32
LD20-084	14.1	26	100	2.0	0	32	13	100	22	36
LD20-086	6.0	28	100	2.0	4	36	6	100	31	27
LD20-088	16.0	19	100	1.9	100	59	18	100	51	4
LD20-089	7.9	24	100	2.0	0	28	7	100	22	36
LD20-091	4.8	12	100	2.0	0	23	6	100	17	40
LD20-092	40.2	24	100	1.8	100	76	46	100	55	7
LD20-095	9.6	24	100	2.0	0	33	8	100	28	31
LD20-096	8.9	24	100	2.0	0	36	7	100	30	28
LD20-098	9.2	27	100	2.0	7	43	9	100	38	20
LD20-099	36.0	20	100	2.0	100	64	42	100	38	19
LD20-100	30.5	24	100	1.8	100	76	35	100	63	0

Table 1: General Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD20-101	48.0	27	100	1.9	100	78	55	100	51	13
LD20-102	33.8	25	100	1.8	100	82	39	99	71	0
LD20-103	14.2	21	100	2.0	19	48	13	100	40	17
LD20-104	12.0	25	100	2.0	20	46	10	100	41	16
LD20-105	12.9	20	100	2.0	50	50	13	100	42	14
LD20-106	46.3	30	100	1.7	100	87	59	99	71	1
LD20-107	53.6	26	100	1.8	100	82	57	100	60	3
LD20-108	19.5	31	100	2.0	6	40	17	100	28	32
LD20-109	15.3	30	100	2.0	7	39	12	100	31	30
LD20-110	14.6	19	100	2.0	0	28	13	100	18	39
LD20-111	22.8	29	100	2.0	3	41	23	100	24	35
LD20-112	9.2	36	100	2.0	0	31	8	99	25	34
LD20-115	6.9	12	100	2.0	100	61	6	100	49	6
LD20-116	7.2	10	100	2.0	60	53	7	100	49	5
LD21-001	17.7	21	100	2.0	0	38	15	93	25	37
LD21-002	23.7	22	100	2.0	9	43	23	99	26	32
LD21-003	19.4	22	100	2.0	5	41	17	99	29	30
LD21-004	24.9	17	100	2.0	0	35	20	100	19	38
LD21-005	37.5	20	100	2.0	85	53	32	100	19	38
LD21-007	22.2	27	100	2.0	15	46	23	100	30	29
LD21-008	44.2	23	100	2.0	87	57	37	100	32	29
LD21-009	24.6	24	100	2.0	4	41	19	97	28	36
LD21-010	33.1	23	100	2.0	4	41	28	99	19	38
LD21-011	14.2	36	100	2.0	81	55	11	100	49	5
LD21-012	37.7	18	100	2.0	11	47	34	100	19	38
LD21-013	8.3	21	100	2.0	0	30	7	96	24	36
LD21-014	17.8	14	100	2.0	0	40	19	100	26	33
LD21-015	10.6	14	100	2.0	0	32	13	100	22	36
LD21-016	13.2	25	100	2.0	0	34	14	93	24	38

Table 1: General Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD21-017	10.3	33	100	2.0	0	38	10	88	32	32
LD21-018	21.6	24	100	1.9	100	66	22	100	57	5
LD21-019	5.1	8	100	2.0	0	37	5	100	33	25
LD21-020	5.3	1	100	1.0	100	100	3	.	.	.
LD21-021	10.8	35	100	2.0	0	38	7	92	34	28
LD21-022	27.7	20	100	2.0	0	41	26	100	19	38
LD21-023	52.5	19	100	2.0	100	62	39	100	17	39
LD21-024	36.6	21	100	2.0	86	54	36	100	26	32
LD21-025	40.0	21	100	2.0	33	46	29	100	18	39
LD21-027	50.8	21	100	2.0	100	64	48	100	27	31
LD21-028	16.2	22	100	2.0	0	28	11	100	19	38
LD21-029	38.3	24	100	1.8	100	80	44	100	65	0
LD21-030	33.0	23	100	1.8	100	81	35	100	71	0
LD21-031	38.1	5	100	1.0	100	100	45	.	.	.
LD21-032	42.4	19	100	1.9	100	63	43	100	35	31
LD21-033	29.8	43	100	1.9	100	77	30	100	67	0
LD21-034	18.2	36	100	2.0	56	51	13	100	44	11
LD21-036	8.0	9	100	2.0	0	36	7	100	31	28
LD21-038	43.6	2	100	1.0	100	100	47	.	.	.
LD21-040	10.7	23	100	2.0	9	44	6	100	41	15
LD21-042	38.1	25	100	1.9	100	71	49	100	40	24
LD21-043	34.8	23	100	2.0	43	51	30	100	31	31
LD21-044	48.1	26	100	1.9	100	75	54	100	45	19
LD21-045	30.3	25	100	2.0	32	49	31	99	26	33
LD21-046	28.5	21	100	2.0	14	44	27	100	22	36
LD21-047	21.5	29	100	1.9	48	57	23	96	45	22
LD21-048	35.5	19	100	2.0	100	56	40	100	28	30
LD21-049	13.0	36	100	2.0	47	50	8	100	46	9
LD21-050	17.9	17	100	2.0	12	44	25	90	28	34

Table 1: General Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD21-052	22.3	20	100	2.0	20	46	22	99	24	34
LD21-054	11.1	31	58	2.0	6	44	10	86	39	23
LD21-055	24.0	20	100	2.0	0	42	21	100	24	34
LD21-056	10.1	36	100	1.7	100	79	10	100	76	0
LD21-057	39.7	30	100	1.9	100	66	39	99	45	17
LD21-058	42.8	29	100	1.9	100	72	44	99	52	8
LD21-059	26.6	26	100	2.0	0	37	20	100	21	36
LD21-060	34.9	26	100	2.0	100	61	37	100	37	20
LD21-061	40.8	30	100	1.9	100	70	34	100	55	6
LD21-062	13.3	28	100	2.0	0	35	10	100	28	30
LD21-063	24.3	29	100	2.0	24	48	22	100	34	25
LD21-064	15.5	28	100	2.0	0	40	14	100	30	29
LD21-065	18.9	26	100	2.0	0	36	19	99	22	36
LD21-066	27.2	35	100	2.0	66	53	22	100	39	17
LD21-067	13.0	21	100	2.0	0	31	13	100	21	36
LD21-068	8.1	24	100	2.0	0	35	7	100	30	28
LD21-069	11.6	21	100	2.0	0	33	10	100	26	33
LD21-070	7.0	30	100	2.0	0	24	6	100	19	38
LD21-071	39.5	24	100	2.0	100	71	45	98	49	4
LD21-072	33.7	24	100	2.0	100	69	32	100	54	1
LD21-073	17.0	13	100	2.0	0	40	12	100	26	33
LD21-074	11.3	26	100	2.0	0	43	10	100	36	22
LD21-075	15.3	26	100	2.0	0	38	15	100	27	31
LD21-076	20.4	24	100	2.0	0	39	19	100	25	33
LD21-077	5.5	19	100	2.0	0	26	6	100	19	38
LD21-078	5.5	1	100	2.0	0	26	5	92	23	39
LD21-079	16.9	21	100	2.0	0	38	12	90	27	37
LD21-080	9.4	24	100	2.0	0	24	9	100	17	40
LD21-081	9.6	25	100	2.0	0	26	9	100	20	38

Table 1: General Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD21-082	21.0	25	100	2.0	4	39	16	100	28	34
LD21-083	11.9	18	100	2.0	0	28	8	100	22	36
LD21-084	16.0	26	100	2.0	0	34	15	100	23	35
LD21-086	6.1	28	100	2.0	4	35	6	100	31	28
LD21-088	23.3	19	100	1.9	100	64	23	100	53	5
LD21-089	6.7	24	100	2.0	0	26	6	100	21	36
LD21-091	14.1	19	100	2.0	0	37	19	100	31	28
LD21-092	39.1	24	100	1.8	100	74	44	100	54	10
LD21-095	7.6	24	100	2.0	0	32	5	100	28	30
LD21-096	9.9	25	100	2.0	0	36	9	100	30	28
LD21-098	7.5	27	100	2.0	0	41	7	100	37	20
LD21-099	46.8	28	100	1.8	100	82	57	100	59	2
LD21-100	31.0	24	100	1.8	100	76	35	100	63	0
LD21-101	46.8	26	100	1.8	100	76	52	100	51	13
LD21-102	37.6	26	100	1.8	100	84	44	99	73	0
LD21-103	11.8	22	100	2.0	0	43	12	99	35	23
LD21-104	8.5	26	100	2.0	0	45	7	100	41	15
LD21-105	12.2	24	100	2.0	42	49	13	100	42	13
LD21-106	43.4	27	100	1.8	100	83	54	99	64	1
LD21-107	47.4	23	100	1.8	100	77	49	100	55	9
LD21-108	19.3	30	100	2.0	3	38	16	100	26	32
LD21-109	16.8	17	100	1.9	6	42	14	100	33	31
LD21-110	15.7	19	100	2.0	0	34	19	100	19	38
LD21-111	16.4	19	100	2.0	0	31	14	100	20	38
LD21-112	27.8	22	100	1.9	100	74	37	100	59	1
LD21-113	6.8	18	100	2.0	0	33	6	96	27	33
LD21-114	7.6	13	100	1.9	100	67	7	100	66	0
LD21-115	6.3	7	100	2.0	29	49	5	100	46	7
SD20-001	24.6	20	100	2.0	0	45	19	96	25	34

Table 1: General Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
SD20-002	14.1	21	100	2.0	0	35	15	99	25	34
SD20-003	42.2	18	100	2.0	100	55	42	100	23	35
SD20-004	46.5	19	100	2.0	100	60	40	100	24	35
SD20-005	34.8	20	100	2.0	100	54	29	100	26	32
SD20-006	14.5	22	100	2.0	0	34	16	98	21	38
SD20-007	33.6	19	100	2.0	5	47	36	100	20	38
SD20-008	12.6	18	100	2.0	0	38	11	86	31	34
SD20-009	12.0	22	100	1.9	64	57	10	100	52	8
SD20-010	20.1	20	100	2.0	0	39	20	100	18	39
SD20-011	27.5	20	100	2.0	25	48	22	100	22	35
SD20-012	18.8	22	100	2.0	0	42	16	100	24	34
SD20-013	25.1	20	100	2.0	40	47	25	99	27	31
SD20-014	32.1	37	100	2.0	100	65	31	100	49	6
SD20-015	18.1	35	100	2.0	37	45	12	100	38	19
SD20-016	12.9	37	100	2.0	46	50	9	100	45	10
SD20-017	8.8	36	100	2.0	0	39	7	90	35	27
SD20-018	24.4	20	100	2.0	5	44	22	100	28	30
SD20-019	33.6	22	100	2.0	77	53	32	100	32	30
SD20-020	35.4	24	100	1.8	100	78	40	100	64	1
SD20-021	41.2	20	100	2.0	100	67	50	100	34	24
SD20-022	30.0	16	100	2.0	38	49	27	100	29	29
SD20-023	11.1	25	56	1.9	56	56	10	82	52	14
SD20-024	22.0	22	100	2.0	0	44	20	100	31	28
SD20-025	23.4	19	100	2.0	5	43	24	100	23	35
SD20-026	12.6	25	100	2.0	0	26	8	100	19	38
SD20-027	24.0	26	100	2.0	23	44	20	100	30	28
SD20-028	43.9	28	100	1.9	100	72	42	100	53	8
SD20-029	10.5	22	100	2.0	0	28	9	100	19	39
SD20-030	14.7	19	100	2.0	0	33	17	99	21	37

Table 1: General Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
SD20-031	22.0	19	100	2.0	5	45	23	100	30	29
SD20-032	23.9	23	100	2.0	96	57	23	100	45	10
SD20-033	14.4	18	100	2.0	0	31	12	100	22	36
SD20-034	10.1	21	100	2.0	0	31	10	100	25	33
SD20-035	12.2	22	100	2.0	0	36	12	100	28	31
SD20-036	17.9	24	100	2.0	0	41	12	100	24	34
SD20-037	13.8	17	100	2.0	65	50	12	100	43	11
SD20-038	42.8	26	100	1.8	100	82	50	99	65	0
SD20-039	21.3	18	100	2.0	100	57	24	100	44	11
SD20-040	38.7	24	100	1.8	100	77	48	100	56	6
SD20-041	29.1	21	100	2.0	100	58	30	100	40	16
SD20-042	7.9	18	100	2.0	0	31	6	100	26	33
SD20-043	17.4	29	100	2.0	7	38	15	100	28	33
SD20-044	13.1	22	100	2.0	0	32	16	100	21	37
SD20-046	5.5	1	100	2.0	0	28	5	100	26	32
SD20-049	6.4	11	100	2.0	100	61	6	100	53	2
SD21-001	28.8	18	100	2.0	22	47	20	96	24	35
SD21-002	29.3	16	100	2.0	12	46	23	100	26	32
SD21-003	25.9	18	100	2.0	0	43	26	100	23	35
SD21-004	34.1	17	100	2.0	35	49	33	100	23	35
SD21-005	39.3	19	100	2.0	100	57	31	100	26	33
SD21-006	13.8	22	100	2.0	0	32	15	99	20	38
SD21-007	11.5	22	100	1.9	64	57	10	100	52	8
SD21-008	13.9	17	100	2.0	0	38	11	85	31	35
SD21-009	23.1	16	100	2.0	0	38	20	99	23	36
SD21-010	15.9	22	100	2.0	0	38	10	100	21	36
SD21-011	35.7	17	100	2.0	71	52	32	100	27	31
SD21-012	19.6	22	100	2.0	0	42	16	100	24	34
SD21-013	20.5	18	100	2.0	0	43	22	99	28	31

Table 1: General Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
SD21-014	41.5	35	100	2.0	100	63	39	100	39	17
SD21-015	13.9	36	100	2.0	67	54	9	100	50	6
SD21-016	8.1	36	100	2.0	33	46	6	100	43	12
SD21-017	10.1	36	100	2.0	0	36	8	99	31	28
SD21-018	21.5	36	100	2.0	53	51	16	100	41	14
SD21-019	45.0	24	100	1.9	100	70	46	100	44	23
SD21-020	26.2	21	81	2.0	81	55	16	88	48	8
SD21-021	18.3	18	100	2.0	0	39	21	99	23	35
SD21-022	33.2	18	100	2.0	100	62	30	100	46	9
SD21-023	16.0	16	100	2.0	100	65	24	84	35	26
SD21-024	28.4	17	100	2.0	59	53	31	98	30	29
SD21-025	17.1	22	100	2.0	5	40	16	100	29	30
SD21-026	16.8	22	100	2.0	0	34	16	100	22	36
SD21-027	26.2	25	100	2.0	68	52	22	99	39	18
SD21-028	49.5	26	100	1.9	100	74	50	99	50	11
SD21-029	17.3	16	100	2.0	0	35	13	100	21	37
SD21-030	8.8	18	100	2.0	0	25	7	100	19	38
SD21-031	11.5	20	100	2.0	0	37	12	100	29	29
SD21-032	33.8	24	100	2.0	100	68	35	99	51	2
SD21-033	14.4	18	100	2.0	0	32	13	100	22	36
SD21-034	18.9	24	100	2.0	21	45	13	100	25	33
SD21-035	11.1	22	100	2.0	0	35	10	100	28	31
SD21-037	10.7	22	100	2.0	0	33	10	100	26	32
SD21-038	33.4	19	100	2.0	100	62	35	100	42	13
SD21-039	39.0	23	100	1.8	100	76	48	100	55	8
SD21-040	47.5	25	100	1.8	100	86	59	97	69	0
SD21-041	10.0	20	100	2.0	0	44	9	100	38	19
SD21-042	20.3	18	100	1.9	100	62	20	100	53	2
SD21-043	17.9	29	100	2.0	7	39	15	100	28	32

Table 1: General Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
SD21-044	12.7	22	100	2.0	0	33	15	100	20	37
SD21-045	7.1	21	100	2.0	0	31	7	100	26	32
SD21-049	6.9	12	100	1.9	100	65	6	100	54	1

Table 2: Primary Elections

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
CD20-001	41.9	17	100	4.0	100	61	62	69	47	10
CD20-002	18.2	22	100	3.6	68	56	25	69	52	16
CD20-003	18.7	18	100	3.9	78	55	40	66	48	19
CD20-004	24.4	20	100	3.8	80	61	33	67	57	9
CD20-005	10.7	19	100	3.8	58	52	22	64	48	14
CD20-006	32.0	18	100	4.1	72	53	47	60	46	19
CD20-007	15.4	20	100	3.8	80	53	29	63	50	4
CD20-008	25.9	17	100	4.0	76	54	52	60	48	17
CD20-009	17.4	20	100	4.3	60	50	32	64	45	10
CD20-010	10.1	18	100	3.9	72	52	25	62	49	24
CD20-011	3.7	2	100	3.5	50	50	5	82	46	26
CD20-012	34.1	23	100	3.6	87	61	54	69	51	17
CD20-013	13.9	18	100	3.9	78	56	33	61	53	11
CD21-001	22.4	18	100	3.9	78	55	42	66	48	16
CD21-002	39.1	17	100	4.0	100	61	60	70	47	11
CD21-003	15.7	22	100	3.7	68	53	27	66	46	11
CD21-004	27.5	17	100	4.0	71	54	55	61	47	17
CD21-005	23.2	21	100	3.6	71	58	32	69	54	16
CD21-006	20.4	18	100	4.3	61	50	24	74	45	19
CD21-007	15.3	18	100	3.9	67	52	31	62	48	22
CD21-008	16.5	18	100	3.9	72	52	35	63	46	22
CD21-009	36.3	23	100	3.6	83	61	55	69	51	17
CD21-010	16.2	18	100	3.9	78	53	35	62	48	22
CD21-011	19.2	17	100	4.0	71	53	35	64	47	20
CD21-012	17.1	19	100	3.8	74	53	36	63	48	18
CD21-013	14.8	20	100	3.9	80	54	31	65	49	10
CD21-014	3.6	2	100	3.5	50	50	5	82	46	26
LD20-001	36.6	18	100	3.9	89	57	57	73	38	17
LD20-002	25.7	18	100	3.9	89	58	46	71	47	10

Table 2: Primary Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD20-003	19.2	22	100	3.6	64	54	41	66	44	22
LD20-004	20.6	18	100	3.9	89	58	52	70	45	10
LD20-005	41.0	20	100	3.7	95	61	61	69	47	15
LD20-006	7.1	16	100	4.1	75	52	15	64	51	6
LD20-007	22.4	23	100	3.5	96	66	49	81	52	2
LD20-008	42.5	19	100	3.8	95	60	59	67	49	12
LD20-009	27.9	19	100	3.8	79	58	38	67	52	8
LD20-010	22.0	17	100	4.0	76	54	44	72	36	15
LD20-011	15.4	22	100	3.6	50	47	15	70	42	25
LD20-012	36.9	18	100	3.9	89	60	61	67	48	5
LD20-013	7.9	17	100	4.0	65	52	22	66	47	9
LD20-014	17.8	16	100	4.1	94	56	47	62	51	11
LD20-015	10.7	16	100	4.1	75	52	38	62	46	8
LD20-016	18.3	19	100	3.8	79	52	39	61	46	4
LD20-017	10.1	22	100	3.6	73	55	25	64	51	12
LD20-018	21.1	19	100	3.8	79	56	35	62	53	11
LD20-019	6.3	20	100	3.8	55	51	10	64	49	10
LD20-020	5.5	15	100	4.1	60	54	8	77	52	5
LD20-021	37.4	23	100	3.6	87	56	63	62	45	15
LD20-022	29.3	23	100	3.7	91	58	56	70	43	7
LD20-023	50.6	21	100	3.8	86	61	66	67	46	11
LD20-024	38.2	19	100	3.8	95	63	63	68	52	10
LD20-025	42.6	12	100	4.2	92	57	69	63	46	10
LD20-026	16.5	19	100	3.8	63	53	35	66	46	24
LD20-027	51.6	23	100	3.6	78	57	59	71	37	30
LD20-028	15.8	19	100	3.8	95	56	35	65	51	7
LD20-029	37.2	24	100	3.6	67	61	37	78	50	12
LD20-030	28.2	23	100	3.6	70	59	32	73	52	13
LD20-031	39.8	24	100	3.6	92	63	57	73	49	14

Table 2: Primary Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD20-032	48.1	20	100	3.7	100	68	65	78	51	8
LD20-033	39.9	23	100	3.6	83	62	58	74	48	16
LD20-034	11.5	22	100	3.6	32	42	12	73	38	39
LD20-035	18.0	24	100	3.5	71	58	31	67	55	18
LD20-036	7.5	24	100	3.5	58	52	13	62	50	13
LD20-037	11.3	23	100	3.6	57	52	23	63	49	13
LD20-038	39.4	22	100	3.5	77	60	52	68	53	22
LD20-040	11.3	21	100	3.6	43	47	17	70	42	25
LD20-041	7.1	22	100	3.6	41	46	11	73	43	23
LD20-042	38.1	10	100	3.0	90	61	76	67	42	12
LD20-043	33.9	19	100	3.9	79	52	51	59	46	26
LD20-044	48.1	19	100	3.9	84	56	76	60	44	32
LD20-045	31.4	20	100	3.9	75	54	60	62	43	25
LD20-046	25.0	18	100	4.0	89	52	41	61	46	11
LD20-047	23.8	24	100	3.7	75	51	23	68	46	8
LD20-048	35.5	22	100	3.7	91	58	63	67	44	16
LD20-049	12.3	22	100	3.6	32	42	10	68	39	37
LD20-050	17.5	20	100	3.8	60	51	28	61	48	13
LD20-052	11.0	18	100	3.9	72	56	26	62	54	9
LD20-054	12.9	18	100	3.9	67	55	18	63	54	0
LD20-055	26.2	20	100	4.1	75	52	51	74	35	21
LD20-056	10.2	22	100	3.8	36	42	8	77	40	29
LD20-057	39.7	20	100	3.9	80	56	56	63	46	18
LD20-058	43.1	21	100	3.8	76	55	60	62	46	25
LD20-059	28.6	21	100	3.9	76	55	60	64	41	19
LD20-060	34.6	20	100	3.9	85	58	60	64	48	12
LD20-061	40.0	20	100	3.9	70	54	35	63	49	17
LD20-062	13.7	21	100	3.8	67	51	27	64	46	9
LD20-063	24.8	20	100	3.8	80	55	43	62	49	13

Table 2: Primary Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD20-064	15.1	20	100	3.9	65	52	30	60	48	24
LD20-065	19.6	18	100	3.9	89	56	44	66	49	16
LD20-066	24.0	18	100	4.1	78	52	42	63	43	10
LD20-067	7.9	18	100	3.9	61	50	22	70	44	13
LD20-068	8.4	19	100	4.1	84	57	25	65	54	4
LD20-069	11.6	19	100	3.9	79	54	31	64	49	5
LD20-070	7.2	18	100	3.9	83	56	19	67	53	16
LD20-071	40.3	23	100	3.7	87	58	62	63	50	14
LD20-072	34.4	23	100	3.7	70	54	40	65	46	20
LD20-073	14.6	18	100	4.0	72	51	36	64	44	21
LD20-074	11.4	19	100	3.9	63	50	23	64	46	8
LD20-075	15.3	20	100	3.8	75	52	37	65	44	24
LD20-076	21.6	19	100	3.8	95	56	42	61	53	19
LD20-077	7.3	19	100	3.9	79	54	23	62	51	8
LD20-078	6.1	18	100	3.9	67	53	19	62	51	12
LD20-079	22.3	19	100	4.1	84	55	41	68	46	13
LD20-080	9.5	18	100	3.9	83	56	26	63	53	16
LD20-081	9.6	18	100	3.9	78	56	24	62	54	9
LD20-082	20.2	10	100	2.8	100	61	42	70	55	7
LD20-083	19.5	18	100	3.9	78	53	37	64	46	25
LD20-084	14.1	18	100	3.9	89	52	31	64	47	9
LD20-086	6.0	20	100	3.7	65	54	14	66	52	16
LD20-087	5.1	19	100	3.8	74	52	13	66	49	11
LD20-088	16.0	14	100	4.3	64	55	24	67	51	13
LD20-089	7.9	17	100	4.0	88	55	23	61	54	1
LD20-090	3.3	17	100	3.9	53	47	8	70	45	19
LD20-091	4.8	19	100	3.8	63	53	13	65	50	29
LD20-092	40.2	21	100	3.6	81	60	64	67	48	12
LD20-094	5.7	23	100	3.8	52	46	12	58	44	14

Table 2: Primary Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD20-095	9.6	18	100	3.9	67	51	22	61	48	11
LD20-096	8.9	17	100	4.0	71	50	17	59	48	16
LD20-097	5.5	18	100	3.9	61	55	15	67	52	8
LD20-098	9.2	18	100	3.9	56	54	18	63	52	21
LD20-099	36.0	23	100	3.6	87	62	65	70	47	15
LD20-100	30.5	20	100	3.7	80	57	41	66	51	19
LD20-101	48.0	21	100	3.6	90	62	72	69	44	19
LD20-102	33.8	19	100	4.2	84	59	46	68	52	15
LD20-103	14.2	18	100	3.9	67	53	24	64	49	21
LD20-104	12.0	17	100	3.9	53	46	15	66	43	33
LD20-105	12.9	18	100	4.1	78	55	24	65	52	9
LD20-106	46.3	26	100	3.7	100	64	72	72	44	12
LD20-107	53.6	24	100	3.6	96	64	72	72	44	12
LD20-108	19.5	19	100	3.8	74	53	41	69	43	14
LD20-109	15.3	20	100	3.7	75	53	30	62	49	8
LD20-110	14.6	19	100	3.8	84	53	37	64	47	12
LD20-111	22.8	21	100	3.8	90	57	46	71	45	9
LD20-112	9.2	20	100	3.8	70	51	19	66	47	11
LD20-115	6.9	17	100	4.2	59	54	7	66	54	13
LD20-116	7.2	20	100	4.0	65	56	8	63	55	18
LD20-117	3.6	22	100	3.7	59	51	5	67	50	4
LD21-001	17.7	17	100	4.0	100	56	35	70	49	9
LD21-002	23.7	18	100	3.9	72	56	37	63	52	22
LD21-003	19.4	21	100	3.7	62	52	35	68	43	22
LD21-004	24.9	18	100	4.0	83	56	53	66	45	7
LD21-005	37.5	19	100	3.8	95	59	60	68	45	20
LD21-007	22.2	23	100	3.5	96	66	48	81	52	3
LD21-008	44.2	19	100	3.8	95	60	59	67	48	10
LD21-009	24.6	17	100	4.0	71	56	39	61	52	16

Table 2: Primary Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD21-010	33.1	18	100	3.9	94	57	58	65	47	16
LD21-011	14.2	22	100	3.6	45	46	14	71	42	31
LD21-012	37.7	17	100	4.0	94	59	60	68	46	6
LD21-013	8.3	18	100	3.9	72	54	19	66	50	14
LD21-014	17.8	16	100	4.1	94	56	47	62	51	11
LD21-015	10.6	17	100	4.1	71	51	39	60	45	6
LD21-016	13.2	17	100	4.0	71	52	38	61	47	6
LD21-017	10.3	23	100	3.6	70	53	25	62	49	12
LD21-018	21.6	20	100	3.9	70	54	35	60	50	11
LD21-019	5.1	20	100	3.8	70	53	10	64	51	11
LD21-020	5.3	14	100	4.1	64	56	8	77	54	5
LD21-021	10.8	22	100	3.6	59	51	16	63	49	15
LD21-022	27.7	21	100	3.8	90	56	55	69	45	10
LD21-023	52.5	19	100	3.8	89	63	67	70	46	11
LD21-024	36.6	18	100	3.9	94	61	61	66	51	11
LD21-025	40.0	19	100	3.8	100	62	63	74	45	13
LD21-026	16.8	10	100	2.8	80	60	37	75	52	30
LD21-027	50.8	22	100	3.7	86	60	62	73	49	14
LD21-028	16.2	20	100	3.8	90	55	36	64	50	7
LD21-029	38.3	24	100	3.6	79	62	43	77	51	12
LD21-030	33.0	23	100	3.6	74	60	30	74	54	13
LD21-032	42.4	18	100	3.9	94	62	60	80	34	15
LD21-033	29.8	22	100	3.6	73	61	34	74	55	8
LD21-034	18.2	22	100	3.6	50	50	18	67	46	28
LD21-036	8.0	8	100	5.2	50	42	13	53	40	0
LD21-040	10.7	22	100	3.6	41	45	14	76	41	28
LD21-042	38.1	10	100	3.0	90	61	76	67	42	12
LD21-043	34.8	19	100	3.9	79	52	52	59	46	26
LD21-044	48.1	19	100	3.9	84	56	76	60	44	32

Table 2: Primary Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD21-045	30.3	18	100	4.0	78	54	60	63	41	22
LD21-046	28.5	20	100	3.9	80	51	42	64	42	8
LD21-047	21.5	25	100	3.7	80	51	26	66	47	5
LD21-048	35.5	22	100	3.7	91	58	63	67	44	16
LD21-049	13.0	22	100	3.6	27	40	14	77	34	28
LD21-050	17.9	19	100	3.8	63	52	30	61	48	13
LD21-052	22.3	18	100	4.0	78	56	38	62	51	12
LD21-053	18.8	10	100	2.9	90	64	40	68	60	12
LD21-054	11.1	26	100	3.4	38	45	17	58	42	25
LD21-055	24.0	20	100	4.1	75	51	49	74	36	21
LD21-056	10.1	22	100	3.8	36	42	8	77	40	29
LD21-057	39.7	20	100	3.9	80	56	56	63	46	18
LD21-058	42.8	21	100	3.8	76	55	60	63	45	25
LD21-059	26.6	20	100	3.9	75	55	58	65	41	18
LD21-060	34.9	20	100	3.9	85	58	60	64	48	12
LD21-061	40.8	20	100	3.9	70	54	37	63	49	17
LD21-062	13.3	21	100	3.8	67	51	26	64	46	9
LD21-063	24.3	18	100	3.9	78	53	40	63	46	19
LD21-064	15.5	19	100	3.8	68	53	30	61	50	24
LD21-065	18.9	18	100	3.9	89	56	42	66	49	16
LD21-066	27.2	21	100	3.6	76	58	40	66	54	12
LD21-067	13.0	17	100	4.0	76	51	35	68	41	21
LD21-068	8.1	17	100	4.9	82	59	24	66	56	4
LD21-069	11.6	18	100	4.0	78	52	30	63	47	6
LD21-070	7.0	19	100	3.9	79	53	18	67	50	17
LD21-071	39.5	23	100	3.7	87	58	60	63	50	15
LD21-072	33.7	22	100	3.7	68	55	39	65	47	16
LD21-073	17.0	10	100	2.8	90	57	35	72	49	20
LD21-074	11.3	19	100	3.9	68	52	23	64	48	8

Table 2: Primary Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD21-075	15.3	20	100	3.8	75	52	37	65	44	24
LD21-076	20.4	20	100	3.7	95	57	41	61	54	7
LD21-077	5.5	20	100	3.9	75	52	20	60	50	8
LD21-078	5.5	18	100	3.9	72	53	17	59	51	8
LD21-079	16.9	18	100	3.9	83	57	30	66	53	3
LD21-080	9.4	19	100	3.9	84	54	27	62	51	16
LD21-081	9.6	19	100	3.8	79	55	24	61	54	10
LD21-082	21.0	18	100	3.9	89	56	37	63	52	12
LD21-083	11.9	17	100	4.0	82	53	31	69	45	20
LD21-084	16.0	18	100	3.9	83	52	35	63	46	10
LD21-086	6.1	20	100	3.7	65	54	13	67	51	18
LD21-087	4.9	19	100	3.8	58	51	11	63	49	31
LD21-088	23.3	14	100	4.3	71	55	28	64	52	13
LD21-089	6.7	17	100	4.0	76	52	19	64	49	2
LD21-090	3.5	19	100	3.8	58	49	8	69	47	13
LD21-091	14.1	18	100	3.9	72	51	33	65	46	20
LD21-092	39.1	20	100	3.7	80	59	62	66	48	10
LD21-094	5.3	20	100	3.8	65	51	11	62	50	12
LD21-095	7.6	16	100	4.2	69	50	14	62	48	17
LD21-096	9.9	17	100	4.0	76	53	21	59	51	16
LD21-097	5.5	18	100	3.9	61	54	15	67	52	8
LD21-098	7.5	18	100	3.9	50	50	14	66	48	28
LD21-099	46.8	27	100	3.7	96	62	74	69	44	15
LD21-100	31.0	20	100	3.7	80	57	41	65	51	19
LD21-101	46.8	21	100	3.8	90	60	70	67	43	16
LD21-102	37.6	22	100	3.9	86	59	51	68	50	19
LD21-103	11.8	20	100	3.8	70	53	25	66	49	22
LD21-104	8.5	17	100	3.9	35	40	12	67	37	47
LD21-105	12.2	18	100	4.1	78	55	24	63	52	9

Table 2: Primary Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD21-106	43.4	27	100	3.7	100	63	68	73	45	13
LD21-107	47.4	23	100	3.6	96	65	68	72	47	14
LD21-108	19.3	19	100	3.8	74	53	38	67	44	15
LD21-110	15.7	19	100	4.0	95	56	46	68	46	11
LD21-111	16.4	19	100	4.0	74	52	33	65	47	10
LD21-112	27.8	20	100	3.7	75	58	48	67	49	18
LD21-113	6.8	19	100	4.0	63	49	13	59	47	3
LD21-114	7.6	19	100	4.4	63	53	7	61	52	9
LD21-115	6.3	17	100	4.2	53	50	6	62	49	13
LD21-117	3.5	10	100	2.8	70	58	5	65	57	4
SD20-001	24.6	17	100	4.0	94	56	41	66	48	10
SD20-002	14.1	20	100	3.9	60	50	32	67	46	23
SD20-003	42.2	18	100	3.9	94	64	61	77	45	7
SD20-004	46.5	18	100	4.1	94	59	65	68	49	12
SD20-005	34.8	17	100	4.0	82	56	49	64	49	21
SD20-006	14.5	17	100	4.0	82	55	45	64	47	10
SD20-007	33.6	20	100	3.8	95	57	62	64	48	7
SD20-008	12.6	21	100	3.7	62	51	27	64	44	20
SD20-009	12.0	18	100	3.9	72	54	20	62	53	13
SD20-010	20.1	19	100	3.9	89	57	47	65	49	14
SD20-011	27.5	18	100	3.9	89	60	52	69	48	14
SD20-012	18.8	21	100	3.7	67	54	41	62	47	5
SD20-013	25.1	25	100	3.9	72	52	32	64	47	4
SD20-014	32.1	22	100	3.6	82	61	44	73	52	8
SD20-015	18.1	22	100	3.5	64	55	23	64	53	12
SD20-016	12.9	22	100	3.6	41	45	15	75	40	24
SD20-017	8.8	22	100	3.6	55	49	15	63	47	21
SD20-018	24.4	20	100	3.8	90	63	46	74	53	11
SD20-019	33.6	18	100	4.0	78	53	56	59	45	16

Table 2: Primary Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
SD20-020	35.4	24	100	3.6	71	61	42	74	52	13
SD20-021	41.2	21	100	3.8	76	57	73	61	46	16
SD20-022	30.0	21	100	3.9	76	59	41	66	55	0
SD20-023	11.1	23	100	3.9	48	48	13	58	47	6
SD20-024	22.0	18	100	3.9	83	55	43	63	49	18
SD20-025	23.4	18	100	4.0	67	53	44	62	46	20
SD20-026	12.6	17	100	4.0	82	55	29	63	51	5
SD20-027	24.0	21	100	3.8	76	54	45	62	48	5
SD20-028	43.9	20	100	3.9	70	55	50	64	46	17
SD20-029	10.5	18	100	3.9	78	56	28	63	53	10
SD20-030	14.7	18	100	3.9	78	51	38	60	47	22
SD20-031	22.0	19	100	3.8	79	54	49	64	45	24
SD20-032	23.9	21	100	3.7	62	51	35	65	44	25
SD20-033	14.4	19	100	3.8	95	55	35	63	52	8
SD20-034	10.1	19	100	4.0	74	51	24	60	48	10
SD20-035	12.2	19	100	3.9	84	55	32	62	51	6
SD20-036	17.9	18	100	3.9	83	53	37	65	46	17
SD20-037	13.8	16	100	4.2	56	46	18	62	43	29
SD20-038	42.8	25	100	3.7	92	62	63	69	50	17
SD20-039	21.3	20	100	3.8	80	55	40	66	48	15
SD20-040	38.7	24	100	3.8	88	62	65	69	47	16
SD20-041	29.1	23	100	3.6	83	60	50	69	51	17
SD20-042	7.9	17	100	4.0	82	52	18	60	51	2
SD20-043	17.4	19	100	3.8	79	54	36	65	47	8
SD20-044	13.1	18	100	3.9	72	54	35	66	48	10
SD20-045	3.3	1	100	2.0	0	38	6	72	33	44
SD20-046	5.5	20	100	3.7	65	54	12	63	52	7
SD20-047	5.1	18	100	3.9	39	45	9	65	42	23
SD20-049	6.4	19	100	4.2	68	56	6	63	55	11

Table 2: Primary Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
SD21-001	28.8	17	100	4.0	88	57	46	67	47	7
SD21-002	29.3	17	100	4.0	94	60	48	70	49	9
SD21-003	25.9	21	100	4.0	90	57	46	70	46	10
SD21-004	34.1	17	100	4.0	88	59	59	66	48	12
SD21-005	39.3	17	100	4.0	94	59	56	65	50	12
SD21-006	13.8	18	100	4.1	83	55	44	63	48	9
SD21-007	11.5	17	100	4.1	71	54	19	62	53	14
SD21-008	13.9	20	100	3.8	65	51	25	64	46	15
SD21-009	23.1	17	100	4.0	94	56	50	66	46	5
SD21-010	15.9	20	100	3.8	80	54	35	65	48	13
SD21-011	35.7	19	100	4.0	84	61	59	74	45	12
SD21-012	19.6	20	100	3.8	65	53	42	62	46	18
SD21-013	20.5	18	100	3.9	78	60	37	66	56	0
SD21-014	41.5	22	100	3.6	86	62	61	75	43	21
SD21-015	13.9	22	100	3.6	36	43	12	72	39	32
SD21-016	8.1	22	100	3.6	45	45	11	76	42	21
SD21-017	10.1	22	100	3.6	64	54	20	62	52	6
SD21-018	21.5	22	100	3.5	64	56	27	64	53	12
SD21-019	45.0	19	100	3.9	74	54	69	58	45	17
SD21-020	26.2	21	100	3.8	67	55	33	76	47	14
SD21-021	18.3	18	100	3.9	61	50	41	59	44	5
SD21-022	33.2	23	100	3.6	74	60	37	73	52	14
SD21-023	16.0	24	100	3.6	58	51	21	60	50	18
SD21-024	28.4	23	100	3.8	78	53	42	69	44	6
SD21-025	17.1	19	100	3.8	84	56	34	62	53	15
SD21-026	16.8	18	100	3.9	78	54	39	62	50	25
SD21-027	26.2	21	100	3.9	67	53	36	62	47	12
SD21-028	49.5	20	100	3.9	85	57	65	63	46	17
SD21-029	17.3	17	100	4.0	76	50	39	67	41	21

Table 2: Primary Elections (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
SD21-030	8.8	18	100	3.9	83	56	24	62	54	10
SD21-031	11.5	19	100	3.9	68	49	30	64	42	23
SD21-032	33.8	22	100	3.7	68	54	46	63	45	24
SD21-033	14.4	20	100	3.8	95	56	34	62	53	7
SD21-034	18.9	20	100	3.7	85	55	38	63	50	4
SD21-035	11.1	18	100	4.0	83	54	30	62	50	7
SD21-036	4.2	18	100	3.9	56	48	10	65	46	14
SD21-037	10.7	17	100	4.0	71	52	23	62	49	11
SD21-038	33.4	23	100	3.6	91	61	55	71	49	15
SD21-039	39.0	24	100	3.5	92	63	65	70	47	14
SD21-040	47.5	24	100	3.8	100	64	71	70	49	16
SD21-041	10.0	17	100	3.9	65	51	20	66	47	20
SD21-042	20.3	18	100	4.1	72	56	26	64	53	10
SD21-043	17.9	19	100	3.8	79	54	37	65	47	9
SD21-044	12.7	19	100	4.0	74	53	35	67	45	11
SD21-045	7.1	17	100	4.0	82	55	18	61	53	1
SD21-046	4.6	17	100	4.0	59	52	7	72	50	7
SD21-048	5.2	20	100	3.9	55	47	9	60	45	3
SD21-049	6.9	19	100	4.2	68	56	7	62	55	11

Table 3: General Elections (contests with Black candidate)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
CD20-001	41.9	4	100	2.0	100	54	38	100	21	37
CD20-002	18.2	6	100	2.0	17	47	14	99	38	19
CD20-003	18.7	5	100	2.0	0	36	18	98	22	37
CD20-004	24.4	3	100	2.0	100	68	21	93	39	21
CD20-005	10.7	3	100	2.0	0	33	10	100	24	34
CD20-006	32.0	3	100	2.0	100	60	30	100	41	15
CD20-007	15.4	3	100	2.0	0	41	13	91	32	30
CD20-008	25.9	4	100	2.0	0	48	30	100	26	32
CD20-009	17.4	4	100	2.0	0	43	16	100	31	28
CD20-010	10.1	3	100	2.0	0	31	11	100	25	33
CD20-012	34.1	7	100	1.7	100	76	39	99	62	7
CD20-013	13.9	3	100	2.0	0	32	12	100	22	36
CD21-001	22.4	5	100	2.0	0	38	19	98	22	37
CD21-002	39.1	3	100	2.0	100	53	34	100	23	35
CD21-003	15.7	3	100	2.0	0	42	14	93	32	29
CD21-004	27.5	3	100	2.0	0	48	34	100	26	32
CD21-005	23.2	6	100	2.0	33	47	18	99	36	22
CD21-006	20.4	3	100	2.0	100	65	17	100	40	17
CD21-007	15.3	3	100	2.0	0	38	12	100	27	32
CD21-008	16.5	4	100	2.0	0	40	14	100	28	30
CD21-009	36.3	7	100	1.7	100	79	43	99	64	3
CD21-010	16.2	3	100	2.0	0	34	11	100	23	35
CD21-011	19.2	3	100	2.0	0	34	15	100	25	33
CD21-012	17.1	3	100	2.0	0	42	18	100	32	26
CD21-013	14.8	3	100	2.0	0	37	14	100	27	32
LD20-001	36.6	4	100	2.0	0	47	28	100	18	39
LD20-002	25.7	5	100	2.0	0	43	25	100	24	34
LD20-003	19.2	7	100	2.0	0	39	19	100	25	33
LD20-004	20.6	4	100	2.0	0	36	15	100	16	41

Table 3: General Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD20-005	41.0	3	100	2.0	100	55	33	100	18	39
LD20-006	7.1	5	100	2.0	0	34	7	84	25	49
LD20-007	22.4	4	100	2.0	0	43	23	100	26	32
LD20-008	42.5	6	100	2.0	33	51	33	100	26	32
LD20-009	27.9	4	100	2.0	0	43	21	100	27	31
LD20-010	22.0	5	100	2.0	0	35	23	100	15	41
LD20-011	15.4	6	100	2.0	83	54	13	100	48	6
LD20-012	36.9	7	100	2.0	14	47	38	100	15	41
LD20-013	7.9	2	100	2.0	0	27	9	94	18	42
LD20-014	17.8	5	100	2.0	0	40	20	100	25	33
LD20-015	10.7	5	100	2.0	0	31	12	100	22	36
LD20-016	18.3	5	100	2.0	0	36	17	95	24	37
LD20-017	10.1	11	100	2.0	0	37	11	90	30	34
LD20-018	21.1	3	100	2.0	100	62	21	100	51	5
LD20-019	6.3	1	100	2.0	0	37	6	100	33	25
LD20-021	37.4	5	100	2.0	20	44	29	100	21	37
LD20-022	29.3	4	100	2.0	0	43	28	100	18	39
LD20-023	50.6	6	100	2.0	100	60	38	100	16	41
LD20-024	38.2	8	100	2.0	100	56	37	100	28	29
LD20-025	42.6	4	100	2.0	0	40	34	99	14	42
LD20-026	16.5	5	100	2.0	0	31	11	100	22	36
LD20-027	51.6	6	100	2.0	100	63	44	100	20	37
LD20-028	15.8	5	100	2.0	0	27	10	100	19	38
LD20-029	37.2	10	100	1.6	100	87	40	100	78	0
LD20-030	28.2	4	100	2.0	100	59	25	100	45	11
LD20-031	39.8	8	100	1.6	100	84	48	100	71	0
LD20-032	48.1	10	100	2.0	100	63	50	100	28	31
LD20-033	39.9	6	100	2.0	100	61	38	99	38	19

Table 3: General Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD20-034	11.5	6	100	2.0	0	40	6	100	36	22
LD20-035	18.0	6	67	2.0	33	46	12	64	44	39
LD20-036	7.5	3	33	2.0	67	56	6	59	56	15
LD20-037	11.3	6	100	2.0	0	34	10	100	27	31
LD20-038	39.4	10	100	1.6	100	83	42	98	72	2
LD20-040	11.3	6	100	2.0	0	38	7	100	33	25
LD20-041	7.1	3	100	2.0	0	43	6	94	40	16
LD20-042	38.1	6	100	2.0	100	66	48	100	36	22
LD20-043	33.9	6	100	2.0	0	47	29	100	26	32
LD20-044	48.1	5	100	2.0	100	71	52	100	40	16
LD20-045	31.4	7	100	2.0	57	50	32	100	27	32
LD20-046	25.0	5	100	2.0	20	42	27	99	21	37
LD20-047	23.8	6	100	2.0	17	43	24	98	26	32
LD20-048	35.5	6	100	2.0	100	56	40	100	29	30
LD20-049	12.3	6	100	2.0	50	49	7	100	45	10
LD20-050	17.5	3	100	2.0	0	41	24	92	25	37
LD20-052	11.0	4	100	2.0	0	26	10	100	18	38
LD20-054	12.9	8	50	2.0	0	43	9	91	38	22
LD20-055	26.2	5	100	2.0	0	42	25	100	22	36
LD20-056	10.2	7	100	2.0	100	71	10	100	66	0
LD20-057	39.7	5	100	2.0	100	58	38	98	33	25
LD20-058	43.1	8	100	2.0	100	69	45	96	47	8
LD20-059	28.6	5	100	2.0	0	37	24	100	17	40
LD20-060	34.6	8	100	2.0	88	59	38	100	34	24
LD20-061	40.0	8	100	2.0	100	64	31	100	48	8
LD20-062	13.7	5	100	2.0	0	32	11	100	24	34
LD20-063	24.8	4	100	2.0	0	48	24	100	32	27
LD20-064	15.1	4	100	2.0	0	39	14	100	29	30

Table 3: General Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD20-065	19.6	5	100	2.0	0	33	19	94	19	43
LD20-066	24.0	4	100	2.0	0	42	21	100	22	36
LD20-067	7.9	7	100	2.0	0	21	6	100	16	40
LD20-068	8.4	5	100	2.0	0	36	7	100	31	27
LD20-069	11.6	5	100	2.0	0	34	11	100	26	32
LD20-070	7.2	4	100	2.0	0	24	6	100	19	38
LD20-071	40.3	7	100	1.9	100	76	46	99	56	4
LD20-072	34.4	8	100	2.0	100	71	34	100	56	1
LD20-073	14.6	3	100	2.0	0	35	19	100	28	31
LD20-074	11.4	6	100	2.0	0	45	11	100	38	19
LD20-075	15.3	5	100	2.0	0	38	15	100	27	32
LD20-076	21.6	7	100	2.0	0	41	20	100	26	32
LD20-077	7.3	4	100	2.0	0	26	7	100	19	38
LD20-079	22.3	7	100	2.6	14	34	16	98	15	41
LD20-080	9.5	7	100	2.0	0	23	8	100	16	40
LD20-081	9.6	5	100	2.0	0	26	8	100	19	38
LD20-082	20.2	1	100	2.0	0	40	18	100	27	32
LD20-083	19.5	5	100	2.0	60	48	12	100	24	34
LD20-084	14.1	6	100	2.0	0	31	13	100	21	37
LD20-086	6.0	4	100	2.0	0	32	6	100	28	31
LD20-088	16.0	4	100	2.0	100	56	18	99	47	6
LD20-089	7.9	4	100	2.0	0	27	7	100	22	36
LD20-091	4.8	2	100	2.0	0	23	6	100	16	40
LD20-092	40.2	9	100	1.7	100	80	47	100	63	9
LD20-095	9.6	6	100	2.0	0	32	8	100	26	32
LD20-096	8.9	4	100	2.0	0	35	7	100	30	30
LD20-098	9.2	6	100	2.0	0	41	8	100	36	22
LD20-099	36.0	6	100	2.0	100	63	42	99	38	20

Table 3: General Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD20-100	30.5	8	100	1.6	100	82	36	100	71	0
LD20-101	48.0	10	100	1.7	100	82	55	99	60	12
LD20-102	33.8	9	100	1.6	100	87	40	98	79	0
LD20-103	14.2	4	100	2.0	0	47	14	100	38	19
LD20-104	12.0	6	100	2.0	0	47	10	100	41	16
LD20-105	12.9	6	100	2.0	50	49	13	100	41	14
LD20-106	46.3	15	100	1.5	100	91	60	99	79	2
LD20-107	53.6	10	100	1.6	100	87	58	99	70	4
LD20-108	19.5	8	100	2.0	0	38	17	100	25	33
LD20-109	15.3	8	100	2.0	0	35	12	100	27	32
LD20-110	14.6	3	100	2.0	0	28	13	100	17	39
LD20-111	22.8	6	100	2.0	0	38	22	100	20	37
LD20-112	9.2	4	100	2.0	0	28	8	100	22	36
LD20-115	6.9	1	100	2.0	100	59	6	100	44	11
LD20-116	7.2	1	100	2.0	0	49	7	100	46	7
LD21-001	17.7	5	100	2.0	0	35	15	91	22	42
LD21-002	23.7	5	100	2.0	20	43	23	99	26	32
LD21-003	19.4	6	100	2.0	0	38	18	100	25	34
LD21-004	24.9	3	100	2.0	0	33	19	100	17	40
LD21-005	37.5	3	100	2.0	67	51	30	100	17	40
LD21-007	22.2	4	100	2.0	0	43	22	100	27	32
LD21-008	44.2	6	100	2.0	83	54	36	100	28	30
LD21-009	24.6	5	100	2.0	0	37	19	98	23	37
LD21-010	33.1	5	100	2.0	0	38	26	100	17	40
LD21-011	14.2	6	100	2.0	83	52	11	100	46	8
LD21-012	37.7	5	100	2.0	0	45	34	100	16	41
LD21-013	8.3	6	100	2.0	0	28	7	97	22	37
LD21-014	17.8	5	100	2.0	0	40	20	100	25	33

Table 3: General Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD21-015	10.6	5	100	2.0	0	32	13	100	22	36
LD21-016	13.2	5	100	2.0	0	34	14	95	23	38
LD21-017	10.3	11	100	2.0	0	37	11	90	31	32
LD21-018	21.6	3	100	2.0	100	62	21	100	52	4
LD21-019	5.1	1	100	2.0	0	34	5	100	31	28
LD21-021	10.8	6	100	2.0	0	35	7	87	31	37
LD21-022	27.7	4	100	2.0	0	39	26	100	17	40
LD21-023	52.5	6	100	2.0	100	61	39	100	15	41
LD21-024	36.6	8	100	2.0	100	55	37	100	28	29
LD21-025	40.0	5	100	2.0	20	42	30	99	14	42
LD21-027	50.8	8	100	2.0	100	64	48	100	26	32
LD21-028	16.2	5	100	2.0	0	26	10	100	17	40
LD21-029	38.3	8	100	1.6	100	85	44	100	74	0
LD21-030	33.0	7	100	1.6	100	87	34	100	80	0
LD21-031	38.1	3	100	1.0	100	100	44	.	.	.
LD21-032	42.4	4	100	2.0	100	57	43	100	26	32
LD21-033	29.8	10	100	1.6	100	83	31	99	76	0
LD21-034	18.2	6	100	2.0	33	48	13	100	41	15
LD21-036	8.0	2	100	2.0	0	36	7	100	30	28
LD21-038	43.6	2	100	1.0	100	100	47	.	.	.
LD21-040	10.7	4	100	2.0	0	39	6	100	35	23
LD21-042	38.1	6	100	2.0	100	66	48	100	36	22
LD21-043	34.8	6	100	2.0	17	49	30	100	27	31
LD21-044	48.1	5	100	2.0	100	71	52	100	40	16
LD21-045	30.3	7	100	2.0	29	49	31	100	26	33
LD21-046	28.5	4	100	2.0	0	40	28	100	17	39
LD21-047	21.5	6	100	2.0	17	46	23	97	30	28
LD21-048	35.5	6	100	2.0	100	56	40	100	29	30

Table 3: General Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD21-049	13.0	6	100	2.0	33	47	8	100	42	13
LD21-050	17.9	3	100	2.0	0	42	26	93	25	37
LD21-052	22.3	4	100	2.0	0	44	22	100	21	36
LD21-054	11.1	8	50	2.0	0	45	10	84	40	22
LD21-055	24.0	5	100	2.0	0	41	22	100	23	35
LD21-056	10.1	7	100	2.0	100	71	10	100	66	0
LD21-057	39.7	5	100	2.0	100	58	38	98	33	25
LD21-058	42.8	8	100	2.0	100	68	44	98	45	11
LD21-059	26.6	5	100	2.0	0	35	22	100	17	40
LD21-060	34.9	8	100	2.0	100	59	38	100	34	23
LD21-061	40.8	8	100	2.0	100	64	32	100	48	8
LD21-062	13.3	5	100	2.0	0	31	10	100	23	34
LD21-063	24.3	4	100	2.0	0	47	22	100	32	26
LD21-064	15.5	4	100	2.0	0	39	14	100	29	30
LD21-065	18.9	5	100	2.0	0	33	19	94	19	43
LD21-066	27.2	6	100	2.0	50	51	23	100	36	22
LD21-067	13.0	5	100	2.0	0	29	13	100	19	38
LD21-068	8.1	5	100	2.0	0	36	7	100	31	27
LD21-069	11.6	4	100	2.0	0	34	10	100	26	32
LD21-070	7.0	4	100	2.0	0	23	6	100	18	39
LD21-071	39.5	6	100	2.0	100	71	46	98	49	4
LD21-072	33.7	7	100	2.0	100	68	32	100	53	2
LD21-073	17.0	2	100	2.0	0	36	13	100	22	36
LD21-074	11.3	6	100	2.0	0	43	11	100	36	22
LD21-075	15.3	5	100	2.0	0	38	15	100	27	32
LD21-076	20.4	7	100	2.0	0	40	20	100	26	33
LD21-077	5.5	3	100	2.0	0	24	6	100	18	39
LD21-079	16.9	5	100	2.0	0	36	12	92	23	40

Table 3: General Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD21-080	9.4	7	100	2.0	0	24	9	100	17	40
LD21-081	9.6	5	100	2.0	0	26	9	100	19	38
LD21-082	21.0	5	100	2.0	0	34	15	100	23	35
LD21-083	11.9	3	100	2.0	0	27	7	100	21	37
LD21-084	16.0	6	100	2.0	0	33	15	100	22	36
LD21-086	6.1	4	100	2.0	0	31	6	100	27	32
LD21-088	23.3	5	100	1.8	100	67	23	100	57	6
LD21-089	6.7	4	100	2.0	0	25	6	100	20	38
LD21-091	14.1	3	100	2.0	0	36	19	100	30	28
LD21-092	39.1	9	100	1.7	100	79	44	100	62	12
LD21-095	7.6	6	100	2.0	0	31	5	100	27	32
LD21-096	9.9	4	100	2.0	0	36	9	100	30	30
LD21-098	7.5	6	100	2.0	0	39	7	100	35	23
LD21-099	46.8	13	100	1.7	100	85	58	99	65	3
LD21-100	31.0	8	100	1.6	100	82	36	99	71	0
LD21-101	46.8	9	100	1.7	100	81	52	99	62	13
LD21-102	37.6	9	100	1.6	100	89	45	98	81	0
LD21-103	11.8	4	100	2.0	0	42	12	100	34	24
LD21-104	8.5	6	100	2.0	0	45	7	100	41	16
LD21-105	12.2	7	100	2.0	43	48	13	100	41	15
LD21-106	43.4	11	100	1.6	100	86	55	99	71	2
LD21-107	47.4	8	100	1.6	100	82	50	99	65	10
LD21-108	19.3	8	100	2.0	0	37	16	100	25	34
LD21-109	16.8	4	100	2.0	0	39	14	100	28	30
LD21-110	15.7	3	100	2.0	0	33	18	100	18	39
LD21-111	16.4	3	100	2.0	0	30	13	100	19	38
LD21-112	27.8	7	100	1.7	100	78	38	99	65	2
LD21-113	6.8	3	100	2.0	0	32	6	97	25	34

Table 3: General Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD21-114	7.6	1	100	2.0	100	60	7	100	58	0
LD21-115	6.3	1	100	2.0	0	46	5	100	43	12
SD20-001	24.6	4	100	2.0	0	42	18	98	21	38
SD20-002	14.1	6	100	2.0	0	33	15	99	23	35
SD20-003	42.2	5	100	2.0	100	53	42	100	21	37
SD20-004	46.5	6	100	2.0	100	59	40	100	22	36
SD20-005	34.8	4	100	2.0	100	54	29	100	25	33
SD20-006	14.5	6	100	2.0	0	34	16	100	20	38
SD20-007	33.6	3	100	2.0	0	46	35	100	18	39
SD20-008	12.6	3	100	2.0	0	37	10	86	31	35
SD20-009	12.0	3	100	2.0	67	55	10	100	49	6
SD20-010	20.1	5	100	2.0	0	37	20	100	16	40
SD20-011	27.5	4	100	2.0	0	48	23	100	20	38
SD20-012	18.8	3	100	2.0	0	40	15	100	22	36
SD20-013	25.1	4	100	2.0	25	43	26	100	22	35
SD20-014	32.1	7	100	1.9	100	67	32	99	53	10
SD20-015	18.1	6	100	2.0	17	43	12	100	34	23
SD20-016	12.9	6	100	2.0	33	47	9	100	42	13
SD20-017	8.8	6	100	2.0	0	37	7	88	33	32
SD20-018	24.4	3	100	2.0	0	43	21	100	27	32
SD20-019	33.6	5	100	2.0	100	51	31	100	29	30
SD20-020	35.4	8	100	1.6	100	83	40	100	72	0
SD20-021	41.2	4	100	2.0	100	67	49	100	35	23
SD20-022	30.0	3	100	2.0	33	47	27	100	27	32
SD20-023	11.1	7	57	2.0	57	54	10	79	49	13
SD20-024	22.0	3	100	2.0	0	44	19	100	31	27
SD20-025	23.4	4	100	2.0	0	43	26	100	21	37
SD20-026	12.6	4	100	2.0	0	24	7	100	18	39

Table 3: General Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
SD20-027	24.0	5	100	2.0	0	41	21	100	25	33
SD20-028	43.9	7	100	2.0	100	67	41	99	45	11
SD20-029	10.5	5	100	2.0	0	27	9	100	18	39
SD20-030	14.7	3	100	2.0	0	32	18	100	19	38
SD20-031	22.0	3	100	2.0	0	45	23	100	29	30
SD20-032	23.9	6	100	2.0	100	57	23	100	44	10
SD20-033	14.4	4	100	2.0	0	30	12	100	20	38
SD20-034	10.1	5	100	2.0	0	30	10	100	23	35
SD20-035	12.2	4	100	2.0	0	36	11	100	28	31
SD20-036	17.9	5	100	2.0	0	40	12	100	23	35
SD20-037	13.8	4	100	2.0	50	49	12	100	42	14
SD20-038	42.8	10	100	1.6	100	87	53	99	73	0
SD20-039	21.3	5	100	2.0	100	57	24	100	43	12
SD20-040	38.7	9	100	1.7	100	81	49	99	65	6
SD20-041	29.1	5	100	2.0	100	58	30	100	39	17
SD20-042	7.9	4	100	2.0	0	29	6	100	24	34
SD20-043	17.4	8	100	2.0	0	35	15	100	24	34
SD20-044	13.1	5	100	2.0	0	31	16	99	19	39
SD20-049	6.4	1	100	2.0	100	58	6	100	48	4
SD21-001	28.8	3	100	2.0	0	46	20	97	21	38
SD21-002	29.3	3	100	2.0	0	45	22	100	24	34
SD21-003	25.9	5	100	2.0	0	41	26	99	20	38
SD21-004	34.1	4	100	2.0	0	48	34	100	21	37
SD21-005	39.3	4	100	2.0	100	56	30	100	25	34
SD21-006	13.8	6	100	2.0	0	32	15	100	20	38
SD21-007	11.5	3	100	2.0	67	55	10	100	50	6
SD21-008	13.9	3	100	2.0	0	38	11	84	31	36
SD21-009	23.1	3	100	2.0	0	37	20	99	22	37

Table 3: General Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
SD21-010	15.9	5	100	2.0	0	37	10	100	19	38
SD21-011	35.7	3	100	2.0	67	51	32	100	25	33
SD21-012	19.6	3	100	2.0	0	40	16	100	22	36
SD21-013	20.5	3	100	2.0	0	42	22	100	26	32
SD21-014	41.5	6	100	2.0	100	61	40	100	34	22
SD21-015	13.9	6	100	2.0	50	52	10	100	47	8
SD21-016	8.1	6	100	2.0	17	44	6	100	40	16
SD21-017	10.1	6	100	2.0	0	33	8	99	28	31
SD21-018	21.5	6	100	2.0	50	48	16	100	38	19
SD21-019	45.0	5	100	2.0	100	65	45	100	37	21
SD21-020	26.2	5	60	2.0	60	51	14	85	45	13
SD21-021	18.3	3	100	2.0	0	38	22	100	22	36
SD21-022	33.2	4	100	2.0	100	64	30	100	48	9
SD21-023	16.0	3	100	2.0	100	65	24	87	31	32
SD21-024	28.4	4	100	2.0	50	51	31	98	28	31
SD21-025	17.1	3	100	2.0	0	38	15	100	28	31
SD21-026	16.8	3	100	2.0	0	33	16	100	20	37
SD21-027	26.2	6	100	2.0	50	50	23	99	35	23
SD21-028	49.5	5	100	2.0	100	68	49	98	39	18
SD21-029	17.3	3	100	2.0	0	33	13	100	19	38
SD21-030	8.8	4	100	2.0	0	24	8	100	18	39
SD21-031	11.5	4	100	2.0	0	37	12	100	29	30
SD21-032	33.8	6	100	2.0	100	69	36	99	51	3
SD21-033	14.4	4	100	2.0	0	31	12	100	21	37
SD21-034	18.9	5	100	2.0	20	45	13	100	23	35
SD21-035	11.1	4	100	2.0	0	35	10	100	28	30
SD21-037	10.7	6	100	2.0	0	32	10	100	24	34
SD21-038	33.4	5	100	2.0	100	62	35	100	42	14

Table 3: General Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
SD21-039	39.0	8	100	1.6	100	82	48	100	66	9
SD21-040	47.5	10	100	1.6	100	89	60	97	76	0
SD21-041	10.0	5	100	2.0	0	44	9	100	38	19
SD21-042	20.3	4	100	2.0	100	59	20	100	49	3
SD21-043	17.9	8	100	2.0	0	36	15	100	24	34
SD21-044	12.7	5	100	2.0	0	31	15	99	19	39
SD21-045	7.1	4	100	2.0	0	30	7	100	25	33
SD21-049	6.9	1	100	2.0	100	59	6	100	50	0

Table 4: Primary Elections (contests with Black candidate)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
CD20-001	41.9	14	100	4.1	100	61	62	69	48	12
CD20-002	18.2	15	100	4.1	67	55	26	71	50	14
CD20-003	18.7	15	100	4.0	73	54	40	66	47	22
CD20-004	24.4	16	100	3.9	75	59	34	68	55	12
CD20-005	10.7	16	100	3.9	56	51	21	62	48	15
CD20-006	32.0	15	100	4.2	67	51	47	59	44	23
CD20-007	15.4	15	100	4.0	73	52	30	62	47	5
CD20-008	25.9	14	100	4.1	79	54	52	60	48	20
CD20-009	17.4	16	100	4.6	56	46	33	63	42	13
CD20-010	10.1	15	100	4.0	73	52	25	62	48	27
CD20-011	3.7	1	100	5.0	100	54	5	100	47	.
CD20-012	34.1	20	100	3.6	85	60	54	68	50	18
CD20-013	13.9	14	100	4.1	71	54	33	59	52	14
CD21-001	22.4	15	100	4.0	73	55	41	66	47	18
CD21-002	39.1	14	100	4.1	100	61	60	70	47	13
CD21-003	15.7	16	100	4.1	56	48	28	65	40	17
CD21-004	27.5	14	100	4.1	71	54	55	60	48	20
CD21-005	23.2	14	100	4.1	71	59	32	71	54	12
CD21-006	20.4	15	100	4.5	60	52	25	76	47	10
CD21-007	15.3	14	100	4.1	57	49	32	61	44	30
CD21-008	16.5	14	100	4.1	64	48	36	62	41	29
CD21-009	36.3	20	100	3.6	80	60	56	68	50	19
CD21-010	16.2	14	100	4.1	86	54	35	63	50	15
CD21-011	19.2	14	100	4.1	64	51	35	63	46	24
CD21-012	17.1	16	100	3.9	75	53	36	63	47	21
CD21-013	14.8	17	100	3.9	76	53	31	64	48	11
CD21-014	3.6	1	100	5.0	100	54	5	100	47	.
LD20-001	36.6	14	100	4.1	93	58	58	73	40	19
LD20-002	25.7	15	100	4.1	87	57	45	70	47	12

Table 4: Primary Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD20-003	19.2	19	100	3.7	63	53	41	66	43	24
LD20-004	20.6	15	100	4.0	93	58	52	69	46	12
LD20-005	41.0	17	100	3.8	94	60	61	68	47	16
LD20-006	7.1	13	100	4.3	69	51	15	63	49	8
LD20-007	22.4	15	100	4.1	93	63	49	78	49	4
LD20-008	42.5	15	100	4.1	93	58	59	66	47	16
LD20-009	27.9	14	100	4.1	71	56	38	64	50	13
LD20-010	22.0	14	100	4.1	79	54	44	72	36	18
LD20-011	15.4	15	100	4.1	47	45	16	67	40	29
LD20-012	36.9	15	100	4.1	87	59	61	67	46	6
LD20-013	7.9	14	100	4.1	57	50	22	65	45	10
LD20-014	17.8	13	100	4.2	92	56	47	61	51	12
LD20-015	10.7	13	100	4.2	77	52	38	62	45	9
LD20-016	18.3	15	100	4.0	73	50	39	60	44	4
LD20-017	10.1	16	100	3.9	69	53	26	64	49	6
LD20-018	21.1	14	100	4.1	71	55	35	61	51	14
LD20-019	6.3	15	100	4.0	53	49	10	66	47	13
LD20-020	5.5	12	100	4.4	58	50	8	79	47	7
LD20-021	37.4	17	100	3.9	88	56	62	63	46	15
LD20-022	29.3	18	100	3.9	94	58	55	72	42	9
LD20-023	50.6	16	100	4.0	100	64	66	70	50	12
LD20-024	38.2	16	100	3.9	94	63	63	68	52	11
LD20-025	42.6	8	100	5.2	100	58	68	68	40	24
LD20-026	16.5	15	100	4.0	60	53	35	67	46	27
LD20-027	51.6	18	100	3.8	78	57	59	72	36	36
LD20-028	15.8	15	100	4.0	93	57	35	66	51	8
LD20-029	37.2	20	100	3.7	65	61	38	79	50	7
LD20-030	28.2	19	100	3.7	68	59	33	73	52	8

Table 4: Primary Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD20-031	39.8	20	100	3.7	95	64	58	74	49	7
LD20-032	48.1	16	100	3.9	100	68	66	78	52	6
LD20-033	39.9	16	100	4.0	88	65	58	75	52	0
LD20-034	11.5	15	100	4.1	33	42	12	71	38	39
LD20-035	18.0	15	100	4.0	67	57	31	68	52	13
LD20-036	7.5	16	100	4.0	50	49	13	62	47	18
LD20-037	11.3	16	100	4.0	62	52	24	62	50	6
LD20-038	39.4	15	100	4.0	73	61	53	69	54	21
LD20-040	11.3	14	100	4.1	43	46	17	69	41	31
LD20-041	7.1	15	100	4.1	40	44	11	70	41	28
LD20-042	38.1	9	100	2.8	89	60	76	66	44	12
LD20-043	33.9	16	100	4.0	75	51	51	58	44	30
LD20-044	48.1	16	100	4.0	81	56	76	60	44	36
LD20-045	31.4	17	100	3.9	71	54	60	62	42	29
LD20-046	25.0	15	100	4.1	93	52	41	60	47	13
LD20-047	23.8	18	100	4.1	67	47	24	66	41	10
LD20-048	35.5	18	100	3.8	94	58	63	67	43	18
LD20-049	12.3	15	100	4.1	33	41	10	68	38	38
LD20-050	17.5	16	100	3.9	56	50	28	60	47	16
LD20-052	11.0	15	100	4.1	67	55	26	62	52	10
LD20-054	12.9	14	100	4.1	57	52	18	62	50	0
LD20-055	26.2	17	100	4.2	71	49	51	72	34	24
LD20-056	10.2	14	100	4.5	43	45	8	76	42	21
LD20-057	39.7	16	100	4.1	75	54	56	62	43	24
LD20-058	43.1	17	100	4.0	71	54	60	61	43	32
LD20-059	28.6	17	100	4.1	71	53	60	62	39	24
LD20-060	34.6	16	100	4.1	81	56	60	63	44	16
LD20-061	40.0	16	100	4.1	62	52	35	62	46	23

Table 4: Primary Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD20-062	13.7	17	100	4.0	65	50	27	65	44	11
LD20-063	24.8	15	100	4.1	73	52	43	60	45	20
LD20-064	15.1	16	100	4.1	62	51	30	59	48	31
LD20-065	19.6	15	100	4.0	87	55	43	66	48	18
LD20-066	24.0	15	100	4.3	80	50	42	61	42	12
LD20-067	7.9	14	100	4.1	64	47	22	70	41	18
LD20-068	8.4	15	100	4.3	80	54	24	63	51	5
LD20-069	11.6	15	100	4.1	73	51	31	61	47	6
LD20-070	7.2	15	100	4.1	80	56	19	65	53	19
LD20-071	40.3	19	100	3.8	84	58	63	62	50	17
LD20-072	34.4	19	100	3.8	68	53	41	65	44	24
LD20-073	14.6	15	100	4.1	73	50	36	64	43	24
LD20-074	11.4	16	100	4.0	62	50	23	65	45	9
LD20-075	15.3	17	100	3.9	76	52	37	65	44	27
LD20-076	21.6	15	100	4.0	93	55	42	60	51	25
LD20-077	7.3	15	100	4.1	73	52	24	61	49	11
LD20-078	6.1	15	100	4.1	60	52	19	62	50	14
LD20-079	22.3	16	100	4.2	81	54	41	68	44	15
LD20-080	9.5	14	100	4.1	79	55	26	62	52	21
LD20-081	9.6	14	100	4.1	71	54	24	61	52	12
LD20-082	20.2	8	100	2.6	100	61	42	69	56	8
LD20-083	19.5	14	100	4.1	71	51	37	64	44	33
LD20-084	14.1	14	100	4.1	93	52	32	63	47	11
LD20-086	6.0	15	100	4.0	67	54	14	65	52	12
LD20-087	5.1	15	100	4.0	80	52	13	66	50	2
LD20-088	16.0	11	100	4.5	55	52	24	65	49	16
LD20-089	7.9	14	100	4.1	86	54	23	60	52	1
LD20-090	3.3	14	100	4.1	50	46	8	69	44	21

Table 4: Primary Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD20-091	4.8	16	100	3.9	56	52	13	64	50	33
LD20-092	40.2	18	100	3.7	78	60	65	65	49	14
LD20-094	5.7	19	100	3.9	47	45	12	57	43	15
LD20-095	9.6	14	100	4.1	64	51	22	61	49	13
LD20-096	8.9	14	100	4.1	64	48	17	57	47	18
LD20-097	5.5	14	100	4.1	57	54	14	65	51	11
LD20-098	9.2	14	100	4.2	50	51	18	62	49	29
LD20-099	36.0	20	100	3.6	85	61	65	69	46	17
LD20-100	30.5	17	100	3.8	76	56	42	65	49	21
LD20-101	48.0	18	100	3.7	89	61	72	67	44	21
LD20-102	33.8	16	100	4.3	81	58	47	66	51	18
LD20-103	14.2	14	100	4.2	57	49	24	63	44	30
LD20-104	12.0	12	100	4.4	50	44	16	61	42	37
LD20-105	12.9	15	100	4.2	73	54	24	64	50	10
LD20-106	46.3	23	100	3.7	100	64	73	71	45	13
LD20-107	53.6	21	100	3.7	95	64	72	71	44	14
LD20-108	19.5	16	100	3.9	69	52	41	67	42	16
LD20-109	15.3	17	100	3.8	71	52	30	62	48	9
LD20-110	14.6	15	100	4.0	87	53	37	64	47	14
LD20-111	22.8	16	100	4.1	94	54	46	67	42	13
LD20-112	9.2	14	100	4.1	79	50	19	64	48	10
LD20-115	6.9	12	100	4.5	58	57	7	68	56	20
LD20-116	7.2	12	100	4.8	58	55	8	67	54	16
LD20-117	3.6	17	100	3.8	59	52	5	68	51	5
LD21-001	17.7	14	100	4.1	100	55	35	69	47	11
LD21-002	23.7	15	100	4.0	67	55	37	62	51	25
LD21-003	19.4	18	100	3.8	61	51	35	68	41	25
LD21-004	24.9	15	100	4.1	87	56	54	65	45	9

Table 4: Primary Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD21-005	37.5	16	100	3.9	94	59	60	67	46	22
LD21-007	22.2	15	100	4.1	93	63	48	78	49	4
LD21-008	44.2	15	100	4.1	93	58	59	66	46	13
LD21-009	24.6	14	100	4.1	64	55	38	61	52	19
LD21-010	33.1	14	100	4.1	100	58	58	64	49	12
LD21-011	14.2	15	100	4.1	40	44	15	67	40	39
LD21-012	37.7	14	100	4.1	100	59	60	68	46	7
LD21-013	8.3	15	100	4.1	67	53	19	64	49	16
LD21-014	17.8	13	100	4.2	92	56	47	61	51	12
LD21-015	10.6	14	100	4.3	71	50	40	60	44	7
LD21-016	13.2	14	100	4.1	64	51	38	59	46	7
LD21-017	10.3	17	100	3.9	65	51	26	62	47	7
LD21-018	21.6	15	100	4.1	67	52	35	60	48	14
LD21-019	5.1	15	100	4.0	60	50	10	64	48	15
LD21-020	5.3	11	100	4.4	64	52	8	80	50	7
LD21-021	10.8	15	100	4.1	60	50	16	63	47	22
LD21-022	27.7	17	100	3.9	94	57	54	70	46	12
LD21-023	52.5	15	100	4.0	100	65	67	71	50	13
LD21-024	36.6	15	100	4.0	93	61	61	67	50	13
LD21-025	40.0	15	100	4.0	100	63	62	77	43	17
LD21-026	16.8	9	100	2.6	78	61	37	75	54	30
LD21-027	50.8	18	100	3.9	89	60	62	75	49	17
LD21-028	16.2	15	100	4.0	93	57	35	67	51	8
LD21-029	38.3	20	100	3.7	80	63	44	78	51	7
LD21-030	33.0	19	100	3.7	74	61	30	74	55	8
LD21-032	42.4	14	100	4.1	93	61	61	78	35	12
LD21-033	29.8	15	100	4.1	73	62	34	75	57	0
LD21-034	18.2	15	100	4.1	53	49	18	69	45	29

Table 4: Primary Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD21-036	8.0	6	100	6.2	50	39	13	52	37	0
LD21-040	10.7	14	100	4.1	36	43	14	75	39	33
LD21-042	38.1	9	100	2.8	89	60	76	66	44	12
LD21-043	34.8	16	100	4.0	75	51	52	58	44	30
LD21-044	48.1	16	100	4.0	81	56	76	60	44	36
LD21-045	30.3	15	100	4.1	73	54	60	63	41	25
LD21-046	28.5	16	100	4.0	81	50	41	64	40	9
LD21-047	21.5	19	100	4.1	84	50	27	63	45	2
LD21-048	35.5	18	100	3.8	94	58	63	67	43	18
LD21-049	13.0	15	100	4.1	27	38	14	75	32	28
LD21-050	17.9	15	100	4.1	60	51	30	61	47	18
LD21-052	22.3	15	100	4.1	80	55	38	61	50	14
LD21-053	18.8	9	100	2.7	89	65	40	67	63	12
LD21-054	11.1	19	100	3.7	37	42	18	57	39	23
LD21-055	24.0	17	100	4.2	71	49	49	72	34	25
LD21-056	10.1	14	100	4.5	43	45	8	76	42	21
LD21-057	39.7	16	100	4.1	75	54	56	62	43	24
LD21-058	42.8	17	100	4.0	71	54	61	62	43	32
LD21-059	26.6	16	100	4.1	69	53	58	64	38	22
LD21-060	34.9	16	100	4.1	81	56	60	63	45	16
LD21-061	40.8	16	100	4.1	62	52	37	62	46	23
LD21-062	13.3	17	100	4.0	65	50	26	64	44	12
LD21-063	24.3	14	100	4.1	71	51	40	62	43	25
LD21-064	15.5	15	100	4.0	67	52	30	60	49	31
LD21-065	18.9	15	100	4.0	87	55	42	66	48	18
LD21-066	27.2	14	100	4.1	79	59	41	65	55	8
LD21-067	13.0	14	100	4.1	79	49	35	68	40	25
LD21-068	8.1	13	100	5.5	77	57	24	64	54	6

Table 4: Primary Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD21-069	11.6	15	100	4.1	73	51	30	61	47	6
LD21-070	7.0	16	100	4.0	75	53	18	64	50	20
LD21-071	39.5	19	100	3.8	84	58	61	62	50	18
LD21-072	33.7	18	100	3.9	67	53	40	65	45	19
LD21-073	17.0	8	100	2.6	88	58	35	73	49	25
LD21-074	11.3	16	100	4.0	69	51	23	64	47	10
LD21-075	15.3	17	100	3.9	76	52	37	65	44	27
LD21-076	20.4	16	100	3.9	94	55	41	60	52	9
LD21-077	5.5	16	100	4.1	75	49	20	57	48	11
LD21-078	5.5	15	100	4.1	67	51	17	59	50	9
LD21-079	16.9	14	100	4.1	79	55	30	64	50	4
LD21-080	9.4	15	100	4.2	80	53	27	61	50	22
LD21-081	9.6	15	100	4.1	73	54	24	60	52	14
LD21-082	21.0	14	100	4.1	86	55	38	62	52	16
LD21-083	11.9	14	100	4.1	79	52	31	68	45	23
LD21-084	16.0	14	100	4.1	93	52	36	63	46	11
LD21-086	6.1	15	100	4.0	67	54	13	66	52	13
LD21-087	4.9	15	100	4.0	67	51	11	64	49	27
LD21-088	23.3	11	100	4.5	64	53	28	61	50	17
LD21-089	6.7	14	100	4.1	71	50	19	63	47	2
LD21-090	3.5	16	100	3.9	56	48	8	69	47	15
LD21-091	14.1	15	100	4.0	73	51	33	65	45	23
LD21-092	39.1	17	100	3.8	76	58	63	64	49	11
LD21-094	5.3	17	100	3.9	65	51	11	61	50	14
LD21-095	7.6	12	100	4.5	58	48	14	62	46	22
LD21-096	9.9	14	100	4.1	71	52	21	58	50	18
LD21-097	5.5	14	100	4.1	57	53	15	64	51	11
LD21-098	7.5	14	100	4.2	43	47	14	64	44	40

Table 4: Primary Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
LD21-099	46.8	24	100	3.8	96	61	75	67	44	17
LD21-100	31.0	17	100	3.8	76	56	42	64	49	21
LD21-101	46.8	18	100	3.9	89	59	70	66	43	18
LD21-102	37.6	19	100	3.9	84	58	52	66	50	21
LD21-103	11.8	15	100	4.1	60	49	25	64	44	30
LD21-104	8.5	12	100	4.4	33	38	12	64	35	58
LD21-105	12.2	15	100	4.2	73	54	25	64	50	10
LD21-106	43.4	24	100	3.7	100	63	68	72	46	14
LD21-107	47.4	20	100	3.6	95	64	68	71	47	16
LD21-108	19.3	16	100	3.9	69	52	38	66	44	17
LD21-110	15.7	16	100	4.1	100	55	46	66	46	12
LD21-111	16.4	16	100	4.1	75	51	32	62	47	11
LD21-112	27.8	17	100	3.8	71	57	49	66	48	20
LD21-113	6.8	14	100	4.1	57	49	12	57	48	4
LD21-114	7.6	12	100	5.1	67	56	6	62	56	22
LD21-115	6.3	12	100	4.5	42	49	6	64	48	20
LD21-117	3.5	8	100	2.6	75	60	5	64	60	4
SD20-001	24.6	14	100	4.1	100	55	40	66	48	12
SD20-002	14.1	17	100	3.9	53	48	32	66	44	26
SD20-003	42.2	15	100	4.0	93	64	61	77	46	8
SD20-004	46.5	15	100	4.3	93	59	64	69	50	14
SD20-005	34.8	14	100	4.1	79	55	49	64	48	24
SD20-006	14.5	14	100	4.1	86	54	45	64	46	11
SD20-007	33.6	15	100	4.0	100	59	61	67	48	9
SD20-008	12.6	15	100	4.0	60	49	28	64	41	17
SD20-009	12.0	13	100	4.3	69	53	20	61	51	18
SD20-010	20.1	16	100	4.1	88	57	47	64	49	16
SD20-011	27.5	14	100	4.1	93	62	52	71	49	4

Table 4: Primary Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
SD20-012	18.8	17	100	3.9	65	52	41	60	47	7
SD20-013	25.1	20	100	4.2	65	48	33	62	43	5
SD20-014	32.1	15	100	4.1	80	62	45	74	53	0
SD20-015	18.1	15	100	4.0	67	56	23	64	53	7
SD20-016	12.9	15	100	4.1	40	43	15	73	38	29
SD20-017	8.8	15	100	4.1	47	46	16	62	43	34
SD20-018	24.4	15	100	4.1	87	62	47	73	51	16
SD20-019	33.6	15	100	4.1	80	53	56	59	45	18
SD20-020	35.4	20	100	3.7	70	62	43	75	52	7
SD20-021	41.2	17	100	3.9	71	56	74	60	46	19
SD20-022	30.0	17	100	4.1	71	56	41	66	52	0
SD20-023	11.1	16	100	4.3	44	44	14	61	44	11
SD20-024	22.0	14	100	4.1	79	53	43	62	47	24
SD20-025	23.4	15	100	4.1	67	51	44	60	46	23
SD20-026	12.6	14	100	4.1	79	54	29	62	50	6
SD20-027	24.0	17	100	4.0	71	53	45	61	45	6
SD20-028	43.9	16	100	4.1	62	53	51	62	43	23
SD20-029	10.5	14	100	4.1	71	54	28	62	51	14
SD20-030	14.7	15	100	4.0	73	50	37	60	45	25
SD20-031	22.0	16	100	3.9	81	54	50	64	44	28
SD20-032	23.9	17	100	3.8	59	50	36	65	41	31
SD20-033	14.4	15	100	4.0	100	55	35	62	52	10
SD20-034	10.1	15	100	4.2	73	50	25	60	47	12
SD20-035	12.2	15	100	4.1	80	53	32	59	50	8
SD20-036	17.9	14	100	4.1	79	51	37	64	44	22
SD20-037	13.8	13	100	4.5	46	43	18	61	39	37
SD20-038	42.8	22	100	3.8	91	61	64	68	49	19
SD20-039	21.3	17	100	3.8	76	54	40	66	46	17

Table 4: Primary Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
SD20-040	38.7	21	100	3.8	86	61	65	68	46	18
SD20-041	29.1	20	100	3.6	80	59	50	68	50	18
SD20-042	7.9	14	100	4.1	79	51	18	59	49	3
SD20-043	17.4	16	100	3.9	75	53	36	64	47	10
SD20-044	13.1	14	100	4.1	71	52	35	63	46	14
SD20-045	3.3	1	100	2.0	0	38	6	72	33	44
SD20-046	5.5	15	100	4.0	67	54	12	64	53	10
SD20-047	5.1	13	100	4.2	38	43	8	63	41	25
SD20-049	6.4	12	100	4.8	67	56	6	66	55	15
SD21-001	28.8	14	100	4.1	93	57	45	67	48	8
SD21-002	29.3	14	100	4.1	93	60	48	71	49	10
SD21-003	25.9	18	100	4.1	89	56	46	71	44	11
SD21-004	34.1	14	100	4.1	93	59	59	66	48	14
SD21-005	39.3	14	100	4.1	93	58	56	65	49	14
SD21-006	13.8	15	100	4.2	87	54	44	62	48	11
SD21-007	11.5	12	100	4.5	67	53	19	62	51	22
SD21-008	13.9	15	100	4.0	53	47	26	63	41	20
SD21-009	23.1	14	100	4.1	93	55	50	66	45	6
SD21-010	15.9	16	100	3.9	81	54	35	66	49	15
SD21-011	35.7	16	100	4.1	81	60	58	74	43	14
SD21-012	19.6	16	100	4.0	62	51	42	61	44	24
SD21-013	20.5	14	100	4.1	79	59	37	66	55	0
SD21-014	41.5	15	100	4.1	87	64	62	76	46	7
SD21-015	13.9	15	100	4.1	33	42	12	71	38	33
SD21-016	8.1	15	100	4.1	40	43	11	73	40	25
SD21-017	10.1	15	100	4.1	67	53	20	61	52	6
SD21-018	21.5	15	100	4.0	67	56	27	64	53	7
SD21-019	45.0	16	100	4.1	75	54	69	58	45	20

Table 4: Primary Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
SD21-020	26.2	17	100	4.0	65	55	34	77	47	8
SD21-021	18.3	15	100	4.1	60	49	41	60	43	6
SD21-022	33.2	19	100	3.7	74	61	38	74	52	8
SD21-023	16.0	17	100	4.1	47	46	23	58	44	30
SD21-024	28.4	18	100	4.1	78	51	43	70	41	9
SD21-025	17.1	14	100	4.1	79	53	34	60	50	22
SD21-026	16.8	15	100	4.0	73	54	39	61	49	29
SD21-027	26.2	16	100	4.1	62	52	36	63	45	16
SD21-028	49.5	16	100	4.1	81	55	65	62	42	23
SD21-029	17.3	14	100	4.1	79	49	39	64	40	25
SD21-030	8.8	14	100	4.1	79	55	24	61	53	13
SD21-031	11.5	16	100	4.0	69	48	30	64	41	26
SD21-032	33.8	18	100	3.9	67	52	47	63	43	30
SD21-033	14.4	15	100	4.0	100	55	35	62	52	9
SD21-034	18.9	16	100	3.9	81	54	38	62	49	4
SD21-035	11.1	15	100	4.1	80	53	30	60	50	8
SD21-036	4.2	15	100	4.0	53	48	10	64	45	16
SD21-037	10.7	14	100	4.1	64	51	24	60	48	13
SD21-038	33.4	20	100	3.6	90	61	56	70	49	16
SD21-039	39.0	21	100	3.6	90	62	66	69	47	15
SD21-040	47.5	21	100	3.8	100	63	72	68	48	18
SD21-041	10.0	12	100	4.4	50	44	20	63	40	32
SD21-042	20.3	15	100	4.2	67	55	27	64	52	12
SD21-043	17.9	16	100	3.9	75	53	37	64	47	10
SD21-044	12.7	15	100	4.3	73	51	35	64	43	14
SD21-045	7.1	14	100	4.1	79	54	18	59	52	2
SD21-046	4.6	14	100	4.1	57	51	7	69	49	8
SD21-048	5.2	15	100	4.0	53	46	9	58	45	3

Table 4: Primary Elections (contests with Black candidate) (*continued*)

District	Percent Black Voting Age Population	Number of Contests	Percent of Black- preferred candidates Democratic	Average Number of Candidates	Black- preferred win rate	Average Black- preferred candidate vote share	Avg. Pct. Voters Black	Avg. ER Black cohesion (pct.)	Avg. ER White crossover support (pct.)	Pct. Black needed for majority
SD21-049	6.9	12	100	4.8	67	56	7	65	55	15

Addendum to Primary Expert Report of Jonathan C. Mattingly, Ph.D.

I am a Professor of Mathematics and Statistical Science at Duke University. My degrees are from the North Carolina School of Science and Math (High School Diploma), Yale University (B.S.), and Princeton University (Ph.D.). I grew up in Charlotte, North Carolina and currently live in Durham, North Carolina.

I lead a group at Duke University which conducts non-partisan research to understand and quantify gerrymandering. This report grows out of aspects of our group's work around the current North Carolina legislative districts which are relevant to the case being filed.

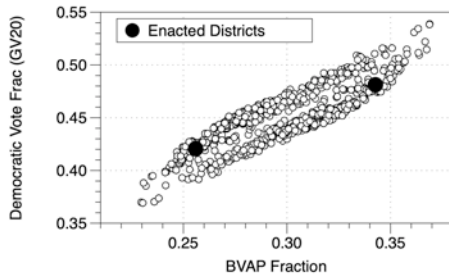
I previously submitted an expert report in *Common Cause v. Rucho*, No. 18-CV-1026 (M.D.N.C.), *Diamond v. Torres*, No. 17-CV-5054 (E.D. Pa.), *Common Cause v. Lewis* (N.C. Sup. Ct No. 18-cvs-014001), and *Harper v. Lewis* (No. 19-cv-012667) and was an expert witness for the plaintiffs in *Common Cause v. Rucho* and *Common Cause v. Lewis*. I am being paid at a rate of \$400/per hour for the work on this case. This note is a companion to the main expert report. It has been requested by a subset of plaintiffs' counsel.

Addendum Analysis

We examine the correlation between the fraction of the black voting age population and the partisan make up of (i) the North Eastern cluster choices in the North Carolina State Senate, and (ii) the districts within the Duplin-Wayne county cluster in the North Carolina State House.

North Eastern Cluster Options

County Clusters (1 district per cluster)	Enacted Clusters		Alternative Option	
	MARTIN WARREN HALIFAX HYDE PAMLICO CHOWAN WASHINGTON CARTERET	GATES CURRITUCK PASQUOTANK DARE BERTIE CAMDEN PERQUIMANS HERTFORD TYRRELL NORTHAMPTON	PASQUOTANK DARE PERQUIMANS HYDE PAMLICO CHOWAN WASHINGTON CARTERET	GATES CURRITUCK CAMDEN BERTIE WARREN HALIFAX HERTFORD TYRRELL NORTHAMPTON MARTIN
BVAP(%)	30.0%	29.49%	17.47%	42.33%
Dem Vote % (LG16)	46.07%	47.74%	38.51%	55.42%
Dem Vote %(PR16)	45.60%	46.70%	37.83%	54.59%
Dem Vote %(CA20)	42.28%	44.47%	36.48%	50.75%
Dem Vote %(USS20)	45.31%	45.36%	38.45%	52.75%
Dem Vote %(TR20)	44.12%	44.58%	37.61%	51.59%
Dem Vote %(GV20)	46.79%	47.56%	40.75%	54.12%
Dem Vote %(AD20)	47.79%	47.72%	41.02%	54.99%
Dem Vote %(SST20)	47.56%	47.85%	41.03%	54.89%
Dem Vote %(AG20)	45.88%	46.11%	39.15%	53.40%
Dem Vote %(PR20)	44.09%	45.54%	38.30%	51.84%
Dem Vote %(LG20)	43.80%	45.12%	37.74%	51.69%
Dem Vote %(CL20)	45.23%	46.42%	39.12%	52.00%



The Northeastern corner of the North Carolina State Senate has two possible county clusterings; each clustering is made of two clusters each with one district. We compare the enacted plan with the other possible districting option. We find that the enacted plan splits the Black voters roughly in half, whereas the other potential clustering would have concentrated Black voters in one of the two resulting districts. Furthermore, we find that the enacted plan leads to two stable Republican districts when measured across a range of

historic voting patterns. In contrast, the alternative clustering would have allowed the district with the larger BVAP (42.33% BVAP) to reliably elect a Democratic candidate. Thus, the chosen cluster is the choice that favors the Republican party and significantly fractures Black voters in the area.

Next, we examine the correlation between BVAP fraction and Democratic vote fraction in the Duplin-Wayne cluster. We elect to use the 2020 Governor votes and plot the relationship between the BVAP and the vote fraction in (i) our ensemble and (ii) the enacted plan. We demonstrate that (i) it is possible to draw districts with significantly higher BVAPs and that (ii) according to the examined historic votes, raising the BVAP would likely raise the Democratic vote fraction.

I declare under penalty of perjury under the laws of the state of North Carolina that the foregoing is true and correct to the best of my Knowledge.

Jonathan C Mattingly
Dec 23, 2021.

STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
21 CVS 015426

NORTH CAROLINA LEAGUE OF
CONSERVATION VOTERS, et al.,

REBECCA HARPER, et al.,

Plaintiffs,

vs.

REPRESENTATIVE DESTIN HALL, in his
official capacity as Chair of the House
Standing Committee on Redistricting, et al.,

Defendants.

Consolidated with
21 CVS 500085

AFFIDAVIT OF ANDREW J. TAYLOR

Now comes affiant Andrew J. Taylor, having been first duly cautioned and sworn,
deposes and states as follows:

1. I am over the age of 18 and am competent to testify regarding the matters
discussed below.
2. For the purposes of this litigation, I have been asked by counsel for Legislative
Defendants to analyze relevant data and provide my expert opinions.
3. To that end, I have personally prepared the report attached to this affidavit as
Exhibit A, and swear to its authenticity and to the faithfulness of the opinions.

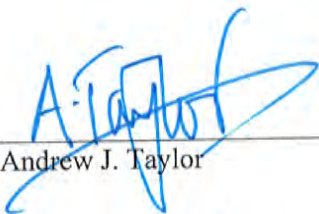
FURTHER THE AFFIANT SAYETH NAUGHT.

NCLCV v. Hall

21 CVS 15426

LDTX108

Executed on 22 December, 2021



Andrew J. Taylor

Sworn or affirmed before me and subscribed in the presence the 22nd day of December, 2021, in
the state of NC and County of Wake.





Notary Public

Exhibit A:

Expert Report of Dr. Andrew J. Taylor, Ph.D.

Dr. Andrew Taylor
North Carolina State University
Professor- School of Public and International Affairs
Caldwell Hall 277B
Raleigh NC 27607
ataylor@ncsu.edu

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I. Introduction and Qualifications

I have been hired by the legislative defendants to provide expert testimony in the consolidated cases of *Harper et al v. Hall et al* and *North Carolina League of Conservation et al v. Hall et al*. More specifically, I have been asked by the legislative defendants to provide my opinion regarding the congressional and state legislative districting plans enacted by the North Carolina General Assembly in 2021 deploying my knowledge of North Carolina political history and legislative politics, comparative politics, and American national and state politics and policy.

I am a tenured professor of political science at North Carolina State University. I received my Ph.D. from the University of Connecticut in 1995 and have taught at NC State for the 26 years since then—the past fourteen as a full professor. I teach an array of courses in American politics and served as chair of the Department of Political Science from 2006 to 2010 and President of the North Carolina Political Science Association in 2012-13. I have written four books and published extensively in political science journals. I have authored 28 peer-reviewed articles and numerous book chapters, reports, and other published work.

I have expertise in political science matters related to these cases. I use a diverse array of methodologies in my work, including different statistical techniques. I have been interviewed by scores of media outlets about issues relating to redistricting and North Carolina politics and policy and given dozens of talks to political and civic groups on these topics over the past quarter century. Some of my academic research analyses these matters. I believe the principal reason I have been hired as an expert in these cases

is that my extensive experience and broad interests in American, North Carolina, comparative, and state politics enable me to offer an integrated and panoramic social scientific understanding of the large and complex questions before the court. My CV, which lists my complete credentials, is attached to this report as Appendix A.

The analyses and opinions I provide in this report are based upon my education in social science methods and knowledge of the relevant academic literature. These skills are well-suited to this analysis. My conclusions stated herein are based upon my review of the information available to me at this time. In my professional judgment this is sufficient basis for my opinions notwithstanding the unusually short period I have been given to write this report. I reserve the right to alter, amend, or supplement these conclusion based upon further study or based upon the availability of additional information and within the confines of the court’s truncated scheduling order. I am being compensated for my time in preparing this report at the rate of \$425/hour. My compensation is in no way contingent on the conclusions reached as a result of my analysis. The opinions in this report are my own, and do not represent the view of North Carolina State University.

II. Executive Summary

The substantive part of the report is divided into five sections: “The Redistricting Process in North Carolina in 2021”, “*Common Cause v. Lewis* and the Constitution of the State of North Carolina”, “Proportionality, Competitiveness, and the Properties of a ‘Partisan

Gerrymander’”, “Additional Conceptual and Analytical Considerations”, and “A Recent History of North Carolina Party Politics”. My findings are:

- i. Regarding the process used by the North Carolina General Assembly to conduct redistricting in 2021.
 - Compared to those of other states, the Constitution of North Carolina provides its state legislature with considerable authority and latitude in the formation and enactment of district plans.
 - In 2021, the state legislature deployed a process that was comparatively transparent, open, and participatory.
- ii. Regarding the case of *Common Cause v. Lewis*, the Constitution of North Carolina, and the plaintiffs’ related claims.
 - The constitutional provisions that describe Article I rights the plaintiffs believe to have been violated in these cases by the enacted plans—“the free elections” clause, “the equal protection” clause, “the freedom of speech” clause, and “the freedom of assembly” clause—are derived from practices and ideas unrelated to concerns about partisanship and redistricting.
 - Political scientists’ common understanding of the concept of a “partisan gerrymander” is different from the discipline’s understanding of free elections, equal elections, the freedom of speech, and the freedom of assembly.

- Political scientists consider many other political rights that states, including North Carolina, restrict to be constitutive of free elections, equal elections, the freedom of speech, and the freedom of assembly—common burdens on these rights include ballot access, voter registration rules, fair access to the media, campaign finance regulations, etc.
- iii. Regarding methods and principles used by political scientists to identify a “partisan gerrymander”.
- The plaintiffs wish to see different qualities in the enacted plans particularly proportionality and district competitiveness, but these are often contradictory and elusive and proportionality, at least, is not intrinsic to our electoral system.
 - The various methods political scientists use to evaluate district plans generate different results and, in turn, conclusions regarding the extent to which a plan is a “partisan gerrymander”—that is, the choice of method can be determinative of an investigator’s assessment.
 - “Partisan gerrymandering” is an abstract and complex political science concept that defies clear standards for decisive analysis.
- iv. Regarding additional analytical and conceptual challenges facing political scientists as they evaluate district plans.
- There exists a “natural gerrymander” created by the uneven distribution of the general population across the state and within crucial units of redistricting such as counties, voting tabulation districts (VTDs), and

“communities of interest” and the concentration of Democratic voters in urban areas and Republican voters in rural areas.

- The choice of “baseline” statewide elections to evaluate the partisan nature of district plans is arbitrary and can have material effects on the assessment of a plan.
- Terms like “community” are vague and of little practical utility to political scientists offering a principled and objective analysis of enacted district plans.

v. Regarding North Carolina party politics.

- The geographic character of the North Carolina Democratic and Republican parties’ support has changed dramatically over the past thirty years, with implications for electoral competitiveness.
- Much of this is a function of discretionary decisions made by state and national party leaders, elected officials, and activists and very little of it can be attributed to redistricting practices.

III. The Redistricting Process in North Carolina in 2021

i. Method

In this section, I use my knowledge and a survey of the academic literature to analyze the manner in which the General Assembly conducted the redistricting of North Carolina’s congressional and Senate and House districts in 2021, a matter the plaintiffs in *Harper* and *NCLCV* have placed at the center of their complaint. The approach, typical

in political science, is to place the legislature’s actions in historical and comparative state perspective.

ii. Constitutional Context

The U.S. Bureau of the Census released data to the states so that they could begin their redistricting on August 12, 2021 (they were released in easier-to-use form on September 16). This was much later than initially intended (the original statutory deadline to complete delivery of redistricting was March 31, 2021) because of the coronavirus pandemic and data anomalies. Under the authority of the Constitution of the State of North Carolina (Article II §§3, 5), the North Carolina General Assembly has the responsibility to redraw district lines for the state’s U.S. House districts and state legislative districts. This power is the General Assembly’s alone. It must exercise this “at the first regular session convening after the return of every decennial census of population taken by order of Congress following the decennial national census”. It cannot avoid the charge. For both the congressional and state legislative maps, unlike roughly half of the states, North Carolina law grants authority to enact district plans to neither non-partisan institutional legislative staff nor a commission with all or some members who are either non-legislators or appointed by officers outside of the legislature.¹

Moreover, Article II, § 22 of the Constitution states redistricting plans are not ordinary legislation. Like Connecticut, Florida, Maryland, Mississippi (in the case of the

¹ The Constitution mentions congressional redistricting only in passing in Article II, § 22 (5) (c). Here it states the congressional district plan is a bill not subject to gubernatorial amendment.

state legislature) and Connecticut (in the case of Congress), the maps are not presented to the Governor. The executive cannot exercise its veto power.² But even in these other states, the legislature's power to devise plans is limited somewhat. In Connecticut, a two-thirds majority of both chambers is needed to approve plans and if the legislature misses statutory deadlines a nine-member back-up commission is charged with drawing the maps. In Maryland, the Governor submits a map the legislature can ignore, but if the legislature misses a legal deadline back-up procedures take effect and its power to draw the plan is consequently curtailed. Ultimately, the Governor's plan is enacted absent the legislature approving theirs. Mississippi has a back-up commission consisting of non-legislative members.

In drawing its state legislative districts, Florida uses a process most like North Carolina's. There, however, state legislative district maps are automatically submitted to the Florida Supreme Court for approval. In the event that the court rejects the lines, the legislature is given a second chance to draft a plan. If the legislature cannot approve a state legislative redistricting plan, the state attorney general must then ask the state supreme court to draft one. It is only in North Carolina that the legislature expressing its will through a simple majority vote in both chambers has sole authority under state law to

² The people approved an amendment to the Constitution bringing about the executive veto in 1996. Legislative Democrats were generally against the proposal. Governors, particularly Jim Martin and Jim Hunt, and legislative Republicans were in favor. A compromise was struck in which, unlike a large majority of the states' governors, North Carolina's governor would not have the line-item veto. Veto overrides would also require only a vote of three-fifths of members of both legislative bodies (most states require two-thirds) and redistricting legislation would not be subject to the veto (Christensen 2008, 246; Fleer 1994, 115-6; *New York Times* 1995).

draw congressional and state legislative maps.³ These rules were affirmed when the current Constitution was written in 1971, a time when the Democratic Party enjoyed large and electorally-secure majorities in the General Assembly.⁴

The mandates that limit the North Carolina legislature’s discretion are therefore unrelated to process. They concern the content of the maps and are directed by federal and state statutory and constitutional law and court decisions. Many of them were recited by the “Criteria Adopted by the Committees” approved at a joint meeting of the General Assembly’s House Committee on Redistricting and Senate Committee on Redistricting and Elections on August 12, 2021.⁵ I will return to them throughout the report. Probably the most important are that the districts be single-member and contain equal population, be contiguous and compact in shape, minimize the traversal of county lines and splitting of voting tabulation districts (VTDs or essentially precincts or wards), and be sensitive to what are frequently called “communities of interest”.⁶

³ There are a number of reputable and comprehensive reference sources for this information freely available on the Internet. These include the site of the National Conference of State Legislatures (<https://www.ncsl.org/research/redistricting.aspx>), the site of academics Justin Levitt and Doug Spencer (<https://redistricting.lls.edu/>), and the Princeton Gerrymandering Project (<https://gerrymander.princeton.edu/>). The Congressional Research Service’s report, “Congressional Redistricting 2021: Legal Framework” (<https://crsreports.congress.gov/product/pdf/LSB/LSB10639>) provides a nice overview to the role of federal law in the process.

⁴ The Constitution of 1971 was “an extensive editorial revision of the entire constitution incorporating relatively noncontroversial substantive changes without altering the fundamental character of the document” (Fleer 1994, 51). Proposed changes regarding executive power were rejected by the people.

⁵ <https://www.ncleg.gov/documentsites/committees/Senate2021-154/2021/08-12-2021/Criteria.adopted.8.12.pdf>

⁶ In 2021, there are 14 U.S. House districts apportioned by federal law and 50 state Senate and 120 state House districts as directed by Article II §§2, 4 of the Constitution of North Carolina.

For the 2021 redistricting cycle, the House and Senate redistricting committees did adopt criteria concerning the configuration of the maps, however. These criteria were more stringent than those of 2011 and presumably recommended to the committees by legislators’ understanding of federal and state law and court decisions and in anticipation of potential legal challenges to the congressional and state legislative district plans. Most notably, the committees prohibited the use of election-result data and data identifying the race of individuals. In *Cooper v. Harris* in 2017, the U.S. Supreme Court ruled that in drawing two congressional districts after the 2010 census, the North Carolina General Assembly used race as “the predominant factor”, an action that did not survive the “strict scrutiny” jurisprudential standard.⁷ In 2018, it essentially reiterated this in a case involving state legislative districts.⁸ Legislators were also instructed this year not to use “partisan considerations”. In *Common Cause v. Lewis* in 2019, a three-judge Superior Court panel essentially ruled that drawing state district lines for the clear purpose of advantaging the majority party’s interests violated the North Carolina Constitution.⁹ Both *Cooper* and *Common Cause* resulted in the General Assembly having to draw remedial maps.

iii. Addressing the Plaintiffs’ Claims

The plaintiffs claim the redistricting process was inadequate in some way. In the *Harper* complaint, they assert, “Legislative Defendants undertook an opaque and

⁷ 137 S.Ct. 1455 (2017).

⁸ *North Carolina v. Covington*, 138 S.Ct. 2548 (2018)

⁹ 373 N.C. 258 (N.C. 2019).

constricted redistricting process”.¹⁰ It would be fair to ask: Compared to what? Based upon my experience and extensive review, there exist no comprehensive systematic studies of how state legislatures have conducted their redistricting over the past several decades. Political science research has focused exclusively on the substance of maps. Indeed, a recent study in *Political Research Quarterly* on the determinants of state and federal redistricting cases omits any measure of the rules or procedures used by state legislatures in the formulation of district plans. The researchers focus on the form the maps take and political, social, and racial characteristics of states and find that, incidentally, among the variables generating a material effect are the size of the African-American population and the number of cases the state has been party to previously (Gimpel, Hightower, and Wohlfarth. 2021). This helps us understand why North Carolina has become the target of so many redistricting suits since 2010.

The National Conference of State Legislatures (NCSL) has observed, however, that before the 2010 cycle the processes used by state legislatures to draw congressional and state legislative maps were not unlike the processes used to write and approve regular legislation.¹¹ In North Carolina, both chambers of the General Assembly publish journals containing information about bills, amendments, and votes as per Article II, § 17 of the state Constitution. In recent years, citizens have been able to view and listen to live video and audio streams of proceedings on the General Assembly’s website. The website contains other information, including bills filed and notices of committee meetings. This

¹⁰ Verified complaint in *Harper v. Hall*.

¹¹ <https://www.ncsl.org/research/redistricting/into-the-thicket-a-redistricting-starter-kit-for-legislative-staff.aspx>

is a dramatic improvement in terms of transparency on the situation prior to 2000 when the institution was considerably more opaque.

NCSL does observe a change from 2010. State legislatures are increasingly making the redistricting process transparent and participatory. The two practices most frequently used to facilitate this are “listening tours” and receiving district plan proposals directly from the public. These are both things the North Carolina General Assembly did in 2021. Although restricted by the coronavirus pandemic, the late release of the census data, and compressed timeline (an original filing deadline of December 17, 2021 and primary originally scheduled on March 8, 2022), the redistricting committees held 13 public hearings across the state and a further four over two days in October once maps had been proposed. This was in addition to the usual input members of the public are free to provide lawmakers on ordinary legislation.¹² The General Assembly also livestreamed proceedings on its website. It maintained a public redistricting workroom with a dedicated terminal that anyone could schedule to use. The maps citizens drew became part of the public record.

All members of the House and Senate had the opportunity to debate and then vote on three readings of the three bills (SB 740 for the congressional plan, HB 976 for the state House plan, and SB 739 for the state Senate plan). In sum, with the exception of the dramatic use of a lottery machine to help determine the state legislative plans from among five alternatives, the 2019 court-ordered process to redraw maps was practically

¹² Article I § 12 of the Constitution permits the people “to instruct their representatives and to apply to the General Assembly for redress of grievances”.

identical to the 2021 process, particularly with regards to public participation and the openness of committee and floor proceedings. Several Democratic state legislators characterized what happened in 2019 as exceptionally fair and transparent (Bitzer 2021, 136).

The final recorded votes on the third reading of the three 2021 redistricting plans were: Congressional plan 65-49 in the House and 27-22 in the Senate; state Senate plan 65-49 in the House and 26-19 in the Senate; and state House plan 67-49 in the House and 25-21 in the Senate.¹³ As far as we know, none of the proceedings violated the state constitutional requirements in Article II, § 12, 17, 18, 19 that pertain to member responsibilities and rights in the consideration of legislation.¹⁴

The plaintiffs claim the maps were drawn as the result of “partisan considerations”.¹⁵ As with many high-profile votes in today’s partisan American legislatures, the recorded votes were partisan and no Republicans voted against any of the maps and no Democrats voted in favor of any of them. The state Senate plan, however, was altered by two floor amendments offered by Democratic senators.¹⁶ Moreover, regardless of the motivations for individual members’ votes in this matter, the North Carolina General Assembly itself is not uniquely partisan and polarized. To date, in the 2021-22 session more than 75

¹³ These votes can be found on the North Carolina General Assembly’s website, <https://www.ncleg.gov/Legislation/Votes/2021>

¹⁴ These have to do with members’ oath to discharge their duties as legislators (Section 12), requiring the bodies keep a journal of their proceedings (Section 17), essentially permitting any member to oppose legislative action and have that opposition made public record (Section 18), and allowing for recorded votes (Section 19).

¹⁵ Verified complaint in *Harper v. Hall*, p. 12.

¹⁶ They were Sen. Natasha Marcus and Sen. Ben Clark.

percent of House roll-call votes and 80 percent of Senate roll-call votes have had in excess of 60 percent of members on one side. According to widely-cited research using roll-call and survey data from state legislatures and a recognized ideal-point estimation statistical technique to place individual legislators on a single liberal-to-conservative ideological dimension, the difference in median annual ideology scores between House Republicans and Democrats and Senate Republicans and Democrats from 2010-18 are just slightly higher than the national average (North Carolina House 1.64, other states' houses 1.63; North Carolina Senate 1.66, other states' senates 1.61). The North Carolina House has become more partisan and polarized according to these measures since 2010 (from 1993 to 2009 its mean difference score was 1.26, compared to the national 1.37) but the state's Senate has actually become less partisan and polarized (from 1993 to 2009 its mean difference score was 1.72, compared to the national 1.36) (Shor and McCarty 2011).¹⁷

IV. *Common Cause v. Lewis* and The Constitution of the State of North Carolina

i. Method

Here, I use my knowledge and experience as a political scientist and examine the comparative and historical political science literature to ascertain whether it is reasonable to argue, as the plaintiffs do, that the enacted plans are in violation of state constitutional provisions concerning “free elections”, “equal protection”, “freedom of speech”, and

¹⁷ Shor and McCarty's updated data can be found at: <https://americanlegislatures.com/data/>

“freedom of assembly”. My opinion is not legal, rather I draw on these concepts as understood historically and by the political science literature to evaluate their relationship with the plaintiffs’ assertions.

ii. *Common Cause* and the Plaintiffs’ Complaints

In 2019, a three-judge panel of a Superior Court in Wake County ruled the 2017 state House and Senate district plans to be unconstitutional “extreme partisan gerrymanders”. The essence of the decision in *Common Cause v. Lewis* was that the maps violated three state constitutional provisions: The “free elections” clause (Article I, §10), the “equal protection” clause (Article I, § 19), and, together, the “freedom of speech” and “freedom of assembly” clauses (Article I, § 14 and Article I § 12). The plaintiffs in *Harper* and *NCLCV* claim forcefully the district plans violate these provisions of the North Carolina Constitution.

The Court in *Common Cause* seemed to be taking its lead from a 2018 Pennsylvania decision. In *League of Women Voters of Pennsylvania et al v. Commonwealth of Pennsylvania et al*, the Supreme Court found that state’s 2011 congressional district plan violated Article I, § 5 of its Constitution that asserts, “Elections shall be free and equal; and no power, civil or military, shall at any time interfere to prevent the free exercise of the right of suffrage.”¹⁸ In *Common Cause*, the Superior Court invoked North Carolina’s “free elections” constitutional provision, despite its omission of the term “equal”.

Perhaps sensitive to the difference and to draw a more direct connection between the

¹⁸ 178 A.3d 737 (Pa. 2018).

North Carolina and Pennsylvania situations, it asserted the plans before it were also in violation of the Constitution of North Carolina’s Article I, § 19 guaranteeing “equal protection”.

This reference to the equal protection clause is important. First, it should be noted the relevant provision reads that, “No person shall be denied the equal protection of the laws; nor shall any person be subjected to discrimination by the State because of race, color, religion, or national origin.” There is no reference to anything remotely related to partisanship. Second, the part of the XIV Amendment of the U.S. Constitution the North Carolina provision mimics has almost exclusively been deployed in connection with government action that is considered discriminatory on the grounds of characteristics like gender, age, national origin, and, especially, race (Arazia 2018). It is interesting that all the plaintiffs in both cases introduce themselves as Democratic voters and most of the plaintiffs in *NCLCV* also present themselves as Black voters. The two characteristics, race and partisanship, should not be conflated. Race is an established constitutionally suspect category that receives strict scrutiny when states legislate on matters related to fundamental rights like voting. It is also a significant and explicit factor in federal restrictions on the redistricting process, such as those enumerated in the Voting Rights Act and the now established principle that, to use Justice Anthony Kennedy’s descriptor in *Miller v. Johnson*, race cannot without justification be the “predominant” factor motivating the drawing of districts.¹⁹ Partisanship, by contrast, is not innate, immutable, or central to a person’s being. Voting for candidates of a particular party is a choice and

¹⁹ 515 U.S. 900 (1995).

purely incidental to most people’s lives. It is something that could be used to describe the class of people the plaintiffs consider “Democratic voters” for little more than a few minutes every two, perhaps even every four, years.

iii. The State Constitution and the Derivation of the Rights in Question

As the Court observed in *Common Cause*, the origins of several of the constitutional rights it invoked can be found far back in the state’s history. It noted the source of the “free elections clause” is located in the North Carolina Declaration of Rights of 1776, which in turn borrowed it from the English Bill of Rights of 1689 (Orth 1992).²⁰ It also claimed North Carolina’s embrace of free elections drew inspiration from language in other state constitutions, including Pennsylvania’s.²¹ The 1868 North Carolina Constitution, written following the Civil War, contained a “free elections clause” in its Article I §, 10—although the words “ought to” were in place of today’s “shall”.

If the origins of the provision go back to 1776, it was established prior to any meaningful American understanding of the term “gerrymander” which was largely popularized following the 1810 redistricting cycle when the Governor of Massachusetts Elbridge Gerry signed a state legislative district plan that was said to greatly favor his Democratic-Republican Party (Engstrom 2013, 21-22). In 1868, and even in 1971 when today’s Constitution was established, the concept of a “partisan gerrymander” does not

²⁰ It should be noted, however, that it was not until the passage of the “Great” Reform Act in 1832 that Britain rid itself of “rotten boroughs”, districts with very small constituencies that often elected members of parliament who were essentially selected by a single or small group of powerful residents (Evans 1994).

²¹ *Common Cause v. Lewis*, 303.

appear to have been addressed or contemplated by convention delegates and the state’s population. With the exception of the short “fusionist” period of the 1890s when Republicans had control of the General Assembly and the governorship, North Carolina was a solidly one-party state for more than a century following the Civil War. It was not until 1972 that North Carolina elected its first Republican Governor and U.S. Senator of the twentieth century and 1994 that it elected that party’s first state legislative majority by giving Republicans control of the House.²²

The same logic applies to the “freedom of assembly” provision. Article I, § 25 of the 1868 Constitution reads, “The people have the right to assemble together to consult for their common good, to instruct their representatives, and to apply to the Legislature for the redress of grievances”. Given this was written in 1868, it seems difficult to imagine the authors were contemplating partisan gerrymandering as a practice in contravention of the freedom of assembly.

The “freedom of speech” wording was only written into the Constitution in 1971. It was tacked on to the beginning of the “freedom of the press” clause which occupied Article I, § 20 of the 1868 Constitution—and, like “free elections”, the 1971 Constitution believed it “shall” as opposed to “ought” “never be restrained”. Again, the origins suggest no intent to include the concept of a “partisan gerrymander”.²³ In summary,

²² Kruman (1983, 154) discusses partisan battles over redistricting in North Carolina between Democrats and Whigs in the early 1850s. The Civil War and the demise of Reconstruction, however, made North Carolina a solidly Democratic state.

²³ Today, Article I, § 14 reads, “Freedom of speech and of the press are two of the great bulwarks of liberty and therefore shall never be restrained, but every person shall be held responsible for their abuse.”

based upon my review as a political scientist of North Carolina’s political history, there seems no support for the drawing of a connection between the constitutional rights of free elections, equal protection, freedom of speech, and freedom of assembly on one hand and partisan redistricting practices on the other.

iv. State Constitutions and the “Partisan Gerrymander”

In fact, when states expressly wish to prohibit partisan gerrymandering, they establish laws to that effect. Academics Justin Levitt and Doug Spencer estimate 19 states have statutes or constitutional provisions restricting the practice of “undue partisanship” in state legislative redistricting, 17 have such statutes or constitutional provisions addressing congressional redistricting.²⁴ The following examples provide just a flavor of how this can be done if a state so desires. Article III, § 20 of the Florida State Constitution states, “No apportionment plan or individual district shall be drawn with the intent to favor or disfavor a political party.” Article III, § 3 of the Missouri State Constitution states, “Districts shall be drawn in a manner that achieves... partisan fairness.” The entire eleventh article of the Ohio State Constitution is devoted to redistricting and Section 6, Clause A states, “No general assembly district plan shall be drawn primarily to favor or disfavor a political party”. Article IV, Part 2, § 1(14) of the Arizona State Constitution reads, “to the extent practicable, competitive districts be favored where doing so would not significantly detract from” criteria such as equal population, compactness, and the

²⁴ <https://redistricting.lls.edu/redistricting-101/where-are-the-lines-drawn/#partisan+outcomes>

protection of communities of interest. North Carolina has no constitutional provision related to the partisan make-up or competitiveness of districts.

Moreover, the U.S. Supreme Court ruled in 2019 in a case involving North Carolina that partisan gerrymandering was outside the ambit of the federal courts as a politically non-justiciable question.²⁵ As a result, therefore, state courts are left to determine whether their statutes and constitutions, absent a provision related to partisan redistricting practices, prohibit partisan gerrymandering. Prior to *Common Cause*, they had only done this definitively once, in the 2018 Pennsylvania case.

- v. Political Science and the Concepts of “Free Elections”, “Equal Elections”, “Freedom of Speech”, and “Freedom of Assembly”

As a political scientist, I find it hard to think of American practices of redistricting, regardless of how skewed in a partisan sense the outcomes seem, to be evidently inconsistent with the principles of “free elections”, “equal elections”, “freedom of speech”, and “freedom of assembly”. To explain, let me take each of these concepts in turn, beginning with “free elections”.

Freedom House, a highly respected non-profit, non-partisan, non-governmental organization that conducts research and advocacy on democracy, political freedom, and human rights, clearly dislikes what it calls “partisan gerrymandering”.²⁶ The

²⁵ *Rucho v. Common Cause*, 139 S.Ct. 2484 (2019). There was a companion case out of Maryland, *Benisek v. Lamone*, 139 S.Ct. 2484 (2019).

²⁶ See, for example, https://freedomhouse.org/sites/default/files/2021-03/US_Democracy_Report_FINAL_03222021.pdf

methodology it uses to conduct its “Freedom in the World” analysis, however, includes “partisan gerrymandering” specifically in response to the following question it asks of countries: “Are the electoral laws and framework fair, and are they implemented impartially by the relevant election management bodies?” The phenomenon is not used to evaluate how countries respond to this question: “Were the current national legislative representatives elected through free and fair elections?”²⁷ In the numerous political science reference materials that describe free elections, the key characteristics are things such as whether elections are called in a timely manner, candidates have access to the media, members of the public can vote without undue pressure or intimidation, ballots are cast in secret, and the vote count is transparent and timely.

The Economist’s Democracy Index which clearly places “free elections” at the heart of its understanding of democracy, makes no mention of redistricting in its methodology. Its unfortunate assessment in 2020 was that the United States is a “flawed democracy” noting that although “Americans have become much more engaged in politics in recent years” they show “low levels of trust in institutions and political parties, deep dysfunction in the functioning of government, increasing threats to freedom of expression, and a degree of societal polarization that makes consensus almost impossible to achieve”.²⁸ It is plausible some political scientists believe redistricting contributes to some of these outcomes, but there is a significant amount of research that casts doubt on the argument partisan gerrymandering is a principal cause of polarization in American politics—the

²⁷ <https://freedomhouse.org/reports/freedom-world/freedom-world-research-methodology>

²⁸ <https://www.eiu.com/n/campaigns/democracy-index-2020/>

dramatic polarization of the U.S. Senate furnishes crucial evidence in that regard (McCarty, Poole, and Rosenthal 2009). Interestingly, the country’s only non-partisan legislature, Nebraska’s unicameral body, is also polarized. Here antagonistic legislative groups are galvanized by campaign contribution patterns and candidate recruitment processes that mirror states with formal partisan politics (Masket and Shor 2015).

In the American context, there are many other practices that vary considerably across states and are more integral to the concept of free elections than what is typically called a “partisan gerrymandering”. These include rules related to voter access and election integrity such as registration and voter identification requirements, absentee and early voting rules, and the location and number of polling places. These freedoms are routinely regulated by state law and court decisions.

Freedom, moreover, infers choice. As a result, when assessing whether elections are free we should also consider the character of the ballot given to voters. Ballot access and candidate filing rules are crucial in this regard. So is the number of candidates on the ballot and the availability of accurate and useful information about each of them. If voters have very little freedom of choice in U.S. House and state legislative elections our electoral system is to blame. Much of the time they have only two alternatives, a Democratic or Republican candidate. Others desiring the label “Democrat” or “Republican” are forcibly eliminated from consideration by a primary and candidates from other parties are kept off the general election ballot by restrictive rules. Although the Libertarian Party has official standing in North Carolina, the only independent candidate to appear on a statewide election ballot here was Ross Perot in 1992.

What about “equal elections”? Each person has one vote to elect one legislator who has one vote in the legislature. More specifically, the existing restrictions on the redistricting process exist to ensure elections be equal. The choice of legislative candidates is the same for all voters in a district and, most importantly, the General Assembly must establish districts with equal or nearly equal populations. The law does currently tolerate tangible inequalities in elections, however. In the recent *Evenwel v. Abbott* case, the Supreme Court strongly advised states to conform to settled practice and draw their districts with equal population, not equal numbers of eligible voters.²⁹ Eligible individuals are also given different chances to vote by their registration status—you must be registered in order to vote. Other plausibly unequal treatment includes distance from the place of polling and the length of time it takes to vote once there.

Unequal outcomes are inherent to our winner-take-all or first-past-the-post single-member-districts electoral system—North Carolina cannot draw at-large or multi-member districts.³⁰ There is one winner in the election for each seat in the U.S. House and North Carolina House and Senate. If the election is contested, there is also at least one loser. The winner is selected by a plurality of voters in the district. The remaining voters who cast a ballot selected a loser.

I will return to the notion of “wasted votes” and the related frequently used quantitative indicator of partisan gerrymanders, the “efficiency gap”, later. But I think it

²⁹ 136 S. Ct. 1120 (2016).

³⁰ The intent was largely to protect the political interests of minorities. The case that ended multi-member districts in North Carolina was *Stephenson v. Bartlett*, 355 N.C. 354 (2002).

should be noted the plaintiffs also talk about certain citizens having their votes “wasted” and imply they are treated unequally. Wasted votes are those cast for the losing candidates or the winning candidate above those needed to win, in other words the difference in votes received by the winner and the second-place finisher minus one. Wasted votes are intrinsic to our system.³¹ It is not, therefore, citizens who waste or do not waste votes when they register their choice of candidates on the ballot. They are exercising a fundamental right. It is the parties who waste them by winning seats by large margins or losing seats by slim ones.

My response to the argument the district plans violate the North Carolina Constitution’s provisions regarding “free speech” and “free assembly” is similar. Political scientists do not conceptualize partisan gerrymandering in terms of the suppression of speech or the ability to organize freely. According to the *Oxford Concise Dictionary of Politics*, “freedom of speech” is the “liberty to express opinions and ideas without hindrance, and especially without fear of punishment” and “freedom of association” is “the freedom of individuals to associate as an end in itself or with the view to pursuing common projects, e.g. churches, trade unions, political parties, and sporting clubs” (McLean and McMillan 2003, 208-9). When they study legal restrictions on political speech and organization in the American context, political scientists examine

³¹ If the goal had been to eliminate wasted votes, through their Constitution the people of North Carolina would have adopted a system of proportional representation in which seat shares are a faithful representation of the proportion of total statewide votes each party received. If the plaintiffs’ intent is to provide “Democratic voters” the “opportunity... to elect the candidates of their choice in the districts and/or clusters where they reside” (Verified complaint in *NCLCV*, p. 12) then they should desire plans with highly uncompetitive districts where each individual Democratic voter is very likely to select the winner.

matters such as campaign finance, candidate nomination procedures, rules regulating canvassing, rallies, and protests, media entities’ compliance with the federal requirement they provide equal time to any opposing candidates who request it, and so on. State laws that unfavorably treat citizens who wish to organize or vote for third or minor parties, such as those shaping the electoral system and restricting access to the ballot, are perhaps the most important examples. There are no restrictions on North Carolina Democrats’ ability to assemble in the way they exist for North Carolina Constitution Party or Green Party members. As of early 2021, those two parties were no longer formally recognized by the state as political parties, consequently stripping them of numerous organizational advantages state Democrats (and Republicans and Libertarians for that matter) enjoy.

V. Proportionality, Competitiveness, and the Properties of a “Partisan Gerrymander”

i. Method

In this section, I deploy my knowledge of the political science methodology used to explore partisanship and redistricting. I survey the academic literature and explain and evaluate various principles and techniques.

ii. Political Science and Partisan Redistricting

The “partisan gerrymander” or manipulation of the redistricting process to bring about unfair partisan outcomes is an abstract political science construct. The concept has evolved over several decades with the contributions of many academics.³² It lacks a

³² For a good overview, see Burden and Smidt (2020).

precise operational definition. It seems to have a number of elements, although there is no consensus as to what these are and several appear to contradict each other. Unless investigators make personal and arbitrary decisions as to what principles to apply, it is prohibitively difficult to undertake a comprehensive comparison of a district plan to both others and some absolute desired standard.

Political scientists have tried to systematize an intellectual approach to the partisan gerrymander. In their efforts to facilitate real-world evaluation of district plans, they have created a series of indicators that purport to permit analysts to gauge the extent to which one is gerrymandered. Measures are generally interested in detecting something called “partisan bias”, a broad gauge of whether a party received more seats than it should have given some exogenous standard of acceptability. Some emphasize proportionality or “responsiveness”.³³ Beyond that, however, the indicators vary greatly. Some suffer measurement problems.

iii. Proportionality and Competitiveness

The arguments of critics of district plans, including it seems to me the *Harper* and *NCLCV* plaintiffs, are demonstrative of the intellectual minefield that is this effort to identify a partisan gerrymander. They often assert district plans have two important

³³ Both partisan bias and responsiveness focus on the “seats-votes curve” or the proportion of seats and votes won by a party when the two pieces of data are plotted against one another. Partisan bias is only concerned with the proportion of seats won when we place a party at 50 percent of the vote (this must be estimated using a computer algorithm), models interested in proportionality look at the entire curve. In both cases, significant asymmetry in the left and right hand sides of the curve (that is either side of 50 percent of the vote) is interpreted as a sign of a gerrymander.

deficiencies: They produce outcomes in which the share of the legislative body's seats won by a party is not proportionate with its share of the aggregate statewide vote and/or they produce too many districts where there is little meaningful competition between the major parties' candidates. Many of these critics, including the plaintiffs here who on several occasions complain the enacted plans' lack of proportionality and too few competitive districts, want maps to exhibit both qualities.

Before I examine the problems of trying to have a district plan exhibit both proportionality and competitiveness, I should emphasize proportionality was not an objective of the designers of our electoral system. Disproportionate outcomes in terms of seats are a feature not a bug. I have a deep knowledge of the modern political history and elections of the nation I grew up in, the United Kingdom. It has similar political values as the United States and an identical first-past-the-post plurality system of single-member districts for elections to its House of Commons. In the most recent general election of December 2019, the Conservative Party won 56.2 percent of the seats to form the government (legislative majority) with 43.6 percent of the vote. The Labor Party was second, but its 32.1 percent of the vote gave it 32.2 percent of the seats. The Liberal Democrats who received 11.6 percent of the national vote in third place won 1.7 percent of the seats while the Scottish National Party's (SNP) 3.9 percent of the vote secured it 7.4 percent of the seats. Labor's main response has been to change its leader and resolve to recruit better candidates and campaign more skillfully in districts it was defeated, especially those it lost narrowly or whose seats its members had occupied in the previous parliament. The Conservatives do the same when they are out of government. The

Liberal-Democrats have not bemoaned redistricting, but continue their long-standing efforts within the political process to make the electoral system more proportional. The SNP has retained its traditional strategy of focusing on its home base in Scotland’s 59 districts.

As a practical matter, proportionality is not that important to the representation of the parties in government anyway. Our electoral system is described as “winner-take-all” for a reason. It is explicitly majoritarian. In *Common Cause*, the Court paid particular attention to the plaintiffs’ argument that the plan made it very difficult for the Democrats to win legislative majorities.³⁴ It understood that in the General Assembly, majority status is of critical importance and the majority party sees rapidly diminishing returns from winning each additional seat beyond 26 in the Senate and 61 in the House. This is because both bodies are hierarchically organized giving great power to the leader of the majority party and, unlike the U.S. Senate with its filibuster for example, prohibit meaningful minority party obstruction (Cooper 2008). Moreover, the proportional distribution of seats in the North Carolina U.S. House delegation matters little to the overall partisan composition of Congress. North Carolina has only 14 of the 435 districts.

A central problem for critics of district maps like the plaintiffs in *Harper* and *NCLCV* is that proportionality and competitiveness are often incompatible. By trying to increase one, you can reduce the other, but not always in predictable ways. To

³⁴ *Common Cause v. Lewis*, p. 313.

understand this theoretically, consider a hypothetical state where we assert 50 percent of its voters are Democrats and 50 percent Republicans. The voters are distributed across the state in such a way we can draw very different types of maps. We can draw a map for a 100-member legislative body to ensure perfect proportionality. In this case, the plan would have 50 solid (perhaps even near 100%) “Democratic” districts and 50 solid “Republican” districts. No contests would be competitive. Alternatively we can draw 100 competitive districts, each with roughly half of its voters Democrats and the other half Republicans. Here, however, even a small statewide uniform swing towards one of the parties could result in it winning a very large majority even if the aggregate vote was something like 53 percent to 47 percent in its favor.

There are numerous illustrations of the tension between proportionality and competitiveness in American elections. The 2012 congressional elections immediately following the 2010 redistricting cycle furnish a good example. Nobody claimed the Massachusetts U.S. House plan in the 2010 cycle was gerrymandered; indeed the Center for Public Integrity gave it a grade of ‘A’.³⁵ But in 2012 Republicans won 30 percent of the statewide vote and only one contest could reasonably be considered competitive. The party’s candidate lost that race and Democrats captured all nine of the state’s seats. In Iowa, where the non-partisan redistricting process produced maps after the 2010 census that in the 2012 congressional election resulted in a statewide 50 percent to 47 percent advantage for Republicans and an even split between the major parties of the four seats,

³⁵ See, <https://publicintegrity.org/politics/state-politics/massachusetts-gets-c-grade-in-2012-state-integrity-investigation/>.

no race was decided by less than nine percentage points. In Illinois in 2012, five of its 18 congressional districts were decided by less than ten points (a reasonable indicator of competitiveness these days), but the Democrats won two-thirds of them with 57 percent of the vote.

iv. Often-Cited Political Science Methods Used to Indicate a “Partisan Gerrymander”

Three of the most prominent measures political scientists use to explore the potential gerrymandered qualities of a district plan demonstrate the real-world challenge of accounting for different features like proportionality and competitiveness in a single indicator. The “efficiency gap” developed by Nicholas Stephanopoulos of the University of Chicago Law School and Eric McGhee a political scientist at the Public Policy Institute of California is a frequently used analytical tool in the investigation of district maps popularized when litigants and judges discussed it in the Wisconsin case that eventually became *Gill v. Whitford* decided by the U.S. Supreme Court in 2018 (Stephanopoulos and McGhee 2018). It takes the absolute difference in the total number of Democratic wasted votes and Republican wasted votes in a district plan and divides it by the total number of votes cast in all districts. Stephanopoulos and McGhee (2018) estimate that any figure in excess of about .08 (or eight percent) constitutes a partisan gerrymander in favor of the party with the fewest wasted votes. But the efficiency gap tends to punish competitiveness if the outcomes break decisively for one party. This is because parties waste a large number of votes in losing close elections and very few in winning them. Proportionality can also be penalized. Take a hypothetical legislature with five districts containing 100 voters each, where Republicans win 60 percent of the

aggregate vote (300 votes) and three seats (60 percent). If the results were 85-15, 65-35, 65-35, 45-55, and 40-60 with Republican votes listed first, the efficiency gap would be .198 indicating a large gerrymander in favor of Democrats. Here the problem is parties waste a great deal of votes relative to their opposition when they win by large margins.

In the “mean-median difference” test, analysts subtract the median percentage recorded by a party’s candidates in all of the districts in a plan from the mean percentage. When a party’s median vote share is lower than its mean, it might be considered a victim of gerrymandering where its voters are unfairly concentrated (McDonald and Best 2015). But this approach does little to convey proportionality or competitiveness under many conditions, including in states where there is either little or a great deal of variance in the parties’ performances across districts (Burden and Smidt 2020; Stephanopoulos and McGhee 2018).

The mean-median difference test is also particularly sensitive. In a study comparing different methods, Jonathan Krasno et al’s (2019) analysis of the Wisconsin Assembly map drawn in 2011 using results from 13 statewide elections in the two cycles immediately preceding and following the redistricting revealed the mean-median difference was the method by far the most likely to indicate “substantial” partisan gerrymanders.

A third test, “lopsided margins”, simply compares the mean margins of victory in all districts for each of the parties. The party with the larger margins of victory is most likely to have its voters concentrated and therefore subjected to a gerrymander. Analysts can then use a t-test to see if the difference in the means for the parties is statistically

significant (Wang 2016). This helps us get a grasp of competitiveness, but not always proportionality.

v. Summary

The value placed on proportionately and competitiveness by analysts of district plans, including the plaintiffs in *Harper* and *NCLCV*, highlight an important problem with judicial efforts to address partisan gerrymandering. Partisan gerrymandering is an abstract and complex concept that defies clear standards suitable for decisive intellectual analysis by political scientists. The reality of a first-past-the-post electoral system with single-member districts make it prohibitively difficult to discover districts that maximize both proportionality and competitiveness using available statistical techniques. Map-drawers, who are generally not political scientists, therefore often find it difficult to know which tools to use when evaluating competing plans. They discover their attempts to promote one desired principle like proportionality often undermine their efforts to promote another like competitiveness. My understanding of the social science of identifying partisan gerrymanders does not make me question it as derisively as Chief Justice John Roberts when he described the efficiency-gap measure as “gobbledygook” in oral arguments during *Whitford*. However, I believe even if judges think they have the power to reject maps drawn by the states on the basis that they constitute a partisan gerrymander, the objectives of litigants are often too broad and conflicted and the tools we have to analyze district plans too numerous, complex, and problematic to provide necessary clear and satisfactory direction.

VI. Additional Conceptual and Analytical Considerations

i. Method

In this section, I assess “baselines” that permit meaningful evaluation of district plans. To do this, I use my knowledge of North Carolina political history and survey the political science literature on methods.

ii. The Clustered General Population

The difficulty of generating transparent and objective standards for what constitutes a partisan gerrymander in the opinion of political scientists is relevant to this section as well. Here, I explicitly address the issue of what “baselines” to use or, in other words, what assumptions we should take into the exercise of constructing and evaluating district plans.

The first task is to account for the real world. Whether the issue involves general redistricting criteria like compactness, contiguity, and the maintenance of communities of interest, VTDs, or municipalities, or generally understood characteristics of partisan gerrymanders such as disproportionality or a lack of competitiveness, it is fair to ask not how any potential plan compares to an absolute standard but the “state of nature” or what we might call the “natural gerrymander”. North Carolinians are spread unevenly within an oddly-shaped state. Some counties, communities, and VTDs are relatively small, others are quite large. Some are densely populated, others sparsely populated. So, for example, when we talk about a plan’s performance with regards compactness, it is important to note the extent to which dividing the state into 14, 50, or 120 evenly populated chunks mitigates against the principle. Many observers use the Polsby-Popper measure of compactness which

reports results on a scale of 0 to 1. The congressional, state House, and state Senate plans enacted by the state legislature have Polsby-Popper mean scores of .30, .35, and .34 respectively. Is this unreasonably different from the state of nature? It is impossible to know, but from a basic examination of the three maps by someone with an understanding of the location of North Carolina’s urban and rural areas they look, with a few plausible exceptions, quite compact.³⁶

iii. The Partisan Clustering of the Voting-Age Population

What is more, Democratic and Republican voters are clustered. Democrats tend to live with other Democrats and Republicans with other Republicans. Democrats dominate the cities, Republicans small towns and rural areas of the state. Political scientists have various theories about why this is so. It could be the product of people with similar demographic characteristics like income, education, or race living together or people being persuaded to agree with their neighbors or moving to a place with more agreeable neighbors (Levendusky 2009; Rodden 2019). Regardless, the phenomenon poses significant challenges to legislators.

Published research demonstrates the problem. In a recent analysis of North Carolina, Gimpel and Harbridge-Yong (2020) reveal conceivable racial, occupational, geophysical, and sociocultural communities of interest tend to be homogenous in their partisan affiliations. To maintain many of them you must “pack” Democratic or Republican voters.

³⁶ There is another different but simpler measure of the compactness called the Reock test which essentially looks to see what proportion of the area of a circle drawn around its perimeter a district occupies.

iv. The Use of Election Data to Identify Democratic and Republican Voters

The second question regarding the establishment of baseline assumptions required to evaluate a district plan is the identification of Democratic and Republican voters. Analysts have sensibly moved away from using party registration data because of the large number of unaffiliated voters and the reality that the act of registering to vote is very different from that of casting one. So, although the criteria adopted by the North Carolina House and Senate redistricting committees in 2021 explicitly prevented legislators from using “election data”, we, as observers, have the luxury of election results. But which ones should we use? Many, including the plaintiffs in these two cases, utilize recent statewide contests as their benchmark. They take the precinct-level returns from these elections and superimpose the enacted plans on them to determine hypothetically how many seats each party would receive.

Statewide elections for different offices or held at different times, even if observations are only two or four years apart, can produce significantly different outcomes. Votes are not fixed. The candidates, campaigns, office sought after, and contemporaneous political conditions mean voters do not consistently reveal themselves as Democrats or Republicans since many split their votes between the parties. In 2020, for example, Gov. Roy Cooper, a Democrat, beat Republican Lt. Gov. Dan Forest by 4.5 percentage points. In the presidential race that year, President Donald Trump the Republican defeated his Democratic opponent, former Vice President Joe Biden, by 1.3 percentage points. There was significant talk of “Cooper-Trump” voters, one North Carolina political scientist estimated roughly eight to

twelve percent said they would vote this way shortly before the election.³⁷ Turnout can also vary considerably and many voters participate in only one or a few of the elections used for analysis. When measured as a proportion of registered voters, turnout increased six percentage points over 2016 in the 2020 North Carolina election for president. Turnout also varies geographically. Eighty percent of registered voters in Wake County cast a ballot in 2020, only 62 percent of their counterparts in Robeson County did.

Research on Ohio and Wisconsin, two states at the epicenter of redistricting battles, demonstrates the problem of what election(s) to use. The Krasno et al (2019) paper cited earlier revealed that, in addition to the choice of diagnostic method, the choice of election had a material effect on whether an analyst could reasonably describe the 2010 Wisconsin state district plan as a gerrymander or not. Redistricting experts Micah Altman and Michael McDonald examined the competitiveness of various Ohio congressional district plans drawn after the 2010 census. “District competitiveness”, a component of a formula reformers used to judge the maps somewhat arbitrarily set at 55-45 or less, provided diverse outcomes depending on the baseline election data used (Altman and McDonald 2017).

This problem also afflicts a recent approach to the analysis of district plans I did not consider in the previous section. Armed with sophisticated software, researchers can now use computer algorithms to generate large numbers of alternative maps by combining VTDs that are contiguous and equal in population. This method can produce thousands of maps that, although generally ignoring criteria such as compactness and the maintenance of other

³⁷ This was Christopher Cooper of Western Carolina University (McElroy 2020).

jurisdictions like counties and communities of interest, are drawn without knowledge of partisan voting patterns. Any particular map is said to demonstrate an intolerable partisan gerrymander if it produces returns that are distant from those of the mean or median of all the computer-generated maps (Chen and Rodden 2015).³⁸

Finally, the problem of baseline election results also afflicts *post facto* analyses of district plans. Goedert (2017) has shown that plans considered partisan gerrymanders often produce more competitive elections than those considered “bipartisan”. This is the result of the so-called “dummymander”, where the majority party in the state legislature enacts plans in which its voters are distributed so thinly across districts that although it might enjoy considerable advantages in theory and the short-term, the minority benefits in the longer term, especially in the aftermath of “wave” elections. Grofman and Brunell (2005) argue this is what happened to the 1990 Democratic “gerrymander” of North Carolina congressional districts. From the perspective of later in the decade, therefore, a plan that originally seemed biased in favor of the state legislative majority party can appear biased toward the opposition. It is not, therefore, what is usually called a partisan gerrymander.

This concern with the choice of baseline elections motivated Stephanopoulos and McGhee’s efficiency gap. They claim a principal strength of their method is that it does not use exogenous election results but the outcomes of the actual legislative contests fought using the plan in question. This is not without problems, however. It is difficult to know

³⁸ This was the method by which the North Carolina Senate drew state legislative maps following the order from the Court in *Common Cause*. It took five simulated maps and selected between them by lottery.

what to do with uncontested races when calculating statewide party vote totals. Moreover, because candidates win their seats with a plurality of the vote, they have no incentive to maximize. This undermines our capacity to understand the true statewide Democratic and Republican votes under a plan.

v. The Concept of “Community”

One last point regarding analytical challenges. The plaintiffs in *NCLCV* refer repeatedly to the belief that legislators’ district plans should have maintained “communities” of Democratic voters and, especially, Black citizens. What precisely constitutes a “community of interest” for the purposes of redistricting has long been disputed. The term is unavoidably vague. Communities are ill-defined and surely many of them overlap or are nested within others. It is therefore impossible to understand whether the plaintiffs’ optimized maps are really an improvement in the number of communities maintained, regardless of the central feature of such communities.

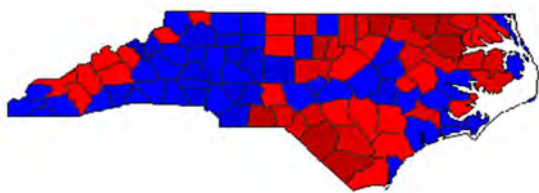
VII. A Recent History of North Carolina Party Politics

i. Method

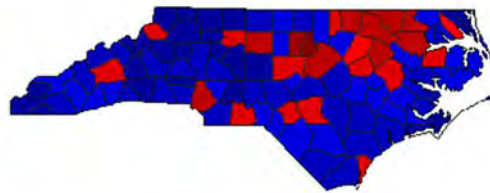
In this final section, I deploy my knowledge of and survey the academic literature on party politics, particularly in North Carolina.

ii. The Changing Geographic Character of North Carolina Democratic and Republican Voters

The two figures below show county returns for the competitive 1992 (left) and 2020 (right) presidential elections in North Carolina. The data are taken from uselectionatlas.org, a highly reputable source of presidential election data. The counties won by the Democratic candidates (Bill Clinton and Joe Biden) are marked in red (unfortunately the site prefers to give the parties the colors opposite to those assigned to them in today's popular culture) and those won by the Republicans (George H.W. Bush and Donald Trump) in blue. Deeper shading denotes a larger margin of victory. Bush beat Clinton in North Carolina in 1992 by 0.8 percentage points (Ross Perot won 13.7 percent of the vote) and Trump beat Biden in 2020 by 1.3 percentage points.



Clinton (red) v. Bush (blue), 1992



Biden (red) v. Trump (blue), 2020

Note the significant differences. Some areas, such as the counties in northeastern North Carolina and the foothills surrounding Charlotte voted for the same party in both elections, but most of southeast North Carolina became Republican. This is also true of a lot of rural counties in the center and far western part of the state. At the same time, urban areas became more Democratic. In 1992, Bush won Forsyth and Mecklenburg counties and narrowly lost Wake. Trump was defeated in all three in 2020, in Mecklenburg and Wake by around 30 percentage points.

The contrasting figures demonstrate a significant change in North Carolina’s political geography. Democrats used to do well in rural areas, especially in the eastern part of the state. Republicans were competitive in urban and suburban areas. That is no longer true. The transformation is not the result of redistricting. Neither, clearly, were the significant gains Republicans made in congressional and state legislative seats in North Carolina in the 1990s and first decade of this century.

How does this happen? Much of it is a function of slow social and economic forces that only reveal themselves over several decades or redistricting cycles. Most individuals vote for candidates of the party with which they identify—according to 2020 exit polls around 95 percent of self-proclaimed Democrats and Republicans in North Carolina voted for the presidential candidate of the party they linked themselves to. But it can also be explained by choices that parties and their leaders, candidates, and activists make. North Carolina’s population is changing rapidly with large numbers of newcomers entering the state annually, the state grew by about nine percent or 850,000 people between 2010 and 2018. They are ripe for socialization into its politics. Today, North Carolina has about 2.3 million unaffiliated voters (roughly a third of the total) whose allegiances are up for grabs.

The Shor-McCarty (Shor and McCarty 2011) measures of state legislative party ideology cited earlier, moreover, reveal that between 2008 and 2018 the median North Carolina House Democrat moved .215 points to the left and the median Senate Democrat .008 points to the left. At the same time research showed North Carolina public opinion

to be moving in the opposite direction (Berry et al 1998).³⁹ Other research suggests Democratic national elites are today to the left of Democratic voters (Furnas and LaPira 2021). Decisions made by the parties’ organizational leaders, elected officials, and activists have significantly contributed to these developments.

Candidates are certainly captive to the reputation of the party whose label they must run with on the ballot (Grynaviski 2013). However, it is also true voters are responsive to candidates’ positions on particular issues and their skills as campaigners.⁴⁰ They also engage in spatial voting or the exercise of choosing the candidate they feel is closer to them ideologically.⁴¹ On balance, this extensive research suggests that parties can greatly influence primary outcomes and by nominating candidates suited to their political surroundings can markedly improve their chances of winning in a district (Hassell 2017). Alternatively, party leaders and motivated activists can leave in place internal rules and procedures and go to the courts to move district lines to benefit their candidates so they may continue to select the same individuals to represent their party in general elections.

VIII. Conclusion

There are two analytical approaches to the investigation of the phenomenon typically called a “partisan gerrymander”. Researchers can examine individual districts or the larger

³⁹ Updated data can be found at: <https://rcfording.com/state-ideology-data/>

⁴⁰ This is a huge literature. A good example is Herrnson and Curry (2011).

⁴¹ This is also a large literature. An influential work is Jessee (2012).

district plan. I have chosen the latter. I have done this for two reasons. First, it is more consistent with my expertise. I am not a mathematician or computer scientist like some of the plaintiffs, but I have spent over two decades observing and writing about American and North Carolina politics and have broad and deep understanding of the complex issues and academic literature on state legislatures, elections, and redistricting. Second, the considerable time constraints placed on me prohibits a detailed district-by-district statistical analysis of the congressional, state Senate, and state House plans.

In the first section of my report, I argue that the process used by the North Carolina General Assembly to create and enact the district plans was consistent with the provisions of the Constitution of North Carolina that speak directly to redistricting. The second section covers my evaluation of the plaintiffs’ claims that the plans violate political science’s understanding of free elections, equal protection, freedom of speech, and freedom of assembly. Next, I explain the difficulty of identifying plans afflicted with a “partisan gerrymander”, the problems with the methods used in these types of studies, and the contradictions between various characteristics—namely proportionality and district-level competitiveness of the parties—many would like to see maps exhibit. In the fourth section, I address additional issues with conceptualization and analysis, particularly those of baseline assumptions. I conclude with a brief look at the state political parties and how they enjoy agency in general elections the critics of district plans imply they do not.

The plaintiffs in *NCLCV* claim to have “harnessed the power of high-performance computers, and employed cutting-edge computational methods and resources, to draw

alternative maps”.⁴² They claim their plans “avoid the partisan gerrymandering and racial vote dilution that mark the Enacted Plans (those approved by the state legislature), while also improving on the Enacted Plans’ compliance with the laws and legitimate policies governing redistricting in North Carolina.” The plaintiffs state the General Assembly’s plans should be rejected because they “cannot withstand the scrutiny of math and science”.⁴³

I believe as an expert in the field of political science, the plaintiffs in *NCLCV* have much less command of other subjects more central to redistricting. Their approach glosses over the challenges posed by the evaluation of district maps for properties of partisan gerrymandering. There is no clear consensus among political scientists on the meaning of a partisan gerrymander as a political concept. The choice of baselines necessary for this analysis is a contentious exercise. General and voting-age populations live in such ways as to give states features that contribute to what many might call a natural gerrymander. The preferences of individual voters are often undiscernible, but when they do present themselves they can be fluid and vary temporally and across offices. Candidates and political parties are not helpless in structuring voters’ behavior. We understand a partisan plan is measured along several dimensions, but we cannot fully agree on the importance to assign to each one and therefore what is the best way to assess a district map. We also know that efforts to maximize along different dimensions can sometimes be complementary and at other times incompatible.

More importantly, I believe based upon my analysis of North Carolina’s political history, the state’s redistricting tradition compels the enacted plans. The question is not whether the

⁴² Verified complaint in *NCLCV v. Hall*, p. 62.

⁴³ Verified complaint in *NCLCV v. Hall*, p. 4.

plaintiffs' plans are in some way superior. It is whether the enacted plans are lawful. The process the North Carolina General Assembly used was consistent with the framework of redistricting in the state, a bar that is low given the uniquely considerable latitude the state's statutes and constitution give the legislature to consider and approve maps. Political concepts cited by the plaintiffs have little-to-nothing to do with common understandings of the practice of redistricting as it is done in North Carolina or the United States. Those who want different redistricting outcomes should work through the political process to obtain them. The people can elect different legislators or alter other critical features of our politics that make the results of legislative elections so distasteful to them. The people can change the law to provide us with a new method of drawing single-member districts such as the independent non-partisan redistricting committee of House Bill 69 that, in 2019, gathered 66 co-sponsors from both parties. Or, alternatively, the people can enact a thorough overhaul of their electoral system by amending their constitution. For the courts to make such a change is inconsistent with the principle of separation of powers or the manner in which the state's constitution has historically been applied.

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APPENDIX A

December 2021

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Professional Experience

Professor of Political Science, North Carolina State University, 2007-Present
Chair, Department of Political Science, North Carolina State University, 2006-10
Associate Professor of Political Science, North Carolina State University, 2001-7
Assistant Professor of Political Science, North Carolina State University, 1995-2001
Adjunct Instructor of Political Science, University of Connecticut at Hartford, 1991-5

Education

Ph.D. Political Science, University of Connecticut, 1995.
M.A. Government, Lehigh University, Bethlehem, Pennsylvania, 1990.
B.A. American Studies (Politics and Government), University of Kent at Canterbury, United Kingdom, 1988.

Publications

Books:

The End of Consensus: Diversity, Neighborhoods, and the Politics of Public School Assignments (Chapel Hill: University of North Carolina Press, 2015) with Toby L. Parcel
(Reviewed in *Teachers' College Record*, *Contemporary Sociology*, *Southern Spaces*, *Social Forces*)

Congress: A Performance Appraisal (Boulder, CO: Westview Press, 2013)
(Subject of New Books in Political Science podcast, Huffington Post piece; reviewed in *Political Science Quarterly*)

The Floor in Congressional Life (Ann Arbor: University of Michigan Press, 2012)
(Reviewed in *Party Politics*, *Political Science Quarterly*, *Congress and the Presidency*, *Perspectives on Politics*)

Elephant's Edge: The Republicans as a Ruling Party (Westport, CT: Praeger, 2005)
(Reviewed in *New York Times*, *Political Science Quarterly*, *Perspectives on Politics*; starred review in *Library Journal*, highly recommended by *Choice*; discussed in articles in *Los Angeles Times*, *New York Daily News*)

Publications (cont.):

Articles in Refereed Academic Journals:

“The Individual-Level Origins of Congressional Corruption Scandals,” *American Politics Research*, 48 (July 2020): 442-54. (with Michael D. Cobb).

“Partisan Affiliation in Political Science: Insights from Florida and North Carolina,” *PS: Political Science and Politics*, 52 (October 2019): 706-10 (with Lonna Rae Atkeson).

“Legislative Seniority in the Partisan Congress,” *Social Science Quarterly*, 100 (June 2019): 1297-1307.

“The Revolution in Federal Procurement, 1980-Present,” *Business and Politics*, 21 (March 2019): 27-52.

“Proximity and the Principle-Policy Gap in White Racial Attitudes: Insight from Views of Student Assignment Policies in Wake County, North Carolina,” *Social Science Research*, 79 (February 2019): 95-103 (with Toby L. Parcel).

“Which U.S. House Members Present Their Legislative Records? Models of Electoral Accountability and the Content of Press Releases,” *Congress and the Presidency*, 44 (1, 2017): 102-19.

“An Absence of Malice: The Limited Utility of Campaigning Against Party Corruption,” *American Politics Research*, 43 (November 2015): 923-51 (with Michael D. Cobb).

“Bill Passage Speed in the U.S. House: A Test of a Vote-Buying Model of the Legislative Process,” *Journal of Legislative Studies*, 3 (September 2014): 285-304.

“Paging Congressional Democrats: It Was the Immorality Stupid,” *PS: Political Science and Politics*, 47 (April 2014): 351-6 (with Michael D. Cobb).

“When Congress Asserts Itself: Examining Legislative Challenges to Executive Power,” *The Forum*, 10:2 (Article 2), July 2012.

“Does Presidential Primary and Caucus Order Affect Policy? Evidence from Federal Procurement Spending,” *Political Research Quarterly*, 63 (June 2010): 398-409.

“Strategic Inter-cameral Behavior and the Sequence of Congressional Lawmaking,” *American Politics Research*, 36 (May 2008): 451-74.

“The Presidential Pork Barrel and the Conditioning Effect of Term,” *Presidential Studies Quarterly*, 38 (March 2008): 97-110.

“Size, Power, and Electoral Systems: Exogenous Determinants of Legislative Procedural Choice,” *Legislative Studies Quarterly*, 31 (August 2006): 323-45.

Publications (cont.):

Articles in Refereed Academic Journals (cont.):

“The Personal and Political in Repeat Congressional Candidacies,” *Political Research Quarterly*, 58 (December 2005): 599-607. (with Robert G. Boatright).

“Conditional Party Government and Campaign Contributions: Insights from the Tobacco and Alcoholic Beverage Industries,” *American Journal of Political Science*, 47 (April 2003): 293-304.

“Are Women Legislators Less Effective? Evidence from the U.S. House in the 103rd-105th Congresses,” *Political Research Quarterly*, 56 (March 2003): 19-27. (with Alana Jeydel).

“The Ideological Roots of Deficit Reduction Policy,” *Review of Policy Research*, 19 (Winter 2002): 11-29.

“A New Democrat? The Economic Performance of the Clinton Presidency,” *The Independent Review*, 5 (Winter 2001): 387-408. (with John W. Burns).

“Congress as Principal: Exploring Bicameral Differences in Agent Oversight,” *Congress and the Presidency*, 28 (Fall 2001): 141-59.

“The Mythical Causes of the Republican Supply-Side Economics Revolution,” *Party Politics*, 6 (October 2000): 419-40. (with John W. Burns).

“The Congressional Budget Process in an Era of Surpluses,” *PS: Political Science and Politics*, 33 (September 2000): 575-80. (Reprinted in, Michael LeMay, *Public Administration: Clashing Values in the Administration of Public Policy*, (Belmont, CA: Wadsworth/Thomson Learning, 2005)).

“Explaining Government Productivity,” *American Politics Quarterly*, 26 (October 1998): 439-58.

“Domestic Agenda Setting, 1947-1994,” *Legislative Studies Quarterly*, 23 (August 1998): 373-97.

“The Legislative Strategies of Independent and Third Party Executives,” *Southeastern Political Review*, 26 (March 1998): 3-23.

“The Ideological Development of the Parties in Washington, 1947-1994,” *Polity*, 19 (Winter 1996): 273-92.

“The Ideological Development of the Modern Republican President,” *Presidential Studies Quarterly*, 26 (Spring 1996): 374-9.

“Historical Analogies in the Congressional Foreign Policy Process,” *Journal of Politics*, 57 (May 1995): 460-8. (with John T. Rourke).

Publications (cont.):

Chapters in Edited Volumes:

“Legislative Speech in Presidential Systems,” in Hanna Back, Marc Debus, and Jorge M. Fernandes (eds.) *The Politics of Legislative Debate*, (New York: Oxford University Press, 2021), pp. 51-71.

“Leading the Minority: Guiding Policy Change through Legislative Waters,” in Sean Q. Kelly and Frank H. Mackaman (eds.) *Robert H. Michel: Leading the Republican House Minority*, (Lawrence: University Press of Kansas, 2019), pp. 115-139.

“A Study in Contrasts: Race, Politics, and the History of School Assignment Policies in Charlotte-Mecklenburg and Wake County, North Carolina,” in Roslyn Arlin Mickelson, Stephen Samuel Smith, and Amy Hawn Nelson (eds.) *Yesterday, Today, and Tomorrow. School Desegregation and Resegregation in Charlotte*, (Harvard Education Press, 2015), pp. 85-100. (with Toby L. Parcel and Joshua A. Hendrix).

“Voting on the Floor: Members’ Most Fundamental Right,” in Jamie Carson (ed.), *New Directions in Congressional Politics*, (New York: Routledge, 2011), pp. 143-62.

Other Academic Publications:

“The 2020 Elections in North Carolina”, *Political Economy in the Carolinas*, forthcoming.

“The Expert in American Life”, *National Affairs*, (Fall 2021, No. 49), 141-55.

“Reforming the Appropriations Process”, *National Affairs* (Spring 2019, No. 39), 33-49.

“How Far Is Too Far? Gender, Emotional Capital and Children's Public School Assignments”, *Socius*, 2 (2016) (with Toby L. Parcel and Joshua A. Hendrix).

“The Challenge of Diverse Public Schools,” *Contexts*, 15 (Winter 2016): 42-47 (with Toby L. Parcel and Joshua A. Hendrix).

“Power Divisions in Governments,” in Frank N. Magill (ed.), *Survey of Social Science: Government and Politics Series* (Pasadena CA: Salem Press, 1995), 1578-83.

“Teaching Politics Panoramically: American Government and the Case Method,” *PS: Political Science and Politics*, 27 (September 1994): 535-7.

“A Proper British Revolution? How the Public Views Constitutional Reform,” *The Public Perspective*, July/August 1994, 31-4. (with W. Wayne Shannon).

Conference Papers_____

American Political Science Association, 2021, 2018, 2017, 2015, 2014, 2013, 2010, 2006, 2005, 2004, 2003, 2002, 2001, 1999, 1998, 1997, 1996, 1994.

Midwest Political Science Association, 2021, 2018, 2017, 2015, 2013, 2012, 2011, 2010, 2008, 2007, 2006, 2005, 2003, 2002, 2001, 1996, 1994, 1992.

Southern Political Science Association, 2021, 2020, 2019, 2017, 2016, 2001, 1998, 1997.

Western Political Science Association, 2019.

Citadel Symposium on Southern Politics, 2020.

Northeastern Political Science Association, 1992, 1991.

New England Political Science Association, 1992.

North Carolina Political Science Association, 2003, 1999, 1996.

World Association for Public Opinion Research, 1994.

Selected Major Grants and Other Revenue Generated (Extramural and NCSU Intramural)

John William Pope Foundation and Charles G. Koch Charitable Foundation for, “The Free and Open Societies Project” - \$327,250 total: 2022, (\$73,000), 2021 (\$98,750), 2020 (\$155,500).

U.S. Embassy, London, “Build Your Own Campaign” program for British high school students, 2016 - \$56,138.

John William Pope Foundation for, “The Economic, Legal, and Political Foundations of Free Societies” (with Steve Margolis) - \$1.638 million total: 2014, (\$426,000 overall, \$268,000 for teaching and research in political science); 2009 (\$700,000 overall, \$274,200 for political science), 2004 (\$511,500 overall, \$214,000 for political science).

Fidelity Investments, support for NCPSA meeting, 2014 - \$5,000 (in kind).

Dail Endowment in Political Science, 2013 - \$145,800.

NCSU School of Public and International Affairs Summer Grant - \$10,000 total: 2013 (\$5,000), 2012 (\$5,000).

Charles G. Koch Charitable Foundation, “Programs in the Classical Liberal Tradition,” and other projects (with Steve Margolis before 2017) - \$219,500 total: 2018 (\$63,000); 2017 (\$74,200); 2015 (\$23,300); 2014 (\$19,000); 2013 (\$18,000), 2012 (\$9,000), 2011 (\$9,000), 2010 (\$4,000).

NCSU Distance Education and Learning Technology Applications IDEA Grant, \$10,500 total 2009 (\$8,000), 2003 (\$2,500).

U.S. Department of State for, “U.S. Elections Program for Brazilian Fulbrighters” (with Michael Bustle, David McNeill, and Richard Kearney), 2008 - \$75,000.

Dirksen Congressional Center Congressional Research Award - \$3,663 total: 2003 (\$3,163), 1994 (\$500).

NCSU University and College of Humanities and Social Sciences (CHASS) Summer Grants - \$17,000 total: 2003 (\$5,000), 1999 (\$4,000), 1997 (\$4,000), 1996 (\$4,000).

Invited Academic Talks

University of North Carolina at Chapel Hill, 3/03.

East Carolina University, 10/04.

University of North Carolina at Greensboro, 9/09.

University of Surrey (UK), 5/11.

NC State College of Education, 2/13, 3/15.

Shanghai Jiao Tong University (China), 4/16.

Wake Forest University, 10/16.

National Affairs (Capitol Hill, Washington DC), 6/19.

Principal Administrative and Leadership Appointments

Director, Free and Open Societies Project, 2019-Present

- Approx. \$100k annual budget
- Speaker series, student group, student seminars, free speech conference, research assistants, undergrad research grants, internship support, social media presence

Co-Director, The Economic, Legal and Political Foundations of Free Societies program, 2004-2018;
Director 2018-2019

- Approx. \$85k annual budget
- Speaker series, student group, student seminars, faculty and grad students research support, undergrad research grants, internship support

Chair, Department of Political Science, 2006-10.

- Instrumental in establishment of School of Public and International Affairs
- Managed \$2 million budget
- Approx. 600 majors
- Quadrupled the number of women in tenure-track positions
- Demonstrable improvement in majors' experiences according to exit surveys
- Established formal and transparent rules on program assessment, faculty annual evaluation processes, teaching loads, promotion and tenure guidelines, adjunct and summer school pay

Director, M.A. Program in Political Science, 1997-99; 2000-5

Professional Honors

NCSU CHASS's Outstanding Research Award, 2013-14.

Nominated for NCSU Alumni Association Outstanding Research Award, 2013-14.

President of North Carolina Political Science Association, 2012-13.

John W. Pope Center for Higher Education Policy's "Spirit of Free Inquiry" Award (for course, Public Choice and Political Institutions), 2010.

NCSU Libraries "Fantastic Faculty" honoree, 2008-9.

NCSU Outstanding Extension Service Award, 1999-2000, 2003-4.

NCSU CHASS's Lonnie and Carol Poole Award for Excellence in Teaching, 1998-9.

Nominated for NCSU CHASS's Outstanding Junior Faculty Award, 1997-8, 1998-9.

Oral Parks Award for best Faculty Paper presented at the 1996 North Carolina Political Science Association meeting, 1997.

Phi Kappa Phi 1995.

Phi Beta Kappa 1995.

University of Connecticut Excellence in Teaching Award, 1993.

Teaching and Mentoring

North Carolina State University, Fall 1995-Present.

Courses taught:

- Introduction to American Government (Undergraduate, honors, distance ed., UNC Global Blended Learning Program in China)
 - The Presidency and Congress (Undergraduate, distance ed.)
 - American Parties and Interest Groups (Undergraduate)
 - Public Policy Process (Doctoral program)
 - Seminar in American Politics (Undergraduate and graduate)
 - Legislative Process (Undergraduate)
 - Workshop in Politics (Undergraduate)
 - Public Choice and Political Institutions (Undergraduate)
 - The Classical Liberal Tradition (Undergraduate and honors)
 - The Conservative Tradition in the West (Undergraduate and honors)
 - Election 2020 (Honors)
-
- Ph.D. dissertation committees (Public Administration & Economics at NCSU, Political Science at UNC): 9 (including one chair)
 - Master's theses supervised: 5
 - Undergraduate honors thesis supervised: 12 (including runner-up Pi Sigma Alpha national competition for best Honor's thesis)
 - Park Scholars Mentor: 2010-16
 - Taught distance education courses since 1997-8, pioneer in the development of such courses at NC State

University of Connecticut, Spring 1991-Spring 1995

Courses taught (in addition to those taught at N.C. State):

- Constitutional Interpretation
- Introduction to Comparative Politics

Fellowships

American Political Science Association Congressional Fellow (Steiger Fellow), 1999-2000:

- Steiger fellow, named for Rep. Bill Steiger (R-WI), who served 1966-78
- given to fellow best equipped to promote the interests of Congress as an institution and who best represents Steiger's values; a man of "exceptional talent, drive, and integrity"

University of Connecticut Pre-Doctoral Fellowships, 1990-1, 1991-2, 1992-3 (\$6,000 each).

Select University and Professional Service

Heterodox Academy Political Science Community Co-Leader, 2021-Present
School of Public and International Affairs, Executive Committee, 2021-Present
Campus Conversations Project, 2021-Present
Chair, Presidential Politics Division, Southern Political Science Association, 2022, 2001
Secretary, Classical Liberals of the Carolinas, 2019-Present
Apex High School Academy of Information Technology, Board Member, 2018-Present
Institute for Humane Studies (IHS), Graduate Student & Early Career Mentoring, 2017-Present.
NCSU Faculty Advisor, Leaders for Political Dialogue, 2017-Present.
Senior Editor, *Political Economy of the Carolinas*, 2017-Present.
NCSU School of Public and International Affairs Task Force Chair, Methods 2015-16; F&A Distribution, 2015-16.
NCSU Honors Advisory Board & Admissions Committee, 2014-2018.
Treasurer, North Carolina Political Science Association, 2014-Present.
Program Chair, North Carolina Political Science Association Meeting, 2014.
Co-Chair NCSU CHASS Dean's "Heart of the Matter" Initiative, 2013-15.
NCSU Reappointment, Promotion, and Tenure Committee, 2012-14.
Chair NCSU CHASS Reappointment, Promotion, and Tenure Committee, 2011-12.
NCSU CHASS Associate Director of Development Search Committee, 2011.
American Political Science Association's Albert Dissertation Prize Committee, 2009-10.
The Foundation for Ethics in Public Service, Advisory Board, 2009-12.
NCSU CHASS Committee on Extension, Engagement, and Economic Development, 2008-12.
Coordinator, RTI-NCSU CHASS initiative, 2006-12.
American Political Science Association's Legislative Studies Section Fenno Book Prize Committee, 2015-16, 2005-6.
NCSU Department of Political Science and Public Administration/School of Public and International Affairs Dean's Head/Director Search Committee, 1997-8, 2005-6, 2011-12.
NCSU Department of Political Science and Public Administration Scholars, Honors, and Study Abroad Committee, 2004-6.
NCSU CHASS Research Committee, 2004-7.
NCSU Washington Internship Committee, 2004-7.
NCSU CHASS Curriculum Committee, 2002-4.
Faculty adviser, Truman Scholars Program, NCSU, 2001-4.
NCSU Courses and Curricula Committee, 2002-4.
NCSU Department of Political Science and Public Administration "Structural Issues" Committee (recommended the creation of School of Public and International Affairs), 2000-2.
NCSU CHASS Graduate Studies Committee, Chair, 1998-9.
NCSU Department of Political Science and Public Administration Ph.D. Steering Committee, 1998-2001.
Faculty advisor, NCSU College Republicans 1996-9, 2000-Present; North Carolina Student Legislature, 2005-2012; Young Americans for Liberty 2016-18, 2020-Present; College Libertarians 2018-Present; Society for Politics, Economics, and the Law (SPEL), 2019-Present; Young Americans for Freedom, 2020-Present; The FreePack, 2021-Present.
NCSU Department of Political Science and Public Administration/School of Public and International Affairs Faculty Search Committee, 1995-6, 1998-9, 2000-1, 2001-2 (chair), 2007-8 (chair), 2011-12, 2013-14 (chair).

Book Reviews

The Polarizers: Postwar Architects of our Partisan Era, by Sam Rosenfeld, *Party Politics*, 26 (2020): 264-5.

The Coddling of the American Mind: How Good Intentions and Bad Ideas are Setting Up a Generation for Failure, by Greg Lukianoff and Jonathan Haidt, *Political Economy in the Carolinas*, 2 (2019): 118-20.

Politics Over Process: Partisan Conflict and Post-Passage Processes in the U.S. Congress, by Hong Min Park, Steven S. Smith, and Ryan J. Vander Wielen, *Congress and the Presidency*, 46 (2, 2019): 344-45.

Defying the Odds: The 2016 Elections and American Politics, by James W. Ceaser, Andrew E. Busch, and John J. Pitney, Jr., *American Review of Politics*, 36 (2, 2018): 109-10.

The Rise and Fall of the Voting Rights Act, by Charles S. Bullock III, Ronald Keith Gaddie, and Justin J. Wert, *The North Carolina Historical Review*, 84 (January 2017): 120-1.

Legislating in the Dark: Information and Power in the House of Representatives, by James M. Curry, *Congress and the Presidency* 43 (3, 2016): 401-3.

The Senate Syndrome: The Evolution of Procedural Warfare in the Modern U.S. Senate, by Steven S. Smith, *Perspectives on Politics*, 13 (December 2015): 1168-9.

Seeking a New Majority: The Republican Party and American Politics, 1960-1980, edited by Robert Mason and Iwan Morgan, *Party Politics*, 21 (May 2015): 494-5.

The Challenge of Congressional Representation, by Richard F. Fenno, *Perspectives on Politics* 12 (June 2014): 490-1.

The Tea Party: Three Principles, by Elizabeth Price Foley, *American Review of Politics* 34 (Spring and Summer 2013): 151-3.

Painting Dixie Red: Where, When, Why and How the South Became Republican, ed. by Glenn Feldman, *The North Carolina Historical Review*, 79 (October 2012): 457-8.

The Roots of Modern Conservatism: Dewey, Taft, and the Battle for the Soul of the Republican Party, by Michael Bowen, *The North Carolina Historical Review*, 79 (April 2012): 231-2.

On Thinking Institutionally, by Hugh Heclo, *Modern Age*, 52 (Spring 2010): 158-60.

The New Politics of North Carolina, edited by Christopher A. Cooper and H. Gibbs Knotts, *The North Carolina Historical Review*, 76 (January 2009): 108.

The Paradox of Tar Heel Politics: The Personalities, Elections, and Events that Shaped Modern North Carolina, by Rob Christensen, *The North Carolina Historical Review*, 75 (October 2008): 451-2.

The Right Talk: How Conservatives Transformed the Great Society into the Economic Society, by Mark A. Smith, *Perspectives on Politics*, 6 (September 2008): 611-12.

Politics and Religion in the White South, ed. by Glenn Feldman, *The North Carolina Historical Review*, 73 (April 2006): 288-9.

Vicious Cycle: Presidential Decision Making in the American Political Economy, by Constantine J. Spiliotes, *The Independent Review*, 8 (Summer 2003): 135-8.

The Political Party Matrix: The Persistence of Organization, by J.P. Monroe, *American Political Science Review* 96 (June 2002): 430.

Party Decline in America: Policy, Politics, and the Fiscal State, by John J. Coleman, *Congress and the Presidency* 24 (Spring 1997): 97-9.

Cultivating Congress: Constituents, Issues, and Interests in Agricultural Policymaking, by William P. Browne, *Journal of Politics* 58 (November 1996): 1222-4.

Other Professional Activities

Media Commentary:

Hundreds of appearances on television and radio; source for and quoted in hundreds of print stories. Principally: *The News and Observer* (Raleigh, NC), WRAL-5 (Raleigh, NC), WTVD-11 (Raleigh, NC), WPTF-680 (Raleigh, NC), WUNC-TV (RTP, NC), Public Radio WUNC (Chapel Hill, NC), News Channel 14 North Carolina, Curtis Media Group radio stations (particularly *Carolina Newsmakers* and *The Commentators*) Carolina Journal, NC Spin.

Other Appearances: *The Hartford Courant*, *The Washington Times*, WLFL-22 (Raleigh, NC), Australian Broadcasting Corp., BBC Radio Humberside, Knight-Ridder Newspapers, *The Fayetteville Observer-Times*, *Apex Herald*, WTRG 100.7 (Raleigh, NC), *The Citizen-Times* (Asheville, NC), *The Winston-Salem Journal*, Associated Press, *Durham Herald-Sun*, *Laurinburg (NC) Exchange*, *Triangle Tribune* (Durham, NC), *McDowell News* (Marion, NC), *Hendersonville (NC) Times-News*, *Transylvania Times* (Brevard, NC), *Kiplinger Letter* (Washington, D.C.), *Charlotte Observer*, Fox News Channel (national cable news), *Greensboro (NC) News and Record*, Cox Newspapers, WQDR 94.7 (Raleigh, NC), WXII-1200 (Boone, NC), *Wilmington (NC) Star-News*, *Congressional Quarterly*, Reuters, *Christian Science Monitor*, *Boston Globe*, *Rocky Mount (NC) Telegram*, National Public Radio (“All Things Considered”, “Marketplace”, “1A”), NBC-6 (Charlotte, NC), *The Los Angeles Times*, *North Carolina Political Review*, *The New York Times*, *Dallas Morning News*, *Burlington (NC) Times-News*, *National Journal’s Congress Daily/A.M.*, *The Cook Report*, Open/net (NC state government tv show), *Dagens Nyheter* (Swedish newspaper), *Politics in America*, Elizabeth City (NC) *Daily Advance*, Freedom Newspapers, Greenville (NC) *Daily Reflector* (Reflector.com), *Triangle Business Journal*, *Eastern Wake News*, Vermont Public Radio, *Daily Herald* (Roanoke Rapids, NC), *High Point (NC) Enterprise*, *Wall Street Journal*, *Pittsburgh Post-Gazette*, NewsTalk 106 (Dublin, Ireland), *The Sunday Times* (of London), Nippon tv. (Japan), State Government Radio (NC), Fairchild Publications, Scripps-Howard, ABCNews.com, *Washington Post*, Newhouse Newspapers, *Nubian Message*, CNBC-Asia, *Carolina Journal Radio*, *The Pamlico (NC) News*, *New York Daily News*, Public Radio WFAE (Charlotte), *Atlanta Journal-Constitution*, Salon.com, *Chattanooga Times Free Press*, WTN 99.7 (Nashville), *US News and World Report*, News Radio 1020 KDKA (Pittsburgh), *Indianapolis Star*, *Virginia Pilot*, Bloomberg News, *National Journal*, WBT 1110 (Charlotte news), *Daily Dispatch* (Henderson, NC), *Time Magazine*, *Correio Braziliense* (Brazilian newspaper), C-SPAN, News Talk WDBO-580 (Orlando), Public Radio WHYY (Philadelphia), CNNMoney.com, *O Estado de Sao Paulo* (Brazilian newspaper), VoterRadio.com, *Frankfurter Allgemeine Zeitung* (German newspaper), *Charlotte Magazine*, Delaware Talk Radio, *The Guardian* (U.K. paper), *The Weekly Standard*, Waterbury (CT) *Republican-American*, *USA Today*, EFE (Spanish language news agency), BBC Radio 4, *The Scotsman* (Scottish national paper), *Tax News and Analysis*, *Triangle Tribune*, *San Francisco Chronicle*, Agence France Press, Moneynews.com, *Arab Times* (Kuwaiti English newspaper), *The Gulf Times* (Qatari English newspaper), *The Khaleej Times* (English newspaper out of UAE), *The County Compass* (Bayboro, NC), CashWorks Productions (documentary, “Obama in NC”), *Pravda* (Slovakian newspaper), WXII-12 (Winston-Salem), Voice America Talk Radio, *The Independent Weekly*, *Politico*, WRAL-FM 101.5 (Raleigh), *The Daily Beast*, *Lee County (NC) Star-Tribune*, Carolina Journalism Network, *Excelsior* (Mexican newspaper), *Globe and Mail* (Canada), WERC-AM 960 (Birmingham, AL), WRDU 106.1 (Raleigh, NC), *Wilson (NC) Times*, *Christian Post*, Investor Place media, *World Magazine*, BBC.com, *Cary News*, *The State* (South Carolina), *Clayton (NC) News-Star*, *Governing Magazine*, WRAL.com, *Raleigh Public Record*, *Business Journal* (Charlotte), *Walter Magazine*, *Wake County Times*, *Roll Call*, *Duplin (NC) Times*, CNN, *National Review Online*, *Creative Loafing* (Charlotte), WSJS-600 (Greensboro, NC), *East Wake News*, *Charlotte Business Journal*, Jewish Telegraphic Agency, Brookings Institution, msnbc.com,

Other Professional Activities (cont.)

Media Commentary (cont.):

Irish Times, NC SPIN, GreenWire, *International Business Times*, *The Hill*, FoxNews.com, WCHL (Chapel Hill), *Daily Signal*, CNNPolitics.com, FoxNewsLatino.com, *CQ Weekly*, *The American Prospect*, *Talking Points Memo*, Townhall.com, *Rhino Times* (Greensboro, NC), Ozy.com, *Philanthropy Journal*, EnergyWire, *Garner-Cleveland Record*, *Politico Magazine*, Freedom Action Network Radio, Domecast, *Route Fifty*, *Chapel Hill News*, *Raleigh Magazine*, *Slate*, *North State Journal*, *NC Capital Connections*, *Mother Jones*, *Sierra Magazine*, Alhurra, tvnewscheck.com, Market Watch, *The Atlantic*, *Inside Higher Ed*, *Modern Healthcare*, BBC North America, CBC French Language Service, Inside Climate News, WLOS-ABC 13 (Asheville), HBO, *Piedmont Sundial*, *Asheboro Courier-Tribune*, *School Reform News*, *Robesonian*, *Sanford Herald*, NBCNews.com, *Clarín* (Argentine newspaper), NC Policy Watch, Martin Center for Academic Renewal, *Allegheny News*, *Education Week*, WWNC (Asheville, NC), Sinclair Broadcast Group, *The Hill*, Pew-Stateline, Ifobae (Argentinian news website), WGHP Fox 8 (Greensboro, NC), E&E News, States Newsroom.com, *New Statesman* (UK), CNBC.com, YLE (Finnish tv), France 24, Americans for Limited Government, WNCT (Greenville, NC).

Major Contributions:

- Called “the leading talking head of Tar Heel politics,” *News and Observer*, 11/05.
- Stories on which I have provided extensive analysis: presidential, congressional, gubernatorial, and local elections; presidential impeachments; UK politics including elections and Brexit; North Carolina politics; policy issues including education, government spending, taxes, health care, agriculture etc.
- Newspaper op-ed topics (mainly for *News and Observer* and prior to 2010) include: establishment of Connecticut income tax, Republican party politics, the flat tax, third party politics, North Carolina tobacco politics, reform of North Carolina legislature, John Edwards as possible Gore vice president, effect of 2000 election on voting procedures, ability of George W. Bush to govern, proposals for political reform in North Carolina, U.S. and war on terrorism, 2002 North Carolina U.S. Senate race, John Edwards 2004 presidential campaign, reform of NC House, 2006 election, 2008 North Carolina presidential primary, earmarks in Congress, land-use law in North Carolina.
- Column in *Carolina Journal* 2009-13, 2015-21 (monthly), 2021-present (periodic) (40,000 print subscribers, 40,000 unique monthly visitors to website, picked up by newspapers all over North Carolina with est. 300,000 circulation), topics include: NC and the stimulus, financing of elections, legislative term limits, merit pay for teachers, institutional thinking, tobacco industry, political leadership in NC, health care reform, American and French economic models, the role of a public university, 2010 elections, Newt Gingrich, the filibuster, 2010 NC Senate race, Wake County school board politics, 2012 primaries, “bailout fatigue”, Obama performance, donors to conservative causes, education reform, NC congressional delegation, 112th Congress, conservatism today, conservatives and foreign policy, municipal government, election administration, Anglo-American relationship, performance of NC General Assembly, Washington debt deal, income and voting, 2012 presidential race, ethics in politics, Romney presidential candidacy, NC same-sex marriage amendment, juridical democracy, runoff elections, Romney’s choice of Ryan, errors in conservatives’ thinking, 2012 election postmortem, gender differences in politics, UNC system, the Tea Party, unemployment in NC, Margaret Thatcher, Republican governance in NC, polarization in NC, voter identification, classical republicanism,

Other Professional Activities (cont.)

Media Commentary (cont.):

Major contributions (cont.)

- higher education funding, William F. Buckley Jr., party competition, diversity on campus, growth and equality, Trump candidacy, ideology in 2016, Brexit referendum, Republican strategy in 2016, China's challenge, conservative values, science politics, Democrats' "electoral lock", Obama and race, Trump election win, McCrory election loss, advocacy and force in politics, fake news, border-adjustment tax, public's sour mood, Millennials and politics, technocracy, 2018 midterm forecast, state Republicans' economic performance, the party system, political language, viewpoint diversity, Trump and Britain, partisan gerrymander, NRA in politics, Facebook, citizenship and census, NC teacher rally, counties in NC politics, 2018 referendums, Steyer and Trump, political nostalgia, NC's important members of Congress, 2018 midterm analysis, ballot harvesting, Trump's deals, direct democracy, federal deficit, slavery and the Electoral College, Corbyism, 2019 Supreme Court term, 2020 Democratic presidential contest, NC redistricting case, politics of 1970s, impeachment, partisan foreign policy, NC budget stalemate, 2020 NC Senate race, coronavirus and the Establishment, coronavirus in NC, slavery reparations, 25 years of NC politics, 2020 House elections in NC, Fed and inflation, 2020 election, Electoral College reform, Democrats' advantages, NC school districts, Biden's economics, UNC and Hannah-Jones, felon voting rights.

Periodic Reviews:

Policy Studies Journal, *Southeastern Political Review*, St Martin's Press, *Legislative Studies Quarterly*, *American Politics Quarterly/Research*, Worth Publishers, *Journal of Politics*, *American Journal of Political Science*, *Social Science Quarterly*, Houghton-Mifflin, *Political Studies*, *Political Research Quarterly*, *The Independent Review*, National Science Foundation, *American Political Science Review*, Praeger, *Political Behavior*, Compass Point Books, *Journal of Agricultural and Resource Economics*, *Congress and the Presidency*, *Public Choice*, Congressional Quarterly Press, University of Michigan Press, *Politics* (U.K.), *Journal of Public Administration and Policy Research*, *State Politics and Policy Quarterly*, Oxford University Press, John F. Blair Publishing, Palgrave MacMillan, *Journal of Political Marketing*, W.W. Norton, *Government and Opposition*, *PS: Political Science and Politics*, Emerald Press, *American Behavioral Scientist*.

Testimony and Consultancy:

- NC House Committee on Elections
- Coalition to End Gerrymandering
- *CSI v. Moore*

Tenure and Promotion Reviews:

University of Minnesota-Morris, UNC-Greensboro, Clark University, Lehigh University, Clemson University, University of Arkansas, University of Houston-Victoria, UNC-Charlotte.

Group Membership and Professional Activism:

- Foundation for Individual Rights in Education (FIRE) – instrumental in securing NC State "Green Light" status
- Heterodox Academy

Periodic Blog Entries:

- LSE American Politics and Policy Blog, IHS Learn Liberty Blog, LegBranch, The James G. Martin Center for Academic Renewal, Brookings Institution's FixGov Blog

Public Addresses:

- Triangle International Visitor's Council/International Focus (1996-2015), numerous and regular talks on American politics given to academics, journalists, practitioners, and politicians from all over the world.
- NCSU Presbyterian Campus Ministry Peace Lunch Forum, 9/95, 11/98, 11/00, 11/04, 2/06, 3/08, 11/08, 11/16.
- CHASS Dean's Advisory Board, 4/96, 11/98.
- B'nai Brith, 10/96, 12/98, 3/04.
- Area elementary schools, 11/96, 11/00, 10/09, 6/11.
- Beth Myer Jewish Women's Group, 11/96.
- Area Rotary clubs, 11/96, 3/99, 5/99, 6/08x2, 1/10, 2/16, 9/16, 7/18, 3/19.
- NCSU Alumni Association, 10/96, 11/96, 1/99, 4/99, 9/00, 4/01, 3/04, 10/08, 5/09, 8/12, 9/16.
- NCSU Osher Lifelong Learning Program, 10/96, 10/98, 10/00, 1/08, 9/08, 10/19.
- International Visitor's Council moderator in debate between British M.P.s and North Carolina state legislators, 9/98.
- Area high schools, 1/98, 3/99, 9/00, 9/02, 10/02, 2/03, 09/04, 12/04, 2/16, 10/16, 1/18, 2/18, 9/18, 11/18, 1/19, 3/19, 5/19x2, 12/19, 10/20, 11/21.
- Wake County Men's Democratic Club, 11/98.
- Wake County Young Republicans, 3/99, 9/99.
- Wake County National Association of Retired Federal Employees, 4/99, 9/04, 9/14.
- John Locke Foundation, 6/99, 10/05, 1/08, 10/08, 6/09, 1/13, 7/15, 2/18, 2/19, 3/21, 10/21, 11/21.
- Hugh O'Brian Youth Leadership Seminar, 6/99, 6/01, 6/02, 6/09.
- Russian Leadership Program, 9/99, 5/02.
- Research Triangle English Speaking Union, 9/99.
- Canadian Parliamentary Interns, Washington, D.C., 4/00.
- Raleigh Jaycees Political Forum, 10/00.
- St. Augustine's College, 10/00.
- Area residents' association, 10/00.
- NCSU honors/scholars students/Caldwell Fellows/student leadership, 10/00, 4/02, 1/04, 2/04, 2/06 (D.C. trip), 10/08, 10/10, 10/12, 3/15, 9/15, 3/16, 10/16, 11/16, 11/18, 9/19, 10/20.
- Wake County Republican Men's Club, 11/00, 5/06, 1/07.
- Wake County Republican Women's Club, 11/00, 3/02, 9/05, 10/15, 10/19.
- Raleigh Chamber of Commerce, 11/00, 11/08, 3/12, 4/13.
- NCSU retired faculty, 1/01, 3/04, 11/08, 2/16.
- Area Kiwanis clubs, 3/01, 12/06, 2/17, 11/21.
- NCSU Graduate School Board of Directors, 3/01.
- Republican Club of Fearington Village, 10/01.
- North Carolina Youth Legislative Assembly, 3/02.
- Westinghouse Retirement Group, 8/02, 2/03.
- NCSU CHASS-sponsored public event, 9/02, 10/08, 11/16, 9/19.
- North Carolina World Trade Association, 10/02.
- European Marshall Memorial Fellowship Program, 10/02.
- Area Optimist club, 1/03.

Other Professional Activities (cont.)

Public Addresses (cont.):

- Wake Forest Daughters of the American Revolution, 4/03.
- Adventures in Learning, 5/03.
- Wake County Citizens for Effective Government, 2/04.
- Moderator, North Carolina Republican Party gubernatorial debate, 4/04, 11/07.
- Group of Fifty, 11/04.
- NCSU Society for Politics, Economics and the Law, 11/04, 10/05, 2/08, 9/11, 9/12, 3/13, 4/14, 9/14, 9/15, 9/16, 10/18, 9/20.
- NC Leadership Forum, 11/05, 11/08, 11/09, 11/18, 11/19, 11/20.
- Quail Ridge Books, 1/06, 4/15.
- North Carolina Young Lobbyists Association, 5/06, 1/07.
- Raleigh Public Relations Society, 5/06.
- Western Wake Republican Club, 6/06, 1/08, 11/08, 10/10, 5/12, 10/14, 4/16, 4/18, 11/20.
- Young Presidents' Organization, 10/06, 11/19, 12/19.
- Adventures in Ideas, UNC-CH, 2/07.
- North Carolina Association of Electric Cooperatives, 3/07, 9/12.
- Raleigh Exchange Club, 9/07.
- North Carolina Aggregates Association, 6/08.
- U.S. Small Business Administration, 9/08.
- North Carolina Professional Lobbyists Association, 10/08, 11/14, 10/17, 10/19.
- NCSU CHASS "Back to School" Day, 10/08.
- Canadian Consulate, 10/08, 8/09, 2/10.
- NCSU's Friends of the Libraries, 10/08.
- Fulbright Visitors, 10/08.
- NC FREE, 10/08, 6/21.
- UNC Leadership Seminar for State Legislators, 11/08.
- NCSU Harrelson Lecture, 1/09.
- North Carolina Bar Association, 2/09.
- Garner First Presbyterian, 3/09, 3/11.
- NCSU University Club, 3/09.
- Foundation for Ethics in Public Service, 11/09.
- North Carolina Retail Merchants' Association, 4/10.
- Civitas Institute (now merged with Locke Foundation), 6/10, 12/18, 6/20.
- NCSU Office of International Affairs, 7/10.
- UNC System Council on Federal Relations, 8/10, 9/12.
- North Carolina Association of County Commissioners, 8/10, 11/10, 5/14.
- Wake Tech Community College Retirees, 10/10.
- North Carolina Free Enterprise Foundation, 10/10, 10/14, 4/16, 9/16.
- North Carolina Institute for Constitutional Law, 11/10.
- NCSU Development Coalition, 1/11, 10/16.
- Carolina Country Club History Group, 3/11, 10/11, 1/12, 9/12, 10/12, 11/12, 1/14, 2/14, 3/14, 10/14, 11/14, 9/15, 2/16, 3/16, 11/16, 3/17, 10/17, 2/18, 9/18, 11/18, 3/19, 11/19, 1/20, 2/20, 9/21.

Other Professional Activities (cont.)

Public Addresses (cont.):

- Morgan Stanley, 6/11, 10/16.
- NCSU Constitution Day, 10/11.
- Carolina Country Club, 1/12, 8/16.
- Cisco Systems, 3/12.
- National Council for International Visitors, 8/12.
- North Carolina Housing Finance Agency, 8/12.
- National Guard, 9/12.
- North Carolina Museum of History, 10/12, 8/13.
- North Carolina School of Science and Mathematics, 10/12.
- Japanese Embassy, 10/12, 2/20.
- NCSU Lawyers' Association, 11/12.
- AARP, 11/12.
- Bailey and Dixon LLP Election Conference, 10/13.
- UNC Law School, 9/14.
- North Carolina Community College Conference, 10/14.
- International Center for Journalists, 10/14.
- Poole College of Management, 11/14, 12/16.
- NC Beverage Association, 5/15.
- Martin Center (previously Pope Center) for Academic Renewal, 7/15, 10/15, 6/16, 7/17, 6/18, 9/18, 7/19, 8/20, 3/21, 8/21.
- NCSU Holtzman Forum, 11/15.
- Central Carolina Community College, 11/15.
- Great Decisions, Foreign Policy Association, 2/16.
- NCSU Cultural Exchange Network, 3/16.
- VFW-NCSU Leadership in the Public Sector panel, 4/16.
- Durham Central Park Cohousing Community, 5/16.
- Golden Corral group, 9/16.
- Singaporean Embassy, 9/16.
- American Forest and Paper Association, 11/16.
- NC League of Municipalities Board, 12/16.
- North Carolina Public Health Association, 5/17.
- NCSU Department of Social Work Spring Summit, 3/18.
- National Speech and Debate Association, 6/18, 5/19.
- Carolina Preserve, 2/19.
- National Affairs & R Street Institute, 6/19.
- Issues Confronting Our Nation, 10/19.
- British Embassy, 11/19.
- British American Business Council, 6/20.
- Hindu Society of North Carolina, Seniors' Club, 9/20.
- UK Political Tours, 10/20.
- Life Plan Group, 11/20.
- Foundation for Economic Education, 4/21.
- Carolina Meadows, 4/21.
- Sigma Chi NC STEM Fellowship, 7/21.

Other Professional Activities (cont.)

Public Addresses (cont.):

- Citizen Redistricting North Carolina, 10/21.
- Meridian International Center, 12/21.

STATE OF NORTH CAROLINA

COUNTY OF WAKE

NORTH CAROLINA LEAGUE OF
CONSERVATION VOTERS, et al.,

REBECCA HARPER, et al.,

Plaintiffs,

vs.

REPRESENTATIVE DESTIN HALL, in his
official capacity as Chair of the House
Standing Committee on Redistricting, et al.,

Defendants.

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION

21 CVS 015426

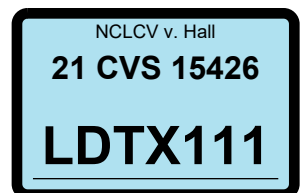
Consolidated with
21 CVS 500085

AFFIDAVIT OF SEAN P. TRENDE

Now comes affiant Sean P. Trende, having been first duly cautioned and sworn, deposes
and states as follows:

1. I am over the age of 18 and am competent to testify regarding the matters discussed below.
2. For the purposes of this litigation, I have been asked by counsel for Legislative Defendants to analyze relevant data and provide my expert opinions.
3. To that end, I have personally prepared the rebuttal report attached to this affidavit as Exhibit A, and swear to its authenticity and to the faithfulness of the opinions.

FURTHER THE AFFIANT SAYETH NAUGHT.



Executed on 28 December, 2021.

Sean P. Trende



Sean P. Trende

STATE OF FLORIDA

COUNTY OF PINELLAS

Sworn to and subscribed before me by online notarization this 28th day of December, 2021, by
SEAN P. TRENDE, who appeared by way of two-way audio/video communication technology,
and he provided his Ohio driver's license as identification.

Cynthia D. Glaros



Cynthia D. Glaros
Notary Public, State of Florida
My Commission Expires: 06/30/2022

Cynthia D. Glaros
Notary Public, State of Florida
Commission # GG228737
My Commission Expires June 30, 2022

Exhibit A

EXPERT REBUTTAL REPORT OF SEAN TRENDE

Now comes affiant Sean P. Trende, having been first duly cautioned and sworn, deposes and states as follows:

1. I am over the age of 18 and am competent to testify regarding the matters discussed below.
2. I currently reside at 1146 Elderberry Loop, Delaware, OH 43015. My e-mail is trende.3@buckeyemail.osu.edu.
3. I have been retained in this matter by the Legislative Defendants, and am being compensated at \$400.00 per hour for my work in this case.
4. My *curriculum vitae* is attached to this report as Exhibit 1.

EXPERT CREDENTIALS

5. I am currently enrolled as a doctoral candidate in political science at The Ohio State University. I have completed all of my coursework and have passed comprehensive examinations in both methods and American Politics. My coursework for my Ph.D. and M.A.S. included, among other things, classes on G.I.S. systems, spatial statistics, issues in contemporary redistricting, machine learning, non-parametric hypothesis tests and probability theory. I expect to receive my Ph.D. in May of 2021. My dissertation focuses on applications of spatial statistics to political questions.

6. I joined RealClearPolitics in January of 2009 after practicing law for eight years. I assumed a fulltime position with RealClearPolitics in March of 2010. My title is Senior Elections Analyst. RealClearPolitics is a company of around 40 employees, with offices in Washington D.C. It produces one of the most heavily trafficked political websites in the world, which serves as a one-stop shop for political analysis from all sides of the political spectrum

and is recognized as a pioneer in the field of poll aggregation. It produces original content, including both data analysis and traditional reporting. It is routinely cited by the most influential voices in politics, including David Brooks of *The New York Times*, Brit Hume of *Fox News*, Michael Barone of *The Almanac of American Politics*, Paul Gigot of *The Wall Street Journal*, and Peter Beinart of *The Atlantic*.

7. My main responsibilities with RealClearPolitics consist of tracking, analyzing, and writing about elections. I collaborate in rating the competitiveness of Presidential, Senate, House, and gubernatorial races. As a part of carrying out these responsibilities, I have studied and written extensively about demographic trends in the country, exit poll data at the state and federal level, public opinion polling, and voter turnout and voting behavior.

8. In particular, understanding the way that districts are drawn and how geography and demographics interact is crucial to predicting United States House of Representatives races, so much of my time is dedicated to that task.

9. I am currently a Visiting Scholar at the American Enterprise Institute, where my publications focus on the demographic and coalitional aspects of American Politics. My first paper focused on the efficiency gap, a metric for measuring the fairness of redistricting plans.

10. I am the author of *The Lost Majority: Why the Future of Government is up For Grabs and Who Will Take It*. In this book, I explore realignment theory. It argues that realignments are a poor concept that should be abandoned. As part of this analysis, I conducted a thorough analysis of demographic and political trends beginning in the 1920s and continuing through the modern times, noting the fluidity and fragility of the coalitions built by the major political parties and their candidates.

11. I co-authored the 2014 *Almanac of American Politics*. The Almanac is considered the foundational text for understanding congressional districts and the representatives of those districts, as well as the dynamics in play behind the elections. PBS’s Judy Woodruff described the book as “the oxygen of the political world,” while NBC’s Chuck Todd noted that “[r]eal political junkies get two *Almanacs*: one for the home and one for the office.” My focus was researching the history of and writing descriptions for many of the newly-drawn districts, including tracing the history of how and why they were drawn the way that they were drawn.

12. I have spoken on these subjects before audiences from across the political spectrum, including at the Heritage Foundation, the American Enterprise Institute, the CATO Institute, the Bipartisan Policy Center, and the Brookings Institution. In 2012, I was invited to Brussels to speak about American elections to the European External Action Service, which is the European Union’s diplomatic corps. I was selected by the United States Embassy in Sweden to discuss the 2016 elections to a series of audiences there, and was selected by the United States Embassy in Spain to fulfil a similar mission in 2018. I was invited to present by the United States Embassy in Italy, but was unable to do so because of my teaching schedule.

13. In the winter of 2018, I taught American Politics and the Mass Media at Ohio Wesleyan University. I taught Introduction to American Politics at The Ohio State University for three semesters from Fall of 2018 to Fall of 2019. In the Springs of 2020 and 2021, I taught Political Participation and Voting Behavior at The Ohio State University. This course spent several weeks covering all facets of redistricting: How maps are drawn, debates over what constitutes a fair map, measures of redistricting quality, and similar topics.

14. It is my policy to appear on any major news outlet that invites me, barring scheduling conflicts. I have appeared on both Fox News and MSNBC to discuss electoral and

demographic trends. I have been cited in major news publications, including *The New York Times*, *The Washington Post*, *The Los Angeles Times*, *The Wall Street Journal*, and *USA Today*.

15. I sit on the advisory panel for the “States of Change: Demographics and Democracy” project. This project is sponsored by the Hewlett Foundation and involves three premier think tanks: The Brookings Institution, the Bipartisan Policy Center, and the Center for American Progress. The group takes a detailed look at trends among eligible voters and the overall population, both nationally and in key states, to explain the impact of these changes on American politics, and to create population projections, which the Census Bureau abandoned in 1995. In 2018, I authored one of the lead papers for the project: “In the Long Run, We’re All Wrong,” available at <https://bipartisanpolicy.org/wp-content/uploads/2018/04/BPC-Democracy-States-of-Change-Demographics-April-2018.pdf>.

16. I previously authored an expert report in *Dickson v. Rucho*, No. 11-CVS-16896 (N.C. Super Ct., Wake County), which involved North Carolina’s 2012 General Assembly and Senate maps. Although I was not called to testify, it is my understanding that my expert report was accepted without objection. I also authored an expert report in *Covington v. North Carolina*, Case No. 1:15-CV-00399 (M.D.N.C.), which involved almost identical challenges in a different forum. Due to what I understand to be a procedural quirk, where my largely identical report from *Dickson* had been inadvertently accepted by the plaintiffs into the record when they incorporated parts of the *Dickson* record into the case, I was not called to testify.

17. I authored two expert reports in *NAACP v. McCrory*, No. 1:13CV658 (M.D.N.C.), which involved challenges to multiple changes to North Carolina’s voter laws, including the elimination of a law allowing for the counting of ballots cast in the wrong precinct. I was

admitted as an expert witness and testified at trial. My testimony discussed the “effect” prong of the Voting Rights Act claim. I did not examine the issues relating to intent.

18. I authored reports in *NAACP v. Husted*, No. 2:14-cv-404 (S.D. Ohio), and *Ohio Democratic Party v. Husted*, Case 15-cv-01802 (S.D. Ohio), which dealt with challenges to various Ohio voting laws. I was admitted and testified at trial in the latter case (the former case settled). The judge in the latter case ultimately refused to consider one opinion, where I used an internet map-drawing tool to show precinct locations in the state. Though no challenge to the accuracy of the data was raised, the judge believed I should have done more work to check that the data behind the application was accurate.

19. I served as a consulting expert in *Lee v. Virginia Board of Elections*, No. 3:15-cv-357 (E.D. Va. 2016), a voter identification case. Although I would not normally disclose consulting expert work, I was asked by defense counsel to sit in the courtroom during the case and review testimony. I would therefore consider my work *de facto* disclosed.

20. I filed an expert report in *Mecinas v. Hobbs*, No. CV-19-05547-PHX-DJH (D. Ariz. 2020). That case involved a challenge to Arizona’s ballot order statute. Although the judge ultimately did not rule on a motion in limine in rendering her decision, I was allowed to testify at the hearing.

21. I authored two expert reports in *Feldman v. Arizona*, No. CV-16-1065-PHX-DLR (D. Ariz.). Plaintiffs in that case challenged an Arizona law prohibiting the collection of voted ballots by third parties that were not family members or caregivers and the practice of most of the state's counties to require voters to vote in their assigned precinct. My reports and testimony were admitted. Part of my trial testimony was struck in that case for reasons unrelated to the merits of the opinion; counsel for the state elicited it while I was on the

witness stand and it was struck after Plaintiffs were not able to provide a rebuttal to the new evidence.

22. I authored an expert report in *Smith v. Perrera*, No. 55 of 2019 (Belize). In that case I was appointed as the court’s expert by the Supreme Court of Belize. In that case I was asked to identify international standards of democracy as they relate to malapportionment claims, to determine whether Belize’s electoral divisions (similar to our congressional districts) conformed with those standards, and to draw alternative maps that would remedy any existing malapportionment.

23. I authored expert reports in *A. Philip Randolph Institute v. Smith*, No. 1:18-cv-00357-TSB (S.D. Ohio), *Whitford v. Nichol*, No. 15-cv-421-bbc (W.D. Wisc.), and *Common Cause v. Rucho*, NO. 1:16-CV-1026-WO-JEP (M.D.N.C.), which were efficiency gap-based redistricting cases filed in Ohio, Wisconsin and North Carolina.

24. I also authored an expert report in the cases of *Ohio Organizing Collaborative, et al v. Ohio Redistricting Commission, et al* (No. 2021-1210); *League of Women Voters of Ohio, et al v. Ohio Redistricting Commission, et al* (No. 2021-1192); *Bria Bennett, et al v. Ohio Redistricting Commission, et al* (No. 2021-1198). These cases are pending in original action before the Supreme Court of Ohio.

25. I currently serve as one of two special masters appointed by the Supreme Court of Virginia to redraw the districts that will elect the commonwealth’s representatives to the House of Delegates, state Senate, and U.S. Congress.

SUMMARY OF WORK PERFORMED

26. I certify that the images attached as Exhibit 2 are true and correct copies of images that I created and that I describe below.

27. To create these images, I first examined the Complaints filed by plaintiffs in this action. I examined whether districts were challenged as either partisan gerrymanders or districts that diluted minority voting power. If I determined a district was challenged, I coded it as a “1.”

28. I then downloaded shapefiles for the enacted Congressional, State Senate and House of Representatives from the legislative redistricting website,
<https://www.ncleg.gov/Redistricting>.

29. Using R, a widely utilized statistical programming tool with which I have extensive familiarity through work and coursework, I color-coded the districts by plaintiff group, based upon who challenged which districts. This produced the accompanying maps.

Exhibit 1

SEAN P. TRENDE
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Delaware, OH 43015
strende@realclearpolitics.com

EDUCATION

Ph.D., The Ohio State University, Political Science, expected 2022.

M.A.S. (Master of Applied Statistics), The Ohio State University, 2019.

J.D., Duke University School of Law, *cum laude*, 2001; Duke Law Journal, Research Editor.

M.A., Duke University, *cum laude*, Political Science, 2001. Thesis titled *The Making of an Ideological Court: Application of Non-parametric Scaling Techniques to Explain Supreme Court Voting Patterns from 1900-1941*, June 2001.

B.A., Yale University, with distinction, History and Political Science, 1995.

PROFESSIONAL EXPERIENCE

Law Clerk, Hon. Deanell R. Tacha, U.S. Court of Appeals for the Tenth Circuit, 2001-02.

Associate, Kirkland & Ellis, LLP, Washington, DC, 2002-05.

Associate, Hunton & Williams, LLP, Richmond, Virginia, 2005-09.

Associate, David, Kamp & Frank, P.C., Newport News, Virginia, 2009-10.

Senior Elections Analyst, RealClearPolitics, 2009-present.

Columnist, Center for Politics Crystal Ball, 2014-17.

Gerald R. Ford Visiting Scholar, American Enterprise Institute, 2018-present.

BOOKS

Larry J. Sabato, ed., *The Blue Wave*, Ch. 14 (2019).

Larry J. Sabato, ed., *Trumped: The 2016 Election that Broke all the Rules* (2017).

Larry J. Sabato, ed., *The Surge: 2014's Big GOP Win and What It Means for the Next Presidential Election*, Ch. 12 (2015).

Larry J. Sabato, ed., *Barack Obama and the New America*, Ch. 12 (2013).

Barone, Kraushaar, McCutcheon & Trende, *The Almanac of American Politics 2014* (2013).

The Lost Majority: Why the Future of Government is up for Grabs – And Who Will Take It (2012).

PREVIOUS EXPERT TESTIMONY

Dickson v. Rucho, No. 11-CVS-16896 (N.C. Super. Ct., Wake County) (racial gerrymandering).

Covington v. North Carolina, No. 1:15-CV-00399 (M.D.N.C.) (racial gerrymandering).

NAACP v. McCrory, No. 1:13CV658 (M.D.N.C.) (early voting).

NAACP v. Husted, No. 2:14-cv-404 (S.D. Ohio) (early voting).

Ohio Democratic Party v. Husted, Case 15-cv-01802 (S.D. Ohio) (early voting).

Lee v. Virginia Bd. of Elections, No. 3:15-cv-357 (E.D. Va.) (early voting).

Feldman v. Arizona, No. CV-16-1065-PHX-DLR (D. Ariz.) (absentee voting).

A. Philip Randolph Institute v. Smith, No. 1:18-cv-00357-TSB (S.D. Ohio) (political gerrymandering).

Whitford v. Nichol, No. 15-cv-421-bbc (W.D. Wisc.) (political gerrymandering).

Common Cause v. Rucho, No. 1:16-CV-1026-WO-JEP (M.D.N.C.) (political gerrymandering).

Mecinas v. Hobbs, No. CV-19-05547-PHX-DJH (D. Ariz.) (ballot order effect).

Fair Fight Action v. Raffensperger, No. 1:18-cv-05391-SCJ (N.D. Ga.) (statistical analysis).

Pascua Yaqui Tribe v. Rodriguez, No. 4:20-CV-00432-TUC-JAS (D. Ariz.) (early voting).

COURT APPOINTMENTS

Appointed as Voting Rights Act expert by Arizona Independent Redistricting Commission

Appointed redistricting expert by the Supreme Court of Belize in *Smith v. Perrera*, No. 55 of 2019 (one-person-one-vote).

INTERNATIONAL PRESENTATIONS AND EXPERIENCE

Panel Discussion, European External Action Service, Brussels, Belgium, *Likely Outcomes of 2012 American Elections*.

Selected by U.S. Embassies in Sweden, Spain, and Italy to discuss 2016 and 2018 elections to think tanks and universities in area (declined Italy due to teaching responsibilities).

Selected by EEAS to discuss 2018 elections in private session with European Ambassadors.

TEACHING

American Democracy and Mass Media, Ohio Wesleyan University, Spring 2018.

Introduction to American Politics, The Ohio State University, Autumn 2018, 2019, 2020, Spring 2018.

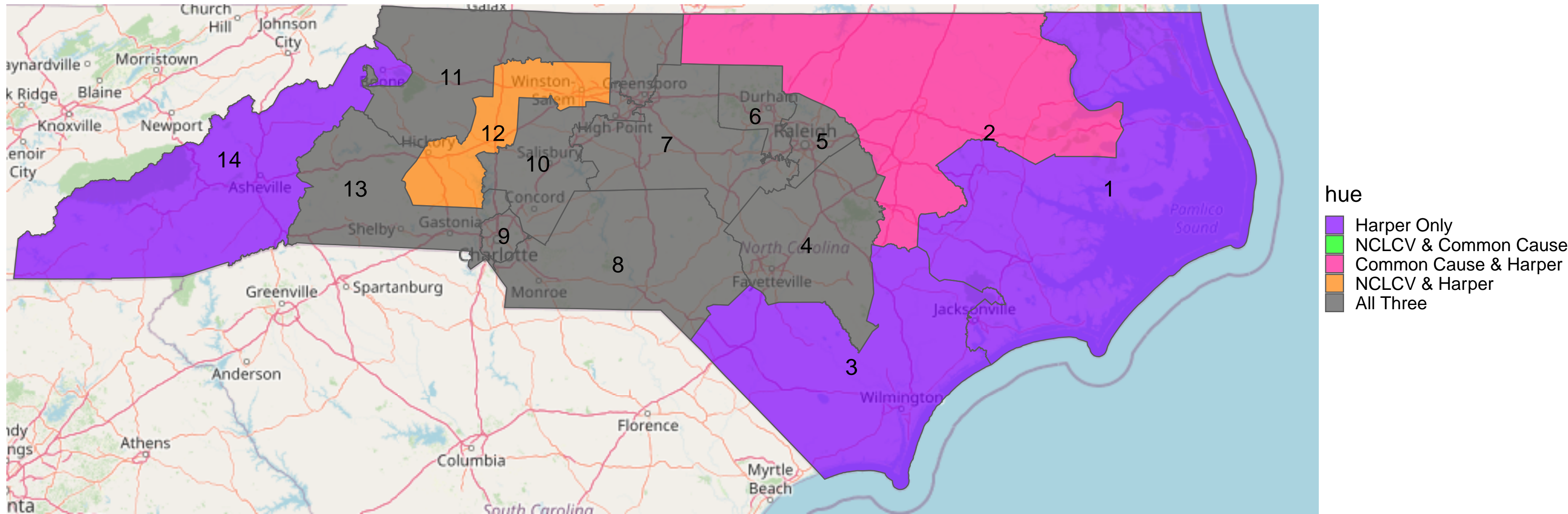
Political Participation and Voting Behavior, Spring 2020, Spring 2021.

REAL CLEAR POLITICS COLUMNS

Full archives available at http://www.realclearpolitics.com/authors/sean_trende/

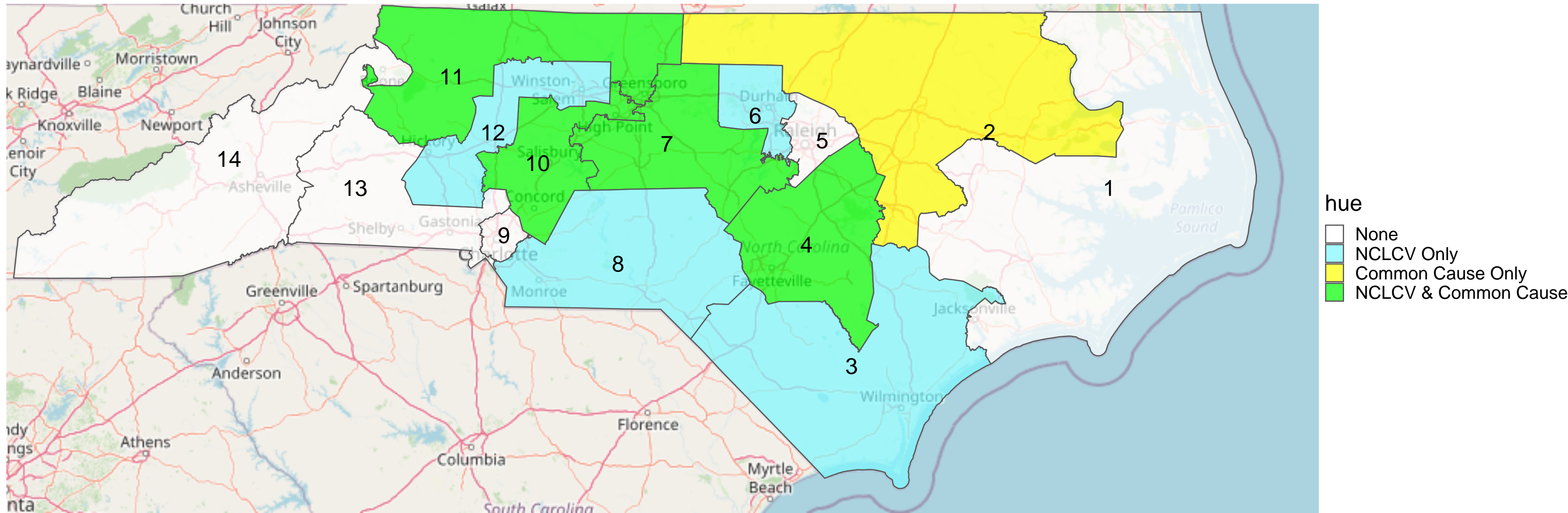
Exhibit 2

Congressional Districts Challenged As Political Gerrymanders, By Plaintiff Group



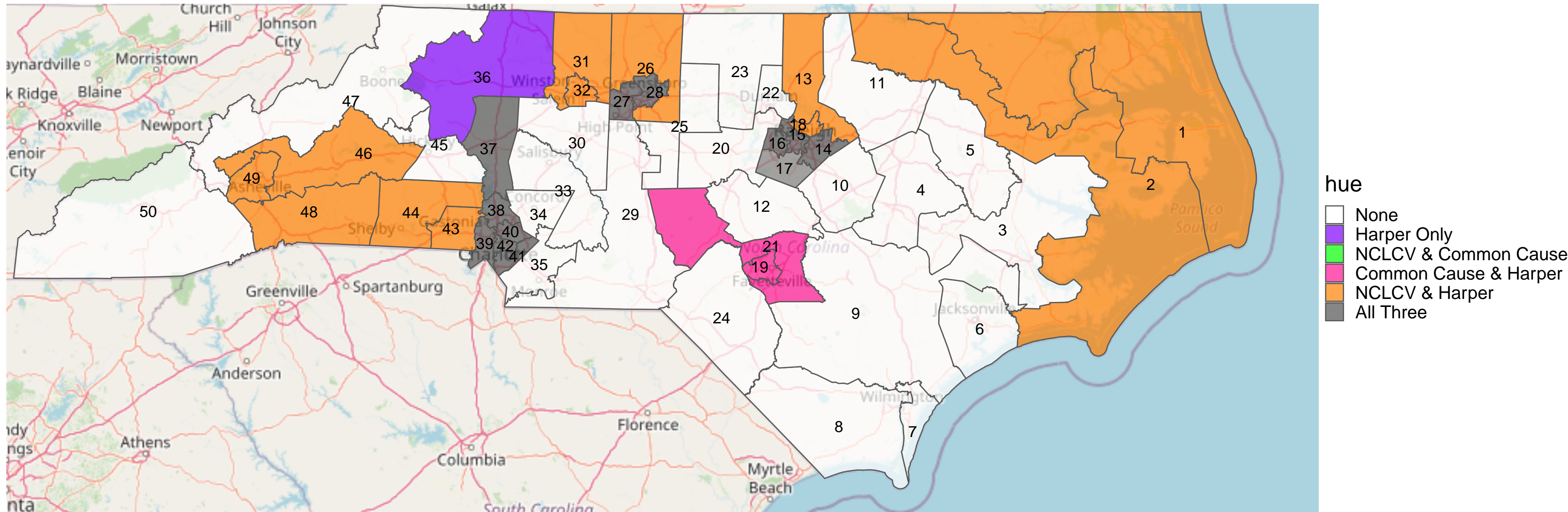
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Congressional Districts Challenged In Racial Vote Dilution Claim, By Plaintiff Group



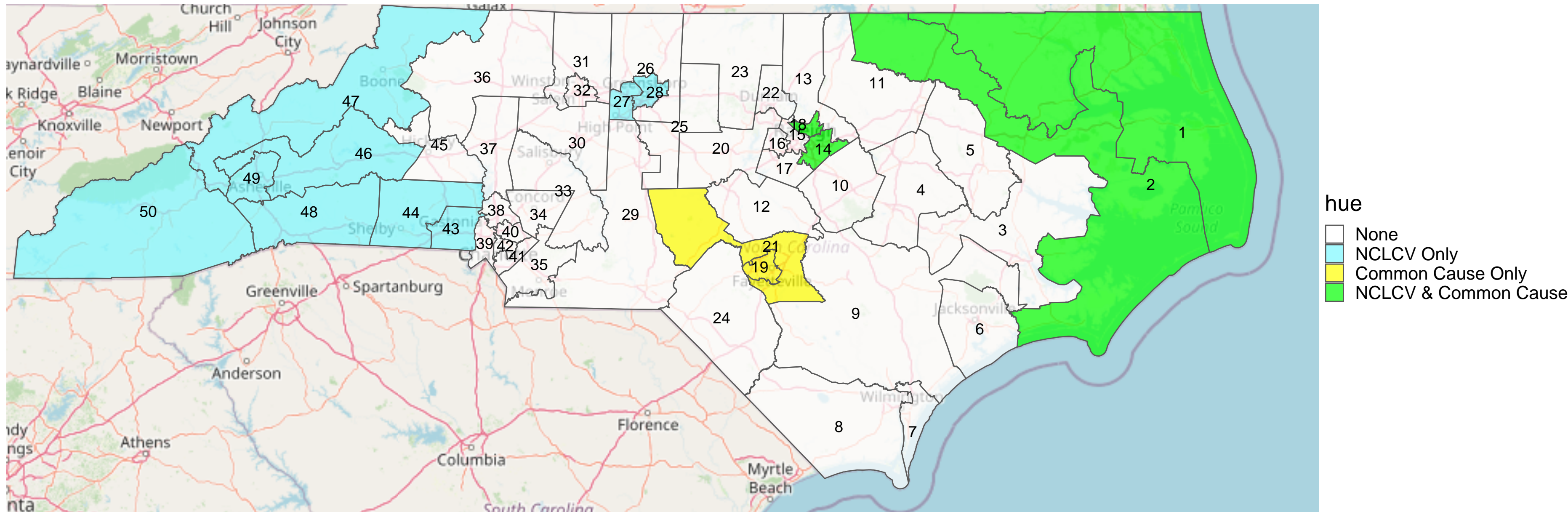
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State Senate Districts Challenged As Political Gerrymanders, By Plaintiff Group



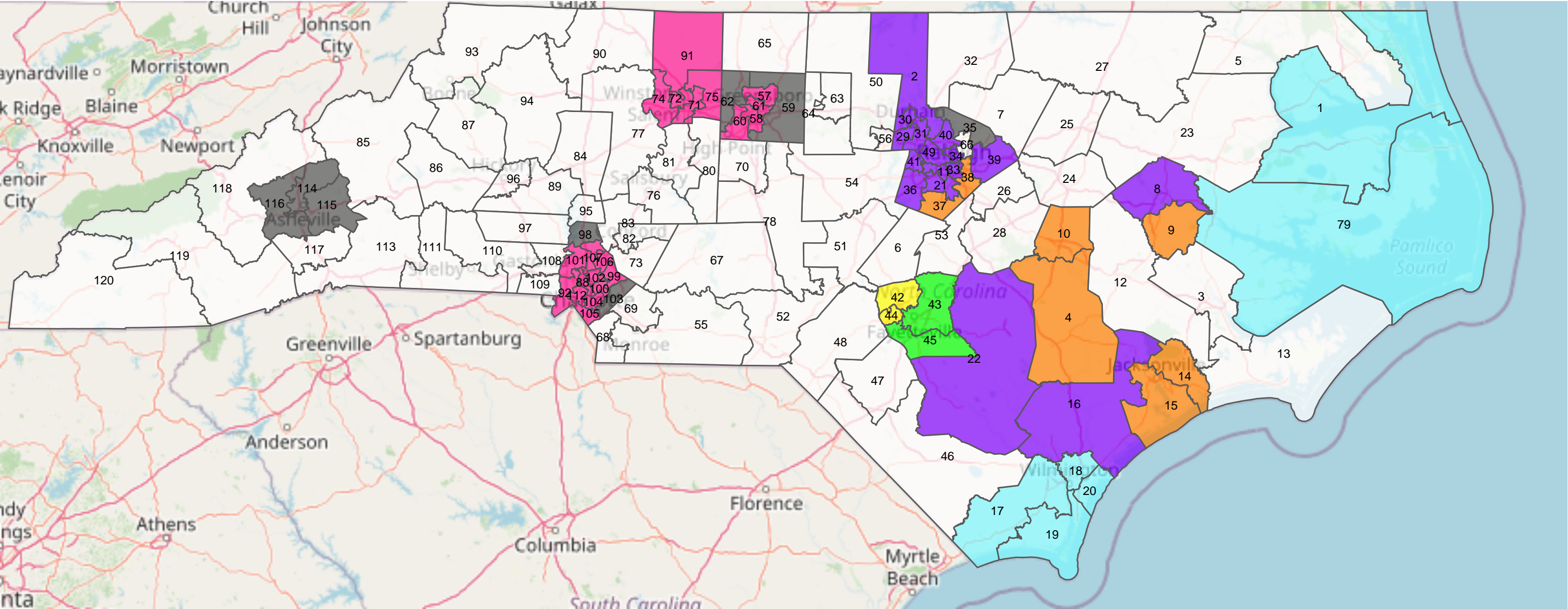
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State Senate Districts Challenged In Racial Vote Dilution Claim, By Plaintiff Group

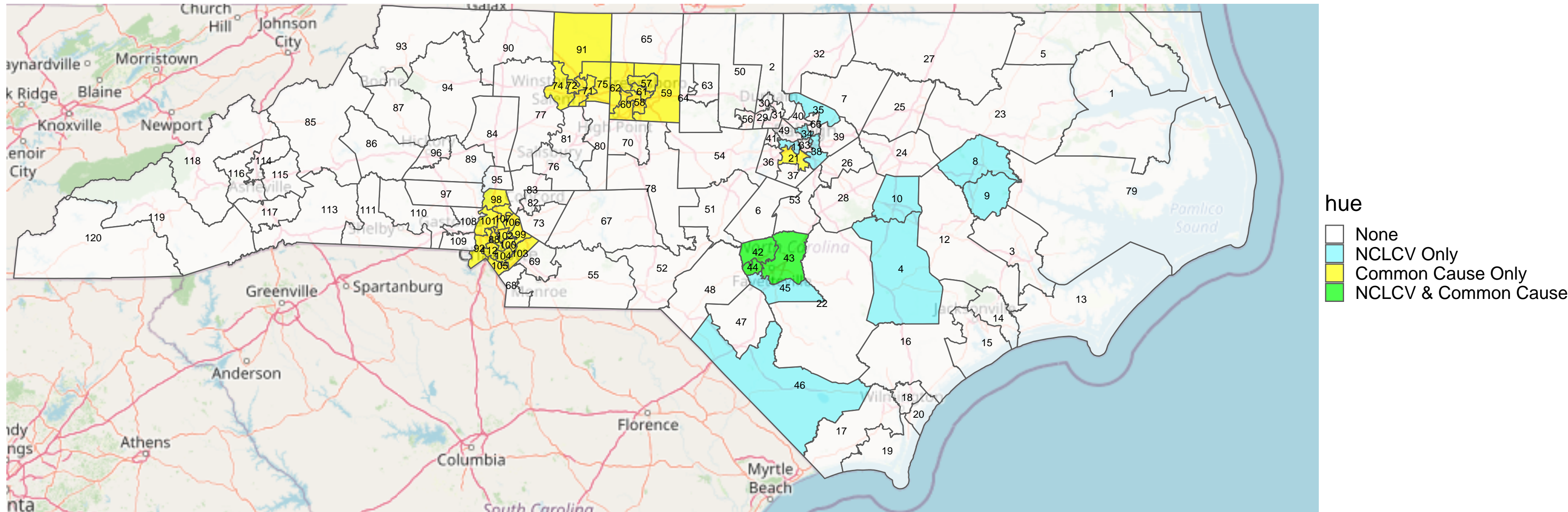


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State House Districts Challenged As Political Gerrymanders, By Plaintiff Group

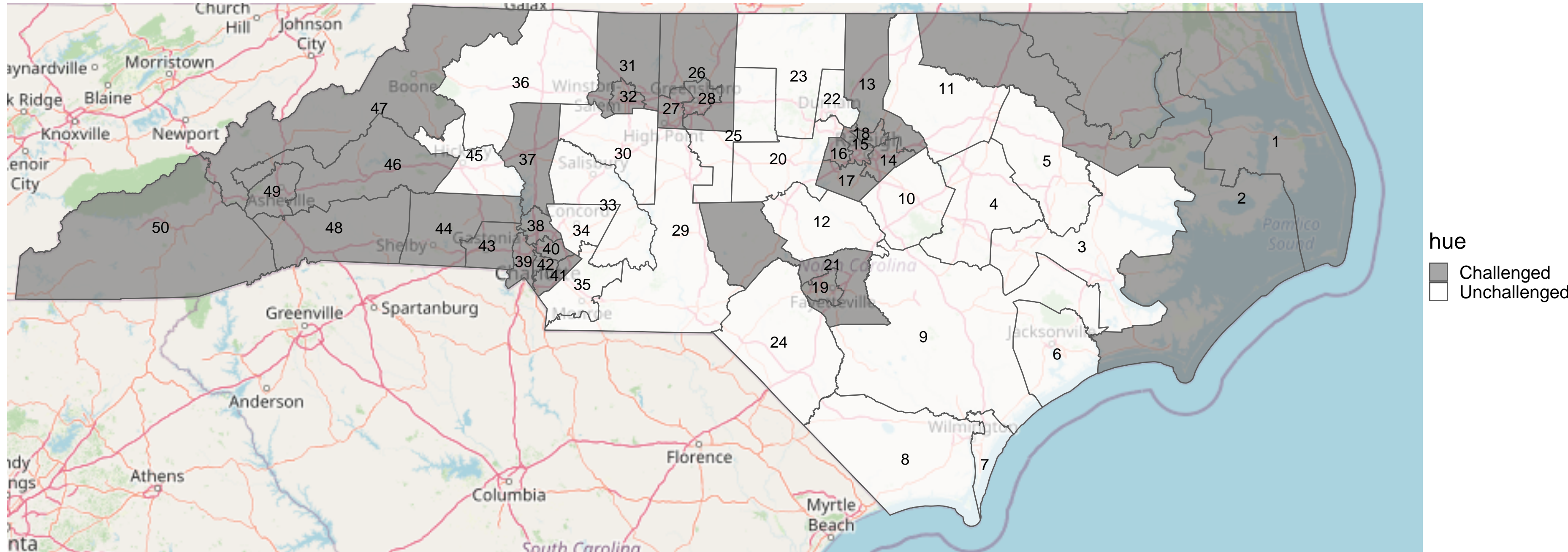


State House Districts Challenged In Racial Vote Dilution Claim, By Plaintiff Group

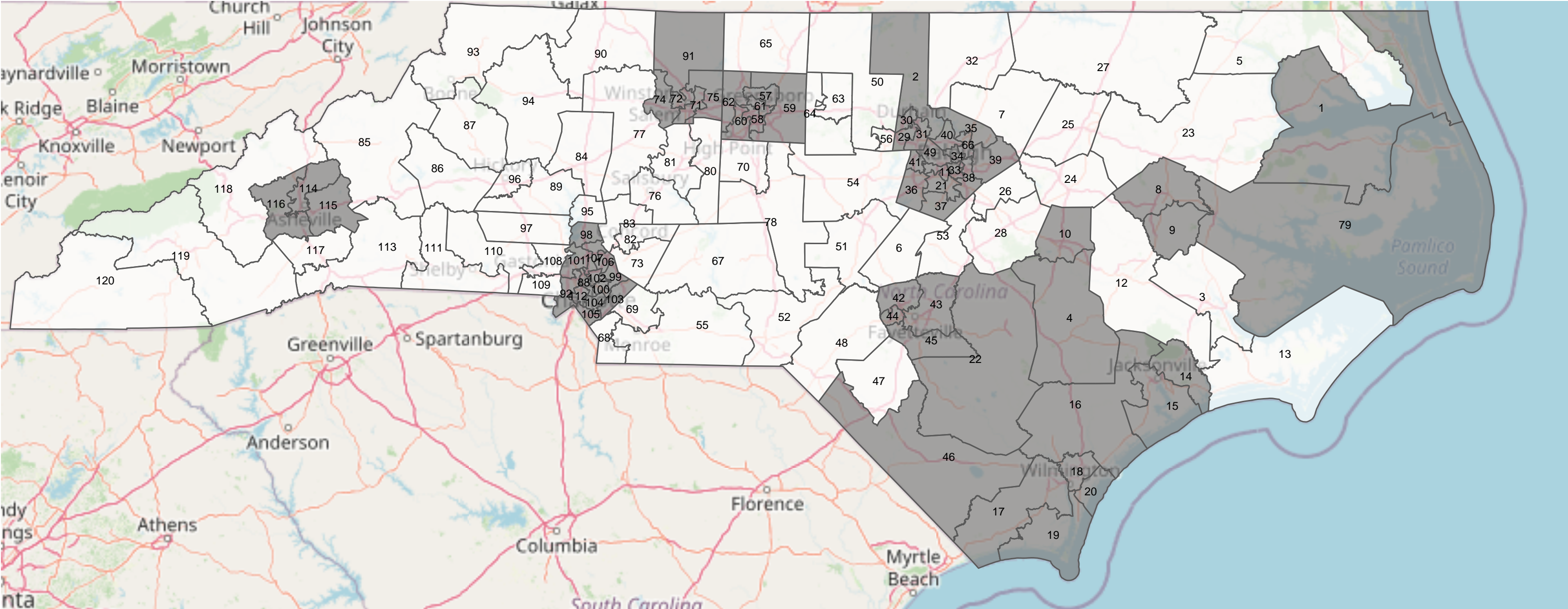


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All State Senate Districts Challenged, By Plaintiff Group



All State House Districts Challenged, By Plaintiff Group



STATE OF NORTH CAROLINA

WAKE COUNTY

FILED

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION

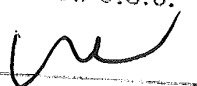
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No. 21 CVS 015426
No. 21 CVS 500085

WAKE CO., C.S.C.

NORTH CAROLINA LEAGUE OF
CONSERVATION VOTERS, INC. et al.,

BY



REBECCA HARPER, et al.,

COMMON CAUSE,

Plaintiffs,

v.

REPRESENTATIVE DESTIN HALL, in his
official capacity as Chair of the House Standing
Committee on Redistricting, et al.

Defendants.

**MOTION TO STAY
CANDIDATE CHALLENGES**

NOW COMES Defendants the North Carolina State Board of Elections, its Members, and Executive Director (“State Defendants”), through undersigned counsel, to request that this court issue an order addressing an administrative adjustment authorized by the December 8, 2021 Order of the Supreme Court of North Carolina. Specifically, the State Defendants move this court to stay proceedings on candidate challenges for the upcoming election in races dependent upon the district maps at issue in the present litigation until this litigation is resolved. In support of this motion, State Defendants provide the following:

1. On December 8, 2021, the Supreme Court issued an order in this matter in which it suspended candidate filing and delayed the March 8, 2022 elections to May 17, 2022. Included within that directive, the Supreme Court stated, “[t]he trial court is authorized to issue any orders necessary to accomplish the resulting changes in the election schedule, including implementing shortened filing periods and other administrative adjustments.”

2. Currently pending before this court is a motion by State Defendants requesting two adjustments to the election schedule, one of which asks the court to set the date for resumption of candidate filing that must be conducted ahead of the May 17, 2022 election. The State Defendants requested a start time of 8:00 A.M. on Thursday, February 24, 2022, and an end time of 12:00 noon on Friday, March 4, 2022.

3. Under N.C.G.S. § 163-127.2, an individual may challenge the filing of a notice of candidacy for elective office on grounds “that the candidate does not meet the constitutional or statutory qualifications for the office,” by filing that challenge “with the board of elections receiving the notice of the candidacy no later than 10 business days after the close of the filing period for notice of candidacy.” N.C.G.S. § 163-127.1(3) & -127.2(a).

4. On Monday, January 10, 2022, voters in the Thirteenth Congressional District filed eleven candidate challenges with the State Board of Elections. *See* Notice of Candidate Challenge. The Thirteenth Congressional District consists of multiple counties, namely Burke, McDowell, Polk, Rutherford, Cleveland, Gaston, and parts of Mecklenburg. The substance of the challenge can be found in the challengers’ Notice of Candidate Challenge which is attached hereto.

5. Our General Statutes dictate that candidate challenges operate on an abbreviated timeline so that candidates can be found qualified or disqualified before the ballot preparation deadline so as to avoid disqualified candidates appearing on the final ballot.

6. Pursuant to N.C.G.S. §§ 163-127.3 and -127.4, the State Board must appoint a five-member panel selected from members of the county boards of elections serving the counties within the congressional district where the challenge arises by the end of two business days after the challenge is filed. *See* N.C.G.S. § 163-127.3 & -127.4. In this case, the State Board will need to appoint a panel on or before close of business this Wednesday, January 12, 2022. The panel must

also allow for depositions and issue subpoenas if requested in preparation for a hearing that must be held in time to issue a written decision within twenty business days of the date on which the candidacy challenge was filed, which in this case would be February 9, 2022. *See* N.C.G.S. § 163-127.3 & -127.4. The panel’s decision is appealable to the State Board, and the State Board’s decision can in turn be appealed directly to the Court of Appeals. *See id.*; *see also* N.C.G.S. § 163-127.6(a).

7. As this challenge involves a candidate within a district at issue in this litigation, it presents a scenario in which the parties to the challenge, the appointed panel, and possibly the State Board will have to duplicate the above-outlined process in the event the challenged maps are ultimately redrawn. If new maps are ordered for this district, members of the appointed panel may no longer be eligible to serve on the panel, as the county they represent is no longer in the district. The candidate, and any other fact witness, will potentially be subject to duplicative depositions. The panel will conduct a hearing and make factual and legal conclusions, a process which could be rendered futile. It is also uncertain whether the challengers would each be eligible to file candidate challenges as residents of the district if new maps were ordered. Nonetheless, the State Board has no discretion to deviate from the above-noted schedule prescribed in statute and, therefore, has no choice but to seek relief from this court.

8. The State Defendants hereby move the court to stay challenges against candidates for U.S. House and North Carolina House and Senate. The State Defendants request that the court order the stay remain in place until the present litigation finally resolves the district maps that will be implemented in the 2022 primary for those offices, including through any appeals in North Carolina Court and/or enactment of replacement maps by the General Assembly. This request is consistent with the previously filed motion for clarification seeking to resume the

candidate filing period after the final resolution of the litigation in this matter. It is filed in good faith and in effort to avoid duplicative and/or futile effort as described above.

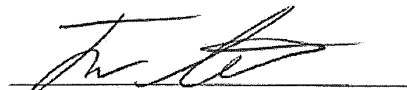
9. The undersigned advised the Plaintiffs and Legislative Defendants about this motion and the relief to be requested. All Plaintiffs responded that they take no position on the requested relief. Legislative Defendants responded that they oppose the requested relief.

10. A copy of the proposed order granting the requested relief is attached hereto.

WHEREFORE, for good cause shown, State Defendants respectfully request that this Court enter an order staying the State and county boards' consideration of candidate challenges against candidates for U.S. House and North Carolina House and Senate until such time as the present litigation finally resolves the district maps that will be implemented in the 2022 primary for those offices, including through any appeals in North Carolina Courts and/or enactment of replacement maps by the General Assembly.

Respectfully submitted this 11th day of January, 2022.

NORTH CAROLINA
DEPARTMENT OF JUSTICE



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CERTIFICATE OF SERVICE

This is to certify that the undersigned has this day served the foregoing document in the above titled action upon all parties to this cause by via email and addressed as follows:

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Daniel, Paul Newton, and Destin Hall*

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Counsel for Harper-Plaintiffs

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olivia.molodanof@hoganlovells.com

Counsel for Common Cause-Plaintiff

This the 11th day of January, 2022.

A handwritten signature in black ink, appearing to read 'T. Steed', written over a horizontal line.

Terence Steed
Special Deputy Attorney General

STATE OF NORTH CAROLINA

BEFORE THE NORTH CAROLINA
STATE BOARD OF ELECTIONS

In re Challenge to
the constitutional qualifications of
Rep. Madison Cawthorn

Notice of
Candidacy Challenge

RECEIVED

JAN 10 REC'D

INTRODUCTION

STATE BOARD OF ELECTIONS

1. The Challengers in this action ("Challengers"), registered voters in the 13th Congressional District, have reasonable suspicion, pursuant to N.C. GEN. STAT. § 163-127, that Representative Madison Cawthorn, a candidate for North Carolina's 13th Congressional District, does not meet the federal constitutional requirements for a Member of the U.S. House of Representatives and is therefore ineligible to be a candidate for such office.

2. Under North Carolina law, when a challenger provides "reasonable suspicion or belief" of facts establishing that a candidate "does not meet the constitutional . . . qualifications for the office," then "[t]he burden of proof shall be upon the candidate" to "show by a preponderance of the evidence . . . that he or she is qualified to be a candidate for the office." N.C. GEN. STAT. §§ 163-127.2(b), 163-127.5(a).

3. Under Section Three of the Fourteenth Amendment to the U.S. Constitution, known as the Disqualification Clause, "No Person shall be a . . . Representative in Congress . . . who, having previously taken an oath, as a member

of Congress . . . to support the Constitution of the United States, shall have engaged in insurrection or rebellion against the same.”

4. Persons who trigger this constitutional provision are disqualified from congressional office, just as persons who fail to meet the age, citizenship, and residency requirements of Article I, section 2 of the Constitution are disqualified from congressional office. “The oath to support the Constitution is the test. The idea being that one who had taken an oath to support the Constitution and violated it, ought to be excluded from taking it again, until relieved by Congress.” *Worthy v. Barrett*, 63 N.C. 199, 204 (1869). Consequently, such persons “do[] not meet the constitutional . . . qualifications for the office” under N.C. GEN. STAT. § 163-127.2(b).

5. An “insurrection” or “rebellion” under the Disqualification Clause includes actions against the United States with the intent to overthrow the government of the United States or obstruct an essential constitutional function.

6. The events of January 6, 2021 amounted to an insurrection or a rebellion under Section Three: a coordinated effort to prevent the Vice President of the United States and the United States Congress from fulfilling their constitutional roles by certifying President Biden’s victory, and to illegally extend then-President Trump’s tenure in office.

7. In 1869, the North Carolina Supreme Court issued the leading national precedent on the meaning of “engage” under Section Three. The Court held that a candidate “engages” in a rebellion or insurrection for the purposes of the Disqualification Clause by “[v]oluntarily aiding the rebellion, by personal service, or

by contributions, other than charitable, of any thing that was useful or necessary.”

Worthy v. Barrett, 63 N.C. 199, 203 (1869).

8. Planning or helping plan an insurrection or rebellion satisfies that definition. So does planning a demonstration or march upon a government building that the planner knows is substantially likely to (and does) result in insurrection or rebellion, as it constitutes taking voluntary steps to contribute, “by personal service,” a “thing that was useful or necessary” to the insurrection or rebellion. And knowing that insurrection or rebellion was likely makes that aid voluntary.

9. As described below, and as set forth in Challengers’ affidavits, the demonstration at the Ellipse and related march on the U.S. Capitol, and their endorsement by prominent incumbent House Members (including Representative Cawthorn), Senators, and the incumbent President, led directly, intentionally, and foreseeably to the insurrectionists’ violent assault on the Capitol.¹

10. Challengers have reasonable suspicion that Representative Cawthorn was involved in efforts to intimidate Congress and the Vice President into rejecting valid electoral votes and subvert the essential constitutional function of an orderly and peaceful transition of power. Challengers have reasonable suspicion that Cawthorn was involved in either planning the attack on January 6, or alternatively the planning of the pre-attack demonstration and/or march on the Capitol with the

¹ This notice of candidacy challenge uses the term “insurrectionists” without prejudice as to whether the events of January 6 may also constitute a “rebellion” within the meaning of the Disqualification Clause.

advance knowledge that it was substantially likely to lead to the attack, and otherwise voluntarily aided the insurrection.

11. Representative Cawthorn promoted the demonstration ahead of time, tweeting, “the future of this Republic hinges on the actions of a solitary few . . . It’s time to fight,” and he spoke at the demonstration. Furthermore, there are reports that he met with planners of the January 6 demonstration, and possibly of the assault on the Capitol, beforehand. The stated goal of the organizers was to pressure Vice President Pence into disregarding the electoral votes from several states and declaring Trump the winner of the 2020 election. The likelihood of violence during the implementation of this plan was plain to bystanders and probably more so to those intimately involved. Before the demonstration, violent groups announced they were going to attend it. Plans for violence—and specifically occupying the Capitol to prevent the certification vote or violently influence its outcome—were so prevalent that one reporter has remarked that “[a]nyone with a Twitter account and an hour of time to kill could have warned about the potential for violence on Jan. 6—and many did.”²

12. Representative Cawthorn has a history, leading up to and continuing after his swearing-in as a Member of the U.S. House of Representatives, of advocating for political violence. He has also made supportive statements about the

² Quinta Jurecic, *Why Didn’t the FBI Review Social Media Posts Announcing Plans for the Capitol Riot?*, LAWFARE (June 29, 2021), <https://www.lawfareblog.com/why-didnt-fbi-review-social-media-posts-announcing-plans-capitol-riot>; Martha Mendoza & Juliet Linderman, *Officers maced, trampled: Docs expose depth of Jan. 6 chaos*, AP NEWS (Mar. 10, 2021), <https://bit.ly/3F2Hi26>.

insurrectionists who stormed the Capitol, describing them as “political hostages” and “political prisoners.”

13. Collectively, Cawthorn’s actions and the events of January 6 provide reasonable suspicion that, under the Disqualification Clause, he is constitutionally disqualified from running for congressional office.

14. Because Challengers have reasonable suspicion and belief of facts establishing that Representative Cawthorn is disqualified from running for congressional office, Representative Cawthorn has the burden of proving “by a preponderance of the evidence of the evidence of the record as a whole that he [] is qualified to be a candidate for the office.” N.C. GEN. STAT. § 163-127.5(a).

15. Therefore, Representative Cawthorn must prove that he was *not* involved in the insurrection of January 6, 2021.

16. In accordance with N.C. GEN. STAT. § 163-127.4(a), Challengers intend to depose Representative Cawthorn before the hearing, and request subpoenas for witnesses and documents, including documents that Representative Cawthorn or his staff may possess involving the planning of the January 6 events that could shed light on his qualification for office under Section Three.

17. If Representative Cawthorn is unable to meet his burden, the panel appointed by the North Carolina State Board of Elections (“State Board”) must find him disqualified to be a candidate for the office of U.S. Representative.

FILING AND VENUE

18. Representative Cawthorn is running for the House of Representatives in the 13th Congressional District and has accordingly filed his candidacy with the State Board. N.C. GEN. STAT. § 163-106.2(a). Due to the recent North Carolina Supreme Court ruling staying the filing deadline for candidates, this challenge is properly and timely filed with the State Board. *Id.* § 163-127.2(a).

19. Because the 13th District encompasses multiple counties but not the entire state, the State Board will appoint a panel of five county board members from the counties within the district. N.C. GEN. STAT. § 163-127.3(2).

STATUTORY BACKGROUND

20. Under North Carolina law, “[a]ny qualified voter registered in the same district as the office for which the candidate has filed or petitioned” may file a candidacy challenge by filing an affidavit that they have “reasonable suspicion or belief of the facts stated . . . that the candidate does not meet the constitutional or statutory qualifications for office,” and an appropriate panel will be appointed to hear the challenge. N.C. GEN. STAT. §§ 163-127.1(3), 163-127.2(b), 163-127.3(2).

21. The burden for establishing “reasonable suspicion” is low. For example, the most recent successful challenge was instituted in part by a challenger who had no evidence whatsoever of the candidate’s alleged disqualifications and, in fact, admitted that she hoped to be proven wrong during the hearing. Transcript of Record at 72–73, *In re Bonapart*, N.C. State Bd. of Elections (Jan. 21, 2020) (order). In another challenge that was successful at the panel level, the challenger brought a single piece of evidence that was rejected, but correctly pointed out that “as the

ordinance says, I just have to bring suspicion. So that's what I've brought."

Transcript of Record at 55, *In re Penland*, N.C. State Bd. of Election (Apr. 4, 2018) (order overturning panel decision on unrelated procedural grounds).

22. The panel "shall . . . [a]llow for depositions prior to the hearings, if requested by the challenger or candidate before the time of the hearing is designated and announced," N.C. GEN. STAT. § 163-127.4(a)(2), and "[i]ssue subpoenas for witnesses or documents, or both, upon requests of the parties or upon its own motion," *id.* § 163-127.4(a)(3). "The parties shall be allowed to issue subpoenas for witnesses or documents, or both, including a subpoena of the candidate." *Id.* § 163-127.4(c)(1). The panel itself may issue subpoenas if any two members or the chair requests them. *Id.*

23. During the panel hearing, "[t]he burden of proof shall be upon the candidate, who must show by a preponderance of the evidence of the record as a whole that he or she is qualified to be a candidate for the office." *Id.* § 163-127.5(a).

24. The panel may hear evidence in the form of affidavits or witnesses; witnesses must testify under oath. *Id.* § 163-127.4(c)(1). The panel may receive evidence "from any person with information concerning the subject of the challenge," consistent with the state's rules of evidence. *Id.* at § 163-127.4(c)(2).

FACTUAL BACKGROUND

25. Challengers have reasonable suspicion and belief in the following facts, based on public reports and publicly available evidence.

26. In the days leading up to his swearing-in on January 3, 2021, Representative Cawthorn repeatedly claimed that the 2020 election was “stolen” and marred by massive voter fraud.³

27. These statements were made in support of a larger movement, often using the slogan “Stop the Steal,” that advances and promotes the false narrative that Donald Trump won the 2020 election. Beginning in November 2020, various persons associated with the movement attempted to block the certification of President-elect Biden’s victory with dozens of lawsuits. None succeeded, and all were found to be baseless.⁴

28. After litigation failed, some within this larger movement accepted that they had exhausted their legal options for challenging the results of the presidential election.⁵

The Unconstitutional Scheme to Overturn the 2020 Election Results

29. Others, however, turned to extralegal plans. They formulated an unconstitutional scheme to subvert the constitutional process of counting the electoral votes in Congress, preventing President-elect Biden from being sworn in

³ Joel Burgess, *As Biden transition progresses, Cawthorn continues to raise money off resistance*, ASHEVILLE CITIZEN-TIMES (Nov. 25, 2020), <https://bit.ly/CawthorneFundraising>; Madison Cawthorn (@CawthornforNC), TWITTER (Dec. 31, 2020, 3:21 p.m.), <https://bit.ly/CawthorneTweetDec31>.

⁴ Jacob Shamisian & Sonam Sheth, *Trump and his allies filed more than 40 lawsuits challenging the 2020 election results. All of them failed*, BUSINESS INSIDER (Feb. 22, 2021), <https://bit.ly/3mZYfEf>.

⁵ Colin Dwyer, *After Supreme Court Defeat, Trump’s Backers In Congress Are Quiet On What Comes Next*, NPR (Dec. 12, 2020), <https://n.pr/32ybK7f>; Rep. Bruce Westerman (@RepWesterman), TWITTER (Dec. 11, 2020, 8:49 PM), <https://bit.ly/3eFkZ7S>.

as President. Leaders of this scheme—including then-President Trump, his Chief of Staff Mark Meadows, certain Members of Congress, and others outside government—focused on January 6, the day that Congress counts the presidential electors’ votes, as an opportunity to prevent Congress from certifying President-elect Biden’s victory.⁶

30. Under the provisions of the Twelfth Amendment to the U.S. Constitution and the Electoral Count Act, 3 U.S.C. §§ 15 et seq., the votes of presidential electors are officially counted as follows. At 1:00 p.m. on January 6 of the year following a presidential election, the U.S. Senate and the U.S. House of Representatives meet jointly in the House Chamber, with the Vice President of the United States (in his capacity as President of the Senate) presiding. Beginning with Alabama, and proceeding alphabetically, the Vice President opens each state’s certificate of the votes of its electors, and calls for objections, if any. Any objection must be filed by at least one Senator and at least one Member of the House. These objections are then voted upon separately by the House and Senate.⁷

31. The Electoral Count Act provides that, if a state has submitted only one return of electoral votes, and if the electoral votes were “regularly given by electors whose appointment has been lawfully certified,” then Congress *cannot* reject those electoral votes.⁸

⁶ *What Happened on Jan. 6*, WASH. POST (Oct. 31, 2021), <https://wapo.st/3eSdf2y>.

⁷ 3 U.S.C. § 15; U.S. CONST. amend. XII.

⁸ 3 U.S.C. § 15.

32. The Electoral Count Act provides two scenarios in which, theoretically, Congress can reject electoral votes. First, “the two Houses concurrently” may reject one or more electoral votes from a state when both Houses “agree that such vote or votes have not been so regularly given by electors whose appointment has been so certified.” Second, if a state submits *multiple* conflicting returns of its electoral votes, the Act contains procedures for determining which return prevails.⁹

33. After the 2020 election, no lawful procedure under the Electoral Count Act could prevent the counting of electoral votes from the states where President-elect Biden had won the election. None of those states had submitted multiple competing electoral tallies to Congress. And it was generally understood that there were insufficient votes in the U.S. House of Representatives to reject as not “regularly given” the electoral votes from any state, let alone to reject enough electoral votes to change the outcome to anything other than a Biden victory.¹⁰

34. Since no lawful procedure under the Electoral Count Act could prevent the counting of electoral votes from the states where President-elect Biden had won the election, leaders of the scheme to subvert the counting of the votes developed stratagems by which Vice President Pence would refuse to recognize the votes of electors from certain states that Trump had lost, thus leading to a Trump “victory”

⁹ *Id.*

¹⁰ Joseph Choi, *Pelosi sets up call on election challenge: ‘No situation matches Trump presidency,’* THE HILL (Jan. 3, 2021), <https://bit.ly/32F5CtP>.

in Congress.¹¹ However, these plans relied on cooperation from sympathetic members of Congress and, crucially, Vice President Pence. The plans centered on Pence abusing the Vice President’s ceremonial duty to “open all the certificates” of state electoral votes as a pretext to unilaterally *reject* votes.¹²

35. Key leaders and participants in the larger scheme developed plans to pressure or intimidate Congress and Pence into cooperating—and, if that failed, to obstruct the electoral count certification.¹³

36. A key participant in this scheme was Mark Meadows, then-President Trump’s Chief of Staff. Before becoming Chief of Staff, Meadows had served as the U.S. Representative for North Carolina’s 11th Congressional District (the seat Cawthorn now occupies) from 2013 to 2020. During this time, Cawthorn forged or strengthened connections with Meadows. Cawthorn was nominated by Meadows to

¹¹ *What Happened on Jan. 6*, WASH. POST (Oct. 31, 2021), <https://wapo.st/3eSdf2y>; *READ: Trump lawyer’s full memo on plan for Pence to overturn the election*, CNN (Sept. 21, 2021), <https://cnn.it/3qldg4p>.

¹² U.S. CONST. amend. XII.

¹³ See, e.g., *Trump pressures Pence to throw out election results — even though he can’t*, POLITICO (Jan. 5, 2021), <https://politi.co/3961iTx>; *READ: Trump lawyer’s full memo on plan for Pence to overturn the election*, CNN (Sept. 21, 2021), <https://cnn.it/3qldg4p>; *Ahead of Jan. 6, Willard hotel in downtown D.C. was a ‘Trump team ‘command center’ for effort to deny Biden the presidency*, WASH. POST (Oct. 23, 2021), <https://wapo.st/3pOUPpL>; *‘A roadmap for a coup’: inside Trump’s plot to steal the presidency*, THE GUARDIAN (Oct. 30, 2021), <https://bit.ly/31q0MjD>; *United States v. Greene*, No. 21-CR-52, Statement of Offense, ¶¶ 29-31 (D.D.C. Dec. 22, 2021), <https://www.justice.gov/usao-dc/press-release/file/1458266/download>; see also *infra* note 22.

the Naval Academy in 2014¹⁴ and worked as a staffer in Meadows' North Carolina office in 2015 and 2016.¹⁵

37. Meadows was intimately involved in multiple aspects of the effort to overturn the presidential election results, including efforts to pressure state officials to overturn election results in states Biden had won; promoting plans for Pence to unilaterally reject electoral votes; and communicating with organizers of January 6 events in the days leading up to January 6 and as the attack unfolded.¹⁶

38. To further their scheme to overturn the presidential election results, in December 2020 and January 2021, organizers planned a "Save America" demonstration in Washington, D.C. on January 6 to coincide with, and seek to block, the certification of electoral votes. At this demonstration, they planned to push false claims of massive voter fraud and to pressure then-Vice President Pence to refuse to count slates of electors from states with close contests.¹⁷

39. The organizers of the demonstration were in close contact with several Members of Congress or their staff during this time regarding the details of the

¹⁴ *Meadows congratulates Western North Carolina academy nominees*, ASHEVILLE CITIZEN-TIMES (Dec. 22, 2013), <https://bit.ly/3eOPBnL>.

¹⁵ Michael Kranish, *The making of Madison Cawthorn: How falsehoods helped propel the career of a new pro-Trump star of the far right*, WASH. POST (Feb. 27, 2021), <https://wapo.st/3sUewyk>.

¹⁶ H.R. REP. NO. 117-216, at 6–12 (2021), <https://www.congress.gov/117/crpt/hrpt216/CRPT-117hrpt216.pdf>.

¹⁷ *What Happened on Jan. 6*, WASH. POST (Oct. 31, 2021), <https://wapo.st/3eSdf2y>; see also *supra* note 13.

demonstration, including Representative Cawthorn or his staff.¹⁸ Those same organizers were also in touch with White House staff about the demonstration, including Meadows.¹⁹

40. Organizers’ plans for January 6 also included a march on the U.S. Capitol while Congress was counting electoral votes.²⁰

41. On December 19, 2020, then-President Trump endorsed the demonstration, claiming it would be “wild.”²¹ This was widely understood to be a coded call for violence by Trump supporters. On social media, they openly called for weapons to be carried into the District of Columbia, for law enforcement to be murdered if they interfered, and for supporters to storm the Capitol to prevent the certification of President-elect Biden’s victory.²²

42. On December 21, 2020, Representative-elect Cawthorn encouraged supporters to “call your congressman and feel free—you can lightly threaten them

¹⁸ Hunter Walker, *Jan. 6 Protest Organizers Say They Participated in ‘Dozens’ of Planning Meetings With Members of Congress and White House Staff*, ROLLING STONE (Oct. 24, 2021), <https://bit.ly/3HB2Nc4>.

¹⁹ *Id.*

²⁰ *What Happened on Jan. 6*, WASH. POST (Oct. 31, 2021), <https://wapo.st/3eSdf2y>.

²¹ *Id.*

²² Brandy Zadrozny & Ben Collins, *Violent threats ripple through far-right internet forums ahead of protest*, NBC NEWS (Jan. 5, 2021), <https://www.nbcnews.com/tech/internet/violent-threats-ripple-through-far-right-internet-forums-ahead-protest-n1252923>; see also Dan Barry & Sheera Frenkel, *‘Be There. Will Be Wild!’: Trump All but Circled the Date*, N.Y. TIMES (Jan. 6, 2021), <https://www.nytimes.com/2021/01/06/us/politics/capitol-mob-trump-supporters.html>; Ryan Goodman & Justin Hendrix, *The Absence of “The Donald,”* JUST SECURITY (Dec. 6, 2021), <https://bit.ly/3sRenLY>.

. . . Say: ‘If you don’t support election integrity, I’m coming after you. Madison Cawthorn’s coming after you. Everybody’s coming after you.’”²³

43. On December 31, 2020, Cawthorn announced he would oppose the certification of Biden’s victory on the basis that the 2020 election was marred by fraud and that state laws were not “followed”; he planned to object to results from Pennsylvania, Georgia, Michigan, Wisconsin, Arizona, and Nevada.²⁴

44. On January 3, 2021, pursuant to Article VI of the U.S. Constitution, Cawthorn swore an oath of office to uphold and protect the Constitution.

45. On that same day, it was reported that Trump and his associates in the movement to overturn the 2020 election had begun to use extralegal and unlawful tactics, as Trump and Meadows attempted to intimidate Georgia Secretary of State Raffensperger into fabricating votes and declaring Trump the winner of Georgia’s presidential election.²⁵

46. On January 4, 2021, Representative Cawthorn promoted the January 6 demonstration, tweeting, “January 6th is fast approaching, the future of this Republic hinges on the actions of a solitary few. Get ready, the fate of a nation

²³ Turning Point, *Live! SAS 2020 Day 3! Madison Cawthorn, Allie Stuckey, and More!*, FACEBOOK (Dec. 21, 2020) (at 3:44:00), <https://bit.ly/DecemberTurningPointVideo>.

²⁴ Madison Cawthorn (@CawthornforNC), TWITTER (Dec. 31, 2020, 3:21 p.m.), <https://bit.ly/CawthorneTweetDec31>.

²⁵ Michael D. Shear & Stephanie Saul, *Trump, in Taped Call, Pressured Georgia Official to ‘Find’ Votes to Overturn Election*, N.Y. TIMES (Jan. 3, 2021), <https://nyti.ms/3mUVQef>.

rests on our shoulders, yours and mine. Let's show Washington that our backbones are made of steel and titanium. It's time to fight."²⁶

47. On January 5, 2021, Pence informed Trump that he did not have the authority to unilaterally reject electoral votes and consequently would not do so. This was widely and publicly reported that same day.²⁷

The Events of January 6, 2021

48. On the morning of January 6, Representative Cawthorn spoke at the demonstration, remarking that "this crowd has some fight" and "[t]he Democrats, with all the fraud they have done this election, the Republicans, hiding and not fighting, they are trying to silence your voice."²⁸

49. Other speakers included Trump's lawyer, Rudy Giuliani, who called for "trial by combat,"²⁹ and Rep. Mo Brooks of Alabama, who urged the crowd to "start taking down names and kicking ass" and be prepared to sacrifice their "blood" and "lives" and "do what it takes to fight for America" by "carry[ing] the message to Capitol Hill," since "the fight begins today."³⁰

²⁶ Madison Cawthorn (@CawthornforNC), TWITTER (Jan. 4, 2021, 5:57 p.m.), <https://bit.ly/CawthornJan4Tweet>.

²⁷ Kaitlan Collins & Jim Acosta, *Pence informed Trump that he can't block Biden's win*, CNN (Jan. 5, 2021), <https://cnn.it/3FH4gx9>.

²⁸ Madison Cawthorn (@CawthornforNC), TWITTER (Jan. 6, 2021, 11:02 a.m.), <https://bit.ly/CawthornJan6Tweet1>; *Rally on Electoral College Vote Certification*, C-SPAN (Jan. 6, 2021) (2:10 mark), <https://www.c-span.org/video/?507744-1/rally-electoral-college-vote-certification>; Charles Duncan, *N.C. Rep. Cawthorn Sticks by D.C. Rally Speech, Loses Backing of Key Supporter*, SPECTRUM NEWS 1 (Jan. 12, 2021), <https://bit.ly/CawthornJan6SpeechArticle>.

²⁹ Wash. Post, *Trump, Republicans incite crowd before mob storms Capitol*, YOUTUBE (Jan. 6, 2021), <https://youtu.be/mh3cbd7niTQ>.

³⁰ The Hill, *Mo Brooks gives FIERY speech against anti-Trump Republicans, socialists*, YOUTUBE (Jan. 6, 2021), <https://youtu.be/ZKHwV6sdrMk>.

50. Around 12:00 pm, then-President Trump began speaking about how “we will stop the steal.”³¹ Seven minutes into his speech, the crowd was chanting “Fight for Trump!”. About 16 minutes into his speech, he said, “[a]fter this, we’re going to walk down and I’ll be there with you. We’re going to walk down. We’re going to walk down any one you want, but I think right here. We’re going walk down to the Capitol, and we’re going to cheer on our brave senators, and congressmen and women. We’re probably not going to be cheering so much for some of them because you’ll never take back our country with weakness. You have to show strength, and you have to be strong.”³² At about this point, 10,000-15,000 demonstrators began the roughly 30-minute march to the Capitol, where they joined a crowd of 300 members of the violent extremist group “Proud Boys.”³³

51. Around 1:00 p.m.—just as Congress had begun the process of jointly counting the electoral votes—then-President Trump ordered the remaining crowd to “walk down Pennsylvania Avenue . . . we are going to the Capitol.”³⁴ At around that time, Trump supporters attacked police protecting the barricades surrounding the Capitol.³⁵ As Trump ended his speech, a large portion of the crowd began their

³¹ *Donald Trump Speech “Save America” Rally Transcript January 6, REV* (Jan. 6, 2021), <https://bit.ly/3GheZid>; Brian Naylor, *Read Trump’s Jan. 6 Speech, A Key Part Of Impeachment Trial*, NPR (Feb. 10, 2021), <https://n.pr/3G1K2ON>.

³² *Id.*

³³ Martha Mendoza & Juliet Linderman, *Officers maced, trampled: Docs expose depth of Jan. 6 chaos*, AP NEWS (Mar. 10, 2021), <https://bit.ly/3F2Hi26>.

³⁴ *What Happened on Jan. 6*, WASH. POST (Oct. 31, 2021), <https://wapo.st/3eSdf2y>.

³⁵ *Id.*

30-minute march to the Capitol.³⁶ By 1:30 p.m., law enforcement retreated as insurrectionists scaled the walls of the Capitol. Many were armed with weapons, pepper spray, and tasers. Some wore full body armor; others carried homemade shields. Many used flagpoles, signposts, or other weapons to attack police officers defending the Capitol.³⁷

52. Because certain Members of Congress (including Cawthorn) had filed objections to Arizona’s slate of electors, by this time the joint counting session had been suspended and the House and Senate were debating the objections separately.³⁸ At 1:31 p.m. Representative Cawthorn tweeted, “I’m fighting a battle for our Constitution on the house floor with other patriots. The battle is on the house floor, not in the streets of D.C.”³⁹

53. By 2:00 p.m., the Capitol had been breached by insurrectionists, smashing through first-floor windows. Over the next two hours, hundreds of insurrectionists stormed the Capitol, attacking police with weapons and pyrotechnics. One police officer was crushed against a door, screaming in agony as the crowd chanted “Heave, ho!”⁴⁰ An attacker ripped off the officer’s gas mask, beat

³⁶ Kat Lonsdorft et al., *A timeline of how the Jan. 6 attack unfolded — including who said what and when*, NPR (Jan. 5, 2022), <https://n.pr/3ztHpmo>.

³⁷ *What Happened on Jan. 6*, WASH. POST (Oct. 31, 2021), <https://wapo.st/3eSdf2y>.

³⁸ *Id.*

³⁹ Madison Cawthorn (@CawthornforNC), TWITTER (Jan. 6, 2021, 1:31 p.m.), <https://bit.ly/CawthornJan6Tweet>.

⁴⁰ Kelsie Smith & Travis Caldwell, *Disturbing video shows officer crushed against door by mob storming the Capitol*, CNN (Jan. 9, 2021), <https://cnn.it/3eAmdSc>.

his head against the door, took his baton, and hit his head with it.⁴¹ Another officer was pulled into a crowd, beaten and repeatedly Tased by insurrectionists.⁴²

54. The insurrectionists demanded the arrest or murder of various other elected officials who refused to participate in their attempted coup.⁴³ They chanted “hang Mike Pence” and threatened Speaker Pelosi.⁴⁴ They taunted a Black police officer with racial slurs for pointing out that overturning the election would deprive him of *his* vote.⁴⁵ Confederate flags and symbols of white supremacist movements were widespread.⁴⁶

55. At 2:13 p.m., Vice President Pence was removed by the Secret Service; the House adjourned at 2:20 p.m.⁴⁷ The insurrectionists had successfully obstructed Congress from certifying the votes, temporarily blocking the peaceful transition of power from one presidential administration to the next.

56. At 2:44 p.m., insurrectionists attempted to force their way into the Speaker’s Lobby (adjacent to the House Chamber) as lightly armed security guards

⁴¹ Clare Hymes & Cassidy McDonald, *Capitol riot suspect accused of assaulting cop and burying officer’s badge in his backyard*, CBS NEWS (Mar. 13, 2021), <https://cbsn.ws/3eFAaxS>.

⁴² Michael Kaplan & Cassidy McDonald, *At least 17 police officers remain out of work with injuries from the Capitol attack*, CBS NEWS (June 4, 2021), <https://cbsn.ws/3eyXZr8>.

⁴³ *What Happened on Jan. 6*, WASH. POST (Oct. 31, 2021), <https://wapo.st/3eSdf2y>.

⁴⁴ H.R. REP. NO. 117-2, at 16, 12–13 (2021), <https://www.govinfo.gov/app/details/CRPT-117hrpt2/CRPT-117hrpt2>.

⁴⁵ *What Happened on Jan. 6*, WASH. POST (Oct. 31, 2021), <https://wapo.st/3eSdf2y>.

⁴⁶ *Id.*; STAFF OF S. COMM. ON RULES & ADMIN., 117TH CONG., A REVIEW OF THE SECURITY, PLANNING, AND RESPONSE FAILURES ON JANUARY 6, at 28 (June 1, 2021), <https://www.rules.senate.gov/download/hsgac-rules-jan-6-report>.

⁴⁷ *What Happened on Jan. 6*, WASH. POST (Oct. 31, 2021), <https://wapo.st/3eSdf2y>.

tried to hold the door long enough to evacuate Members of Congress and others.⁴⁸ Senate staffers took the electoral college certificates with them when they were evacuated, ensuring they did not fall into the hands of the insurrectionists.⁴⁹

57. Shortly after, the House Chamber and Senate Chamber fell. Insurrectionists, some carrying zip ties and tactical equipment, overtook the defenses of the United States government and achieved, through force, effective control over the seat of the United States Congress.⁵⁰ After 3:00 p.m., DHS, ATF, and FBI agents, and police from Virginia and Maryland, joined Capitol Police to help regain control of the Capitol.⁵¹ Around 4:30 p.m., insurrectionists attacked officers guarding the Capitol, beating them with improvised weapons, spraying them with mace, and beating one so badly he required staples.⁵² Around 5:20 p.m., the D.C. National Guard began arriving.⁵³ By 6:00 p.m., the insurrectionists had been removed from the Capitol, though some committed sporadic acts of violence through the night.⁵⁴

58. Vice President Pence was not able to reconvene Congress until 8:06 p.m., nearly six hours after the process had been obstructed.⁵⁵ Around 9 p.m.,

⁴⁸ *Id.*

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² *Id.*

⁵³ STAFF OF S. COMM. ON RULES & ADMIN., 117TH CONG., A REVIEW OF THE SECURITY, PLANNING, AND RESPONSE FAILURES ON JANUARY 6, at 26 (June 1, 2021), <https://www.rules.senate.gov/download/hsgac-rules-jan-6-report>.

⁵⁴ *What Happened on Jan. 6*, WASH. POST (Oct. 31, 2021), <https://wapo.st/3eSdf2y>.

⁵⁵ *Id.*

Trump’s counsel John Eastman argued to Pence’s counsel via email that Pence should refuse to certify Biden’s victory by not counting certain states.⁵⁶ Pence’s counsel ignored it. Congress was required under the Electoral Count Act to debate the objections filed by Senators and Members of Congress (including Cawthorn) to electoral results from Arizona and Pennsylvania. Despite six Senators and 121 Representatives (including Cawthorn) voting to reject Arizona’s electoral results,⁵⁷ and seven Senators and 138 Representatives (including Cawthorn) voting to reject Pennsylvania’s electoral results,⁵⁸ Biden’s victory was ultimately certified at 3:14 a.m., January 7.⁵⁹

59. In total, five people died⁶⁰ and over 150 police officers suffered injuries, including broken bones, lacerations, and chemical burns.⁶¹ Four Capitol Police officers on-duty during January 6 have since died by suicide.⁶²

⁵⁶ *Id.*

⁵⁷ 167 Cong. Rec. H77 (daily ed. Jan. 6, 2021), <http://bit.ly/Jan6CongRec>.

⁵⁸ *Id.* at H98.

⁵⁹ *What Happened on Jan. 6*, WASH. POST (Oct. 31, 2021), <https://wapo.st/3eSdf2y>; 167 Cong. Rec. H114–15 (daily ed. Jan. 6, 2021), <http://bit.ly/Jan6CongRec>.

⁶⁰ Jack Healy, *These Are the 5 People Who Died in the Capitol Riot*, N.Y. TIMES (Jan. 11, 2021), <https://nyti.ms/3pTyN5q>.

⁶¹ Michael Kaplan & Cassidy McDonald, *At least 17 police officers remain out of work with injuries from the Capitol attack*, CBS NEWS (June 4, 2021), <https://cbsn.ws/3eyXZr8>; Michael S. Schmidt & Luke Broadwater, *Officers’ Injuries, Including Concussions, Show Scope of Violence at Capitol Riot*, N.Y. TIMES (Feb. 11, 2021), <https://nyti.ms/3eN31k2>.

⁶² Luke Broadwater & Shaila Dewan, *Congress Honors Officers Who Responded to Jan. 6 Riot*, N.Y. TIMES (Aug. 3, 2021), <https://nyti.ms/3EURwlp>.

Cawthorn's Statements Since the Insurrection

60. During the assault on the Capitol, Representative Cawthorn called a radio show hosted by Charlie Kirk, a prominent public figure, and deflected blame onto Democratic and “antifa” infiltrators for the violence.⁶³

61. In a January 7, 2021 interview, Representative Cawthorn admitted that the people who stormed the Capitol were likely people who would have voted for him. But he claimed that he had nothing to do with the attack, and that he was not frightened because he was armed.⁶⁴

62. On February 5, 2021, he said he did not regret speaking at the demonstration.⁶⁵

63. On August 29, 2021, Cawthorn said he sympathized with insurrectionists as “political hostages” and “political prisoners,” and suggested that, if he knew where they were incarcerated, he would like to “bust them out.”⁶⁶ When asked when supporters would be “called back to Washington,” he replied, “[w]e are actively working on that one.”⁶⁷ He also advocated for additional political violence, saying that “[t]he second amendment was not written so that we can go hunting or shoot sporting clays. The second amendment was written so that we can

⁶³ *Chaos at the Capitol*, THE CHARLIE KIRK SHOW (Jan. 6, 2021), <https://bit.ly/KirkPodcast>.

⁶⁴ Cory Vaillancourt, *Cawthorn: mob that breached capitol 'disgusting and pathetic'*, SMOKY MOUNTAIN NEWS (Jan. 7, 2021), <https://bit.ly/CawthornJan7Interview>.

⁶⁵ Carlos Watson, *Does Rep. Madison Cawthorn Regret His Speech Before the U.S. Capitol Riots?* YOUTUBE (Feb. 5, 2021), <https://bit.ly/CawthornFeb5Interview>.

⁶⁶ *Madison Cawthorn Macon County Republican Party Appearance 8-29-2021*, YOUTUBE (Aug. 31, 2021), <https://youtu.be/2RtsGikgAqA>.

⁶⁷ *Id.*

fight against tyranny”; “if our election systems continue to be rigged, and continue to be stolen, then it’s going to lead to one place, and it’s bloodshed”; “[w]hen tyranny becomes law, rebellion becomes your duty,” and that, with respect to his political opponents, “we all need to be storing up some ammunition.”⁶⁸

64. On or about August 30, 2021, the U.S. House of Representatives’ bipartisan Select Committee to Investigate the January 6th Attack on the U.S. Capitol instructed 35 private-sector entities, including telecommunications, email, and social media companies, to preserve records of 11 Members of Congress, including Representative Cawthorn.⁶⁹

65. On November 19, 2021, Representative Cawthorn told his supporters to be “armed, dangerous, and moral.”⁷⁰

66. On December 7, 2021, Representative Cawthorn filed for candidacy for the House of Representatives in the 13th District for North Carolina.

67. Representative Cawthorn’s occasional criticisms of the Capitol attackers since January 6, 2021⁷¹ do not substantially alter his overall record of support for the insurrection; rather, they suggest a *post hoc* effort to distance

⁶⁸ *Id.*

⁶⁹ Rebecca Shabad et al., *Jan. 6 committee to ask phone companies for Republican lawmakers’ records*, NBC NEWS (Aug. 30, 2021), <https://nbcnews.to/3pHntJz>.

⁷⁰ The Lincoln Project (@ProjectLincoln), TWITTER (Nov. 19, 2021, 1:36 p.m.), <https://bit.ly/CawthornNov19>.

⁷¹ For example, he once described the attackers as “weak-minded men and women who are unable to check their worst impulses and had very little self-control.” Carlos Watson, *Does Rep. Madison Cawthorn Regret His Speech Before the U.S. Capitol Riots?* YOUTUBE (Feb. 5, 2021), <https://youtu.be/czJXV7Tz8u4>.

himself from his past support for and, as alleged herein, engagement in the insurrection, even as he continues to this day to profess support for its goals.

INELIGIBILITY ANALYSIS

The State Board of Elections and its appointed panel must hear candidate challenges based on Section Three, such hearings are consistent with precedent, and North Carolina has a duty to prevent unqualified congressional candidates from appearing on the ballot.

68. In general, states can apply ballot eligibility procedures to candidates for federal office who do not meet the criteria established by the U.S. Constitution. As then-Judge (now U.S. Supreme Court Justice) Gorsuch held, a state’s “legitimate interest in protecting the integrity and practical functioning of the political process permits it to exclude from the ballot candidates who are constitutionally prohibited from assuming office.” *Hassan v. Colorado*, 495 F. App’x 947, 948 (10th Cir. 2012); accord *Peace & Freedom Party v. Bowen*, 750 F.3d 1061 (9th Cir. 2014); see also *Burdick v. Takushi*, 504 U.S. 428, 441 (1992) (“the right to vote is the right to participate in an electoral process that is necessarily structured to maintain the integrity of the democratic system”).

69. The candidate challenge process in North Carolina is fully competent to adjudicate questions of ineligibility under the Disqualification Clause of the Fourteenth Amendment. First, a process for disqualifying candidates ineligible under Section Three was an express condition of the federal statute that

readmitted North Carolina to the Union after the Civil War.⁷² Second, as discussed above, the challenge process provides ample process to the challenged candidate, and allows the candidate to present evidence, call witnesses, testify, and appeal any adverse decisions to the North Carolina Court of Appeals and beyond.⁷³

70. North Carolina law specifically authorizes challenges to candidacy on the grounds that “the candidate does not meet the constitutional . . . qualifications for the office.” N.C. GEN. STAT. § 163-127.2(b). For example, the general counsel for the State Board of Elections has confirmed that a candidate who is constitutionally ineligible for the presidency “will not qualify as a Presidential Candidate in the State of North Carolina.” Letter from Don Wright, General Counsel, N.C. State Bd. of Elections, to Abdul K. Hassan, July 22, 2011.

71. North Carolina has a history of using state law processes to exclude candidates who are disqualified by Section Three of the Fourteenth Amendment. *See Worthy*, 63 N.C. at 204–05; *In re Tate*, 63 N.C. 308 (1869); *see also* 1868 N.C. Pub. L. ch. 1, § 8 (“no person prohibited from holding office by section 3 of the Amendment to the Constitution of the United States, known as Article XIV, shall qualify under this act or hold office in this State”). Furthermore, these processes

⁷² 40 Cong. Ch. 70, 15 Stat. 73 (1868) (“no person prohibited from holding office under the United States . . . by section three of the proposed amendment to the Constitution of the United States, known as article fourteen, shall be deemed eligible to any office in [any] of said States, unless relieved from disability as provided by said amendment”).

⁷³ The North Carolina procedures also satisfy Chief Justice Chase’s dictum that Section Three requires “proceedings, evidence, decisions, and enforcements of decisions, more or less formal” to determine who is and is not covered. *In re Griffin*, 11 F. Cas. 7, 26–27 (C.C.D. Va. 1869).

have long included initial determinations of qualifications by non-judicial state officials. *See Worthy*, 63 N.C. at 200.

72. Once a state has determined a candidate is disqualified under Section Three, it has a duty to ensure that the unqualified candidate is not listed on the ballot. Just as North Carolina should exclude an underage candidate from the primary for a congressional race, it should also exclude one who engaged in an insurrection against the United States.

73. The fact that the U.S. House of Representatives itself has authority to exclude Cawthorn, if re-elected, does not deprive the sovereign state of North Carolina of the power and obligation to protect the integrity of its own ballots.⁷⁴

**January 6 was an insurrection or rebellion within the meaning of
Section Three of the Fourteenth Amendment.**

74. The January 6 attack constituted an “insurrection” or “rebellion” under Section Three of the Fourteenth Amendment.

75. First, the insurrectionists defied the authority of the United States. *See In re Charge to Grand Jury*, 62 F. 828, 830 (N.D. Ill. 1894) (defining insurrection as an uprising “so formidable as for the time being to defy the authority of the United States”); *Insurrection*, WORCESTER’S DICTIONARY (1835) (leading pre-1868 dictionary defining “insurrection” to mean “[a] seditious rising

⁷⁴ Resolving this issue now, at the primary stage, would ensure that Republican primary voters may choose a constitutionally eligible candidate in the normal election schedule, and would prevent the possible need for a special election.

against government”);⁷⁵ see also *Allegheny Cty. v. Gibson*, 90 Pa. 397, 417 (1879) (applying a similar definition); 4 WM. BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND, *81–82 (distinguishing riots from violence against the state). During the attack, insurrectionists were armed, called for the death of elected officials (including the Vice President, the Speaker of the House of Representatives, and other prominent Members of Congress), attacked law enforcement, and forced their way into the building. Five people died and 150 law enforcement officers were injured. It took the combined efforts of the Capitol Police, federal agents, state police, and the National Guard to clear the insurrectionists from the Capitol.⁷⁶

76. Second, the insurrectionists’ goal was to overthrow the government or obstruct its core functions. See *Pan Am. World Airways, Inc. v. Aetna Cas. & Sur. Co.*, 505 F.2d 989, 1005 (2d Cir. 1974) (insurrection requires “an intent to overthrow a lawfully constituted regime”); *Home Ins. Co. of N.Y. v. Davila*, 212

⁷⁵ Most legal authority defining “insurrection” pertains to insurrections against *any* government. Under Section Three, the violent uprising must be against the United States, rather than state or local government. See U.S. CONST. amend. XIV, § 3 (applying to a person who previously swore “to support the Constitution of the United States” but engaged in insurrection “against the same”).

⁷⁶ The original public understanding of “insurrection” may not have required actual violence. See *In re Charge to Grand Jury*, 62 F. 828, 830 (N.D. Ill. 1894) (insurrection does not require “bloodshed,” only that the uprising be “so formidable as for the time being to defy the authority of the United States”). Twentieth-century cases typically define “insurrection” as requiring violence. See *Pan Am. World Airways, Inc. v. Aetna Cas. & Sur. Co.*, 505 F.2d 989, 1017 (2d Cir. 1974) (defining insurrection to require “a violent uprising”); *Home Ins. Co. of N.Y. v. Davila*, 212 F.2d 731, 736 (1st Cir. 1954) (similar). As set forth above, the facts of January 6 easily satisfy any such requirement.

F.2d 731, 736 (1st Cir. 1954) (insurrectionary action must be “specifically intended to overthrow the constituted government and to take possession of the inherent powers thereof”). Even before the attack, the entire point of the demonstration (at which Cawthorn spoke) was to intimidate Congress and Vice President Pence—in particular, to intimidate Pence into violating the Twelfth Amendment and the Electoral Count Act by ignoring the legal electoral votes for Biden. And the insurrectionists mounted their violent assault on the U.S. Capitol and the government officials within for the purpose of preventing the Vice President of the United States and the United States Congress from fulfilling their constitutional roles in ensuring the peaceful transition of power. As they attacked, the insurrectionists insisted that elected officials anoint their preferred candidate the winner—or be murdered.

77. This was an attack on the *United States*. The importance of counting the electoral votes in our constitutional system cannot be overstated. It formalizes a deeper, bedrock norm in our democracy: the peaceful transition of power. The Electoral Count Act, as well as the Article II and the Twelfth Amendment, lay out the procedures for counting votes; together with the Twentieth Amendment, they ensure that transition is orderly and non-violent. They are essential constitutional functions of the United States government. An attempt to disrupt those procedures, particularly through violence, is an attack on our country itself.

78. This was no mere riot; it was an attempt to disrupt an essential constitutional function and illegally prolong Trump’s tenure in office. And while an

attack on public authority need not be likely to succeed in order to constitute an insurrection, *see Davila*, 212 F.2d at 736 (“An insurrection aimed to accomplish the overthrow of the constituted government is no less an insurrection because the chances of success are forlorn.”), the January 6 insurrectionists’ violent seizure of the House and Senate Chambers and key congressional offices did, in fact, obstruct and delay this essential constitutional procedure. They very nearly succeeded in achieving their aim of overturning the results of the 2020 presidential election. U.S. Representative Peter Meijer of Michigan, a member of Cawthorn’s party who joined the House on the same day as him, has described the attack as “a violent attempt to interfere with the proceedings of Congress, and specifically the certification of the Electoral College results.”⁷⁷ General Mark Milley, Chairman of the Joint Chiefs of Staff, “believed January 6 was a planned, coordinated, synchronized attack on the very heart of American democracy, designed to overthrow the government”; he referred to January 6 as a “coup attempt.”⁷⁸ If this violent attack on the political system of the United States in the heart of the nation’s capital is not an insurrection, then nothing is.

79. This analysis of January 6 is consistent with the understanding of Congress, the U.S. Department of Justice, and federal courts.

⁷⁷ *Death threats, primary challenge followed Rep. Meijer’s vote to impeach Trump after Jan. 6*, PBS (Jan. 4, 2022), <https://to.pbs.org/3FXcKAj>.

⁷⁸ BOB WOODWARD & ROBERT COSTA, *PERIL*, xviii (2021).

80. On the evening of January 6, after Congress was finally able to reconvene, Senator Mitch McConnell of Kentucky, the Senate Majority Leader, described the assault as a “failed insurrection.”⁷⁹

81. In court filings, the U.S. Department of Justice has characterized the attack on the Capitol as “an insurrection attempting to violently overthrow the United States Government.”⁸⁰ Judge Carl Nichols of the U.S. District Court for the District of Columbia has described the attack as an “uprising” that “target[ed] a proceeding prescribed by the Constitution and established to ensure a peaceful transition of power.”⁸¹ Bipartisan majorities of the House and Senate voted for articles of impeachment describing the attack as an “insurrection.”⁸² And in the impeachment trial, President Trump’s own defense lawyer stated that “the question before us is not whether there was a violent insurrection of [sic] the Capitol. On that point, everyone agrees.”⁸³ The Senate voted by unanimous consent to award a Congressional Gold Medal for Capitol Police officer Eugene Goodman via a bill that categorized the January 6 attackers as “insurrectionists.”⁸⁴ Congress

⁷⁹ Nicholas Fandos et al., *Resuming electoral counting, McConnell condemns the mob assault on the Capitol as a ‘failed insurrection’*, N.Y. TIMES (Jan. 6, 2021), <https://www.nytimes.com/2021/01/06/us/politics/insurrection.html>.

⁸⁰ United States v. Chansley, No. 21-cr-00003 (D. Ariz. filed Jan. 14, 2021), ECF No. 5, <https://bit.ly/3FJ1LdM>.

⁸¹ United States v. Miller, No. 21-cr-00119 (D.D.C. Dec. 21, 2021), ECF No. 67, <https://bit.ly/318NBmX>.

⁸² 167 Cong. Rec. H191 (daily ed. Jan. 13, 2021); 167 Cong. Rec. S733 (daily ed. Feb. 13, 2021).

⁸³ 167 Cong. Rec. S729 (daily ed. Feb. 13, 2021), <http://bit.ly/EveryoneAgrees>.

⁸⁴ 167 Cong. Rec. S694–95 (daily ed. Feb. 12, 2021).

separately voted to award Congressional Gold Medals to other Capitol Police, using the same “insurrectionists” language.⁸⁵

82. Recognizing January 6 as an insurrection or rebellion for purposes of Section Three is also consistent with the intent of the Fourteenth Amendment’s drafters, who worried that the reelection of the pre-war political class in the South would re-empower those willing to use violence or otherwise reject the results when their preferred policies were not enacted, or their preferred candidates were not elected. *See, e.g.*, 69 CONG. GLOBE, 39th Cong., 1st Sess. 2532 (1866) (statement of Rep. Banks) (“They do not rely on ideas for success. They govern by force. Their philosophy is force. Their tradition is force.”). The idea behind Section Three was that politicians who took an oath to protect the Constitution and then disregarded the norms of peaceful and lawful political discourse could not be trusted to hold office—that was true then, and it remains true today.

If Representative Cawthorn helped plan January 6 events with the intent to incite or aid an insurrection or rebellion or with the knowledge that an insurrection or rebellion was substantially likely, he has engaged in an insurrection within the meaning of Section Three of the Fourteenth Amendment.

83. To “engage” in insurrection or rebellion, one must voluntarily and knowingly aid the insurrection by providing it with something useful or necessary.

84. The Disqualification Clause does not require that individuals personally commit acts of violence or open defiance to be considered as having

⁸⁵ Pub. L. No. 117-32, 135 Stat. 322 (2021).

“engaged” in an insurrection.⁸⁶ In the leading national case on the standard for “engaging” in insurrection under Section Three, the North Carolina Supreme Court interpreted the word “engage” to mean “[v]oluntarily aiding the rebellion, by personal service, or by contributions, other than charitable, of any thing that was useful or necessary” to it. *Worthy*, 63 N.C. at 203; *see also United States v. Powell*, 65 N.C. 709 (C.C.D.N.C. 1871) (holding that “engage” merely required “a voluntary effort to assist the Insurrection . . . and to bring it to a successful [from insurrectionists’ perspective] termination”).

85. Someone who helps plan a demonstration with the intent, knowledge, or reason to know that it will result in an insurrection or rebellion has voluntarily given their “personal service” to the insurrection by providing something “necessary” to the insurrection: an assembly point. Similarly, someone who does not plan the insurrection or rebellion itself, but plans an inciting event and knows that an insurrection is substantially likely to result, has also “engaged” in an insurrection. They have created a chaotic situation that makes it more likely for the insurrection to come to “a successful [on its own terms] termination,” and by knowing that an insurrection is substantially likely, they have given that aid voluntarily.

86. Here, there is reliable reporting that Representative Cawthorn, who was intimately involved in the plans *inside* the Capitol to reject the electoral votes

⁸⁶ For example, Confederate President Jefferson Davis did not personally engage in violence during the Civil War.

of Arizona and Pennsylvania, and spoke at the “Save America” demonstration, was also involved with, at minimum, the planning of events that led to the insurrection.

87. Supporters of the movement to prevent President-elect Biden’s victory from being certified in Congress, with whom Representative Cawthorn continues to associate, made it clear beforehand that they understood the demonstration as a call to forcibly prevent the certification of Biden and install Trump as president for another four years. At no point before the demonstration did Representative Cawthorn insist on peaceful protest.⁸⁷ Instead, he promoted the demonstration by encouraging his supporters that it was “time to fight” and show their “backbone,” and spoke in an equally incendiary fashion during the demonstration.

88. Representative Cawthorn has advocated for political violence both before and after the insurrection. He urged his supporters to “lightly threaten” Members of Congress and has insisted that the necessary and justifiable outcome of continued “fraud” is violence.

89. Although he couches his language in American values, his support for false election fraud claims and references to bloodshed and violent confrontation demonstrate his public position that violence and intimidation is justified in response to a peaceful, orderly election if his candidate of choice loses. His occasional professions of denial or disdain for the foot soldiers who stormed the

⁸⁷ Nor are Challengers aware of any affirmative action by Cawthorn to abandon, defeat, or disavow the insurrection—certainly not before the violence that he knew or should have known was substantially likely.

Capitol cannot conceal the fact that he encouraged, and upon reasonable suspicion helped aid, the insurrection.

CONCLUSION

90. Challengers have reasonable suspicion that Representative Cawthorn was involved in planning efforts to intimidate Congress and the Vice President into rejecting valid electoral votes and subvert the essential constitutional function of an orderly and peaceful transition of power. Challengers have reasonable suspicion that Cawthorn was involved in either planning the attack on January 6, or alternatively the planning of the pre-attack demonstration and/or march on the Capitol with the advance knowledge that it was substantially likely to lead to the attack, and otherwise voluntarily aided the insurrection after taking an oath, as a member of Congress to support the Constitution, disqualifying him from federal office under the Disqualification Clause of Section Three of the Fourteenth Amendment; and, therefore, that he “does not meet the constitutional . . . qualifications for the office” he seeks. N.C. GEN. STAT. § 163-127.2(b).

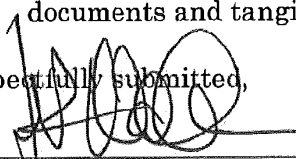
REQUESTED RELIEF

WHEREFORE, the Challengers respectfully request that:

1. The State Board of Elections immediately appoint a multi-county board to hear the challenge.
2. The Challengers be authorized to depose Representative Cawthorn before the hearing.

3. The Challengers be authorized to issue subpoenas to Representative Cawthorn and to other persons, within and outside North Carolina, of documents and tangible things that may provide relevant evidence.

Respectfully submitted,



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STATE OF NORTH CAROLINA
WAKE COUNTY

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
No. 21 CVS 015426
No. 21 CVS 500085

NORTH CAROLINA LEAGUE OF
CONSERVATION VOTERS, INC. et al.,

REBECCA HARPER, et al.,

COMMON CAUSE,

Plaintiffs,

v.

REPRESENTATIVE DESTIN HALL, in his
official capacity as Chair of the House Standing
Committee on Redistricting, et al.

Defendants.

**ORDER STAYING
CANDIDATE CHALLENGES**

This matter comes before the Court on a motion by State Defendants for an Order staying candidate challenges as authorized by the December 8, 2021 Order of the Supreme Court of North Carolina. Pursuant to that order, and for good cause shown, the Motion to Stay Candidate Challenges is GRANTED as follows:

IT IS HEREBY ORDERED that the consideration by State and county boards of elections of candidate challenges against candidates for U.S. House and North Carolina House and Senate, as contemplated under N.C.G.S. § 163-127.1, et seq., are stayed until such time as the present litigation finally resolves the district maps that will be implemented in the 2022 primary for those offices, including through any appeals in North Carolina Courts and/or enactment of replacement maps by the General Assembly.

Dated: _____

A. Graham Shirley, Superior Court Judge

Nathaniel J. Poovey, Superior Court Judge

Dawn M. Layton, Superior Court Judge

STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
FILE NO. 21 CVS 015426

NORTH CAROLINA LEAGUE, OF
CONSERVATION VOTERS, INC., *et al.*,
Plaintiffs

and

COMMON CAUSE,
Plaintiff-Intervenor,

v.

REPRESENTATIVE DESTIN HALL, in
his official capacity as Chair of the House
Standing Committee on Redistricting, *et*
al.,
Defendants.

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STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
FILE NO. 21 CVS 500085

REBECCA HARPER, *et al.*,
Plaintiffs

v.

REPRESENTATIVE DESTIN HALL, in
his official capacity as Chair of the House
Standing Committee on Redistricting, *et*
al.,
Defendants.

ORDER ON STATE BOARD'S MOTION TO STAY CANDIDATE CHALLENGES

THIS MATTER came before the undersigned three-judge panel on the State Board's Motion to Stay Candidate Challenges, filed January 11, 2022.

In this litigation, Plaintiffs seek a declaration that the North Carolina Congressional, North Carolina Senate, and North Carolina House of Representatives districts established

by an act of the General Assembly in 2021, N.C. Sess. Laws 2021-174 (Senate Bill 750), 2021-173 (Senate Bill 739), and 2021-175 (House Bill 976), violate the rights of Plaintiffs under the North Carolina Constitution. Plaintiffs seek to enjoin the future use of the 2021 congressional and state legislative districts.

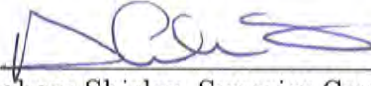
As evident from past redistricting litigation, this Court's final judgment is likely to undergo an appeals process and, if Plaintiffs are successful on appeal, a remedial process while replacement maps are enacted. As indicated by the North Carolina State Board of Elections, challenges to candidacies for elective office have been filed, and more may be filed during this intervening time period. If a stay of the proceedings on candidate challenges is not granted, the State Board will need to appoint a panel, pursuant to N.C.G.S. §§ 163-127.3 and -127.4, by the end of business on January 12, 2022. The panel will then need to render a written decision by February 9, 2022.

However, because these challenges will relate to candidates within districts that are at issue in this litigation, it is possible that the State Board will have to duplicate this process if the challenged maps are ultimately enjoined and replaced with remedial maps. The members of the elections board panel may no longer be eligible based on a different configuration of counties in each district and a candidate may no longer be eligible to run in that district.

As such, pursuant to the December 8, 2021, Order of the Supreme Court of North Carolina authorizing this court to issue any orders necessary to accomplish the changes in the election schedule resulting from the granted Preliminary Injunction, and for good cause shown, the State Board's Motion to Stay Candidate Challenges is hereby GRANTED; candidate challenges against candidates for the U.S. House and the North Carolina House and Senate are stayed until a final resolution of the present litigation.

21 CVS 015426

SO ORDERED, this the 11th day of January, 2022.



A. Graham Shirley, Superior Court Judge

/s/ Nathaniel J. Poovey

Nathaniel J. Poovey, Superior Court Judge

/s/ Dawn M. Layton

Dawn M. Layton, Superior Court Judge

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing document was served on the persons indicated below via e-mail transmission addressed as follows:

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Service is made upon local counsel for all attorneys who have been granted pro hac vice admission, with the same effect as if personally made on a foreign attorney within this state.

This the 11th day of January, 2022.

/s/ Kellie Z. Myers
Kellie Z. Myers
Trial Court Administrator
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STATE OF NORTH CAROLINA

COUNTY OF WAKE

NORTH CAROLINA LEAGUE, OF
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Plaintiffs,

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STATE OF NORTH CAROLINA

COUNTY OF WAKE

REBECCA HARPER, *et al.*,
Plaintiffs,

v.

REPRESENTATIVE DESTIN HALL, in
his official capacity as Chair of the House
Standing Committee on Redistricting, *et*
al.,
Defendants.

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
FILE NO. 21 CVS 500085

JUDGMENT

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INTRODUCTION

These consolidated cases present this Court with the unique challenge of balancing the competing interests of fairness, the role of the judiciary, statutory and constitutional construction, the interpretation of prior court rulings, and good old fashion common sense. Sometimes, courts are required to make decisions that are not popular, but because judges take an oath to uphold the law, those rulings are mandated. And sometimes, redress of a perceived wrong does not lie with the judiciary, but rather, with one of the other co-equal branches of government.

All of Plaintiffs' claims in these lawsuits, in essence, stem from the basic argument that the 2021 redistricting maps passed by the North Carolina General Assembly are unconstitutional under the North Carolina Constitution. We have taken great lengths to examine that document. At the end of the day, after carefully and fully conducting our analysis, it is clear that Plaintiffs' claims must fail. Judges, just like many of the citizens they serve, do not always like the results they reach. That fact notwithstanding, judges have a solemn duty to uphold the law. We have done our best to perform that duty, regardless of the consequences. Our complete ruling is more fully set forth in the following Findings of Fact and Conclusions of Law:

FINDINGS OF FACT

I. Summary of Relevant Procedural History

1. Plaintiffs North Carolina League of Conservation Voters, Inc.; Henry M. Michaux, Jr.; Dandrielle Lewis; Timothy Chartier; Talia Fernos; Katherine Newhall; R. Jason Parsley; Edna Scott; Roberta Scott; Yvette Roberts; Jereann King Johnson; Reverend Reginald Wells; Yarbrough Williams, Jr.; Reverend Deloris L. Jerman; Viola Ryals Figueroa; and Cosmos George (hereinafter “NCLCV Plaintiffs”) filed their Complaint (Civil Action No. 21 CVS 015426) contemporaneously with a Motion for Preliminary Injunction pursuant to

Rules 7(b) and 65 of the North Carolina Rules of Civil Procedure on November 16, 2021. The NCLCV Plaintiffs’ Complaint alleges that the 2021 districting plans for Congress, the North Carolina Senate, and the North Carolina House of Representatives violate the North Carolina Constitution by establishing severe partisan gerrymanders in violation of the Free Elections Clause, Art. I, § 10, the Equal Protection Clause, Art. I, § 19, and the Freedom of Speech and Assembly Clauses, Art. I, §§ 12, 14; by engaging in racial vote dilution in violation of the Free Elections Clause, Art. I, § 10, and the Equal Protection Clause, Art. I, § 19; and by violating the Whole County Provisions, Art. II, §§ 3(3), 5(3).

2. Plaintiffs Rebecca Harper; Amy Clare Oseroff; Donald Rumph; John Anthony Balla; Richard R. Crews; Lily Nicole Quick; Gettys Cohen Jr.; Shawn Rush; Mark S. Peters; Kathleen Barnes; Virginia Walters Brien; Eileen Stephens; Barbara Proffitt; Mary Elizabeth Voss; Chenita Barber Johnson; Sarah Taber; Joshua Perry Brown; Laureen Floor; Donald M. MacKinnon; Ron Osborne; Ann Butzner; Sondra Stein; Bobby Jones; Kristiann Herring; and David Dwight Brown (hereinafter “Harper Plaintiffs”) filed their Complaint (Civil Action No. 21 CVS 500085) on November 18, 2021¹, and a Motion for Preliminary Injunction pursuant to Rule 65 and N.C.G.S. § 1-485 on November 30, 2021. Harper Plaintiffs amended their Complaint on December 13, 2021, and the Harper Plaintiffs’ operative Complaint alleges that the 2021 districting plans for Congress, the North Carolina Senate, and the North Carolina House of Representatives violate the North Carolina Constitution—namely its Free Elections Clause, Art. I, § 10; its Equal Protection Clause, Art. I, § 19; and its Freedom of Speech and Freedom of Assembly Clauses, Art. I, §§ 12, 14.

¹ Plaintiffs Eileen Stephens, Barbara Proffitt, Mary Elizabeth Voss, Chenita Barber Johnson, Sarah Taber, Joshua Perry Brown, Laureen Flood, Donald M. MacKinnon, Ron Osborne, Ann Butzner, Sondra Stein, Bobby Jones, and Kristiann Herring were added as Plaintiffs upon the filing of Harper Plaintiffs’ Amended Complaint.

3. On November 19, 2021, and November 22, 2021, the NCLCV and Harper actions, respectively, were assigned to the undersigned three-judge panel of Superior Court, Wake County, pursuant to N.C.G.S. § 1-267.1.

4. On December 3, 2021, the undersigned consolidated these respective cases pursuant to Rule 42 of the North Carolina Rules of Civil Procedure and heard NCLCV Plaintiffs’ and Harper Plaintiffs’ Motions for Preliminary Injunction. On December 3, 2021, after considering the extensive briefing and oral arguments on the motions, the undersigned denied NCLCV Plaintiffs’ and Harper Plaintiffs’ Motions for Preliminary Injunction.

5. NCLCV Plaintiffs and Harper Plaintiffs thereafter filed a notice of appeal with the North Carolina Court of Appeals. After initially partially granting a temporary stay of the candidate filing period for the 2022 elections, the North Carolina Court of Appeals denied the requested temporary stay on December 6, 2021.

6. On December 8, 2021, on NCLCV Plaintiffs’ and Harper Plaintiffs’ Petitions for Discretionary Review Prior to Determination by the Court of Appeals, Motion to Suspend Appellate Rules to Expedite a Decision, and Motion to Suspend Appellate Rules and Expedite Schedule, the Supreme Court of North Carolina granted a preliminary injunction and temporarily stayed the candidate filing period “until such time as a final judgment on the merits of plaintiffs’ claims, including any appeals, is entered and remedy, if any is required, has been ordered.” SCONC order on Pls motion p. 3. The Order further directed this Court to hold proceedings on the merits of NCLCV Plaintiffs’ and Harper Plaintiffs’ claims and provide a written ruling on or before January 11, 2022.

7. In light of our Supreme Court’s directive and the history of redistricting litigation in our state courts, including the Common Cause v. Lewis action in 2019 in which a final judgment was not entered until almost a year after the filing of the plaintiffs’ complaint and an extensive discovery period culminated in a two-week trial, this Court

entered a scheduling order on December 13, 2021, expediting discovery and scheduling trial to commence on January 3, 2022. This Case Scheduling Order was thereafter supplemented on December 28, 2021, and December 30, 2021.

8. On December 13, 2021, Common Cause moved to intervene in these consolidated cases as a plaintiff, challenging the process undertaken by the General Assembly to create and enact the state legislative and congressional districts as a product of intentional racial discrimination undertaken for the purpose of racial vote dilution and to further the legislature’s partisan gerrymandering goals. On December 15, 2021, this Court granted Common Cause’s motion to intervene as a plaintiff in these consolidated cases, and Plaintiff-Intervenor Common Cause filed its Complaint on December 16, 2021.² Plaintiff Common Cause’s Complaint alleges that the 2021 districting plans for Congress, the North Carolina Senate, and the North Carolina House of Representatives violate the North Carolina Constitution—namely its Equal Protection Clause, Art. I, § 19; its Free Elections Clause, Art. I, § 10; and its Freedom of Speech and Freedom of Assembly Clauses, Art. I, §§ 12, 14—and seeks, among other relief, a declaratory ruling under the Declaratory Judgment Act.

9. The North Carolina Congressional Districts challenged by Plaintiffs collectively include all fourteen enacted Congressional Districts.

10. The North Carolina Senate Districts challenged by Plaintiffs collectively include Senate Districts 1, 2, 13, 14, 15, 16, 17, 18, 19, 21, 26, 27, 28, 31, 32, 37, 38, 39, 40, 41, 42, 46, 47, 49, 50.

11. The North Carolina House of Representatives Districts challenged by Plaintiffs collectively include House Districts 2, 4, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 29, 30, 31,

² Unless specifically designated otherwise in the remainder of this Judgment, “Plaintiffs” collectively refers to NCLCV Plaintiffs, Harper Plaintiffs, and Plaintiff Common Cause.

33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 49, 57, 58, 59, 60, 61, 62, 71, 72, 74, 75, 88, 91, 92, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 112, 114, 115, and 116.

12. On December 15, 2021, this Court entered a Protective Order to govern the production and exchange of the parties’ documents, and any testimony at deposition relating to such documents, that reflect the parties’ confidential information.

13. On December 17, 2021, Defendants Representative Destin Hall, in his official capacity as Chairman of the House Standing Committee on Redistricting; Senators Ralph E. Hise, Jr., Warren Daniel, Paul Newton, in their official capacities as Co-Chairmen of the Senate Committee on Redistricting and Elections; Philip E. Berger, in his official capacity as President Pro Tempore of the North Carolina Senate; Timothy K. Moore, in his official capacity as Speaker of the North Carolina House of Representatives (hereinafter “Legislative Defendants”) filed their Answer to NCLCV Plaintiffs’ Complaint, asserting seventeen affirmative defenses, and Harper Plaintiffs’ Amended Complaint, asserting fifteen affirmative defenses.

14. Affirmative defenses raised by Legislative Defendants include inter alia that granting the requested relief will violate the Voting Rights Act and the United States Constitution; that granting the requested relief will violate the rights of Legislative Defendants, Republican voters, and Republican candidates under the United States and North Carolina Constitutions; that the court cannot lawfully prevent the General Assembly from considering partisan advantage and incumbency protection; that Plaintiffs seek to require districts where Democratic candidates are elected where such candidates are not currently elected; that Plaintiffs’ claims are barred by the doctrine of laches; that Plaintiffs have failed to state claims upon which relief can be granted; that Plaintiffs seek a theory of liability that will act to impose a judicial amendment to the North Carolina Constitution; that the only limitations on redistricting legislation are found in Article II, Sections 2, 3, 4,

and 5 of the North Carolina Constitution; that Plaintiffs’ request for a court-designed redistricting plan violates the separation of powers doctrine; that Plaintiffs’ claims are non-justiciable and fail to provide judicially manageable standards; that Plaintiffs lack standing; and, that Plaintiffs have unclean hands and therefore are not entitled to equitable relief.

15. Defendant Ralph E. Hise, Jr. is a Republican member of the North Carolina Senate, representing Senate District 47, and the Chairman of the Senate Standing Committee on Redistricting and Elections. Defendant Hise is sued in his official capacity only. Defendant Hise resides in Senate District 47 in the 2021 districting plan.

16. Defendant Warren Daniel is a Republican member of the North Carolina Senate, representing Senate District 46, and the Chairman of the Senate Standing Committee on Redistricting and Elections. Defendant Daniel is sued in his official capacity only. Defendant Daniel resides in Senate District 46 in the 2021 districting plan.

17. Defendant Paul Newton is a Republican member of the North Carolina Senate, representing Senate District 36, and the Chairman of the Senate Standing Committee on Redistricting and Elections. Defendant Newton is sued in his official capacity only. Defendant Newton resides in Senate District 34 in the 2021 districting plan.

18. Representative Destin Hall is Republican member of the North Carolina House of Representatives, representing House District 87, and the Chairman of the House Standing Committee on Redistricting. Defendant Hall is sued in his official capacity only. Defendant Hall resides in House District 87 in the 2021 districting plan.

19. Defendant Timothy K. Moore is a Republican member and the Speaker of the North Carolina House of Representatives, representing House District 111. Defendant Moore is sued in his official capacity only. Defendant Moore resides in House District 111 in the 2021 districting plan.

20. Defendant Philip E. Berger is a Republican member and the President Pro Tempore of the North Carolina Senate, representing Senate District 30. Defendant Berger is sued in his official capacity only. Defendant Berger resides in Senate District 26 in the 2021 districting plan.

21. On December 17, 2021, Defendants North Carolina State Board of Elections and its members Damon Circosta, in his official capacity as Chairman of the Board of Elections; Stella Anderson, in her official capacity as Secretary of the Board of Elections; and Jeff Carmon III, Stacy Eggers IV, and Tommy Tucker, in their official capacities as Members of the Board of Elections filed their Answer to Harper Plaintiffs’ Amended Complaint. Also on December 17, 2021, these same Defendants along with Defendant State of North Carolina and Defendant Karen Brinson Bell, in her official capacity as Executive Director of the North Carolina State Board of Elections filed their Answer to NCLCV Plaintiffs’ Complaint.³

22. Legislative Defendants and State Defendants did not file an answer to Plaintiff Common Cause’s Complaint. Pursuant to this Court’s order granting Common Cause’s intervention, however, the allegations and requested relief in Plaintiff Common Cause’s Complaint are deemed denied by all Defendants.

23. Throughout the intervening and expedited two-and-a-half-week period reserved for discovery, the parties filed and the Court expeditiously ruled upon over ten discovery-related motions—a number far exceeding the number of such motions filed in *Common Cause v. Lewis*, in which discovery spanned a period of over five months.

24. Pursuant to the Court’s Case Scheduling Order, pre-trial submissions began with the exchange and submission of initial expert reports on December 23, 2021. Plaintiffs

³ For simplicity, unless specifically designated otherwise in the remainder of this Judgment, “State Defendants” refers to the State Board of Elections-related Defendants as well as Defendant State of North Carolina.

collectively designated eight individuals as expert witnesses and submitted accompanying reports. Legislative Defendants designated two individuals as expert witnesses and submitted accompanying reports. The initial reports and accompanying materials submitted on behalf of the expert witnesses for all parties exceeded a collective 900 pages of materials.

25. Rebuttal expert reports were exchanged and submitted on December 28, 2021. Plaintiffs collectively submitted five rebuttal reports. Legislative Defendants submitted three rebuttal reports. The rebuttal reports and accompanying materials submitted on behalf of the expert witnesses for all parties exceeded a collective 100 pages of materials.

26. The discovery period closed on December 31, 2021—the date upon which all fact and expert witness depositions were to be conducted pursuant to the Case Scheduling Order. The parties thereafter submitted, in lieu of pre-trial briefs, an initial stipulation of facts and initial proposed findings of fact and conclusions of law. The parties collectively listed approximately 1,200 pre-marked exhibits for trial.

27. Commencing on January 3, 2022, this Court conducted a three-and-one-half day trial, receiving testimony from numerous fact and expert witnesses and receiving approximately 1,000 exhibits into evidence. The following findings of fact are made upon this voluminous record.⁴

II. The Challenged Redistricting Legislation

A. Background on Decennial Redistricting

28. Following each decennial census, the North Carolina General Assembly must redraw the districts for the North Carolina House of Representatives, the North Carolina Senate, and the North Carolina Congressional map.

⁴ Due to the time limitations between the conclusion of trial and the entry of this Final Judgment, and to avoid confusion when reviewing the finalized trial transcript, citations to the trial transcript are only to a specific day on which a witness testified and are denominated as “Trial Tr. [Date of Testimony].”

29. In North Carolina, legislative redistricting is performed exclusively by the General Assembly. The Governor of North Carolina has no power to veto redistricting bills.

30. The State Constitution specifically enumerates four limitations upon the redistricting and reapportionment authority of the General Assembly, including that:

- a. Each Senator and Representative shall represent, as nearly as possible, an equal number of inhabitants;
- b. Each senate and representative district shall at all times consist of contiguous territory;
- c. No county shall be divided in the formation of senator or representative districts (the “Whole County Provision”); and
- d. Once established, the senate and representative districts and the apportionment of Senators and Representatives shall remain unaltered until the next decennial census of population taken by order of Congress.

31. Between 1870 and 2010, the Democratic Party at all times controlled one or both houses of the General Assembly.

32. After the 2010 election, for the first time since 1870, Republicans constituted a majority of both the North Carolina House of Representatives and the North Carolina Senate.

33. Republicans have constituted a majority in both the North Carolina House of Representatives and the North Carolina Senate from 2010 to present day and have therefore controlled each of the last two cycles of redistricting in North Carolina.

B. 2020 Census Data for the 2021 Redistricting Process

34. On February 12, 2021, the U.S. Census Bureau announced that its release of P.L. 94-171 redistricting data would be delayed by the COVID-19 pandemic, and would not be released until the fall of 2021, and specifically that it would deliver the Public Law 94-171 redistricting data to all states by September 30, 2021. PX131.

35. On March 15, 2021, the United States Census Bureau announced that it would release a “legacy” format summary redistricting data file to all states by mid-to-late August 2021, in addition to the “tabulated” P.L. 94-171 block-level data released before September 30, 2021, “[i]n recognition of the difficulties this timeline creates for states with redistricting and election deadlines prior to Sept. 30.” PX132.

36. On April 26, 2021, the United States Census Bureau released data indicating that North Carolina’s population increased from 9,535,483 residents in 2010 to 10,439,388 residents in 2020. PX142; PX133; PX143. This 9.5 percent population increase resulted in North Carolina being given an additional Congressional seat following the 2020 Census, resulting in North Carolina’s congressional delegation growing from 13 to 14 members. PX144.

37. On August 12, 2021, the U.S. Census Bureau released the 2020 Census Redistricting Data (Public Law 94-171) Summary File for all states, including North Carolina, in “legacy” format. PX134.

C. Adoption of the 2021 Redistricting Criteria

38. On February 24, 2021, after the U.S. Census Bureau announced that its release of P.L. 94-171 redistricting data would be delayed, the North Carolina State Board of Elections Executive Director Karen Brinson Bell presented recommendations to the House Elections Law and Campaign Finance Reform Committee to move the 2022 primary to a May 3 primary, July 12 second primary, and November 8 general election. PX1402.

39. When Senator Hise received Director Bell’s recommendations, he had “no idea” how long the redistricting process would take. PX146 Hise. Dep. 155:3-18. Nonetheless, he and his co-chairs did not follow the Board’s recommendations to delay the primaries and provide more time for the redistricting cycle. *Id.* at 140:18-25. Senator Hise did, however, co-

sponsor a senate bill that modified the deadline for municipalities similarly impacted by the census delay. *Id.* at 143:1-8.

40. Legislative Defendants were aware that the delay in the release of Census Data would shorten the amount of time available to pass new state Legislative and Congressional maps before relevant deadlines, including the one-year residency deadline that state Legislative candidates would have to meet and the candidate-filing deadline on December 6, 2021, for all 2022 general election candidates. PX146 Hise Dep. 149:23-150:5. Nonetheless, they chose not to convene the Senate and House Redistricting Committees earlier to plan for the process, PX146 Hise Dep. 143:8-22, and chose not to propose or set forth a schedule for the redistricting process that would have allowed the public or their Democratic colleagues to prepare for the steps that would be taken before final enactment of state Legislative and Congressional plans. PX146 Hise Dep. 153:7-13. The Chairs of the Redistricting Committees had the general authority to make such decisions and set forth a predictable schedule but chose not to. PX146 Hise Dep. 143:12-19.

41. On Thursday, August 5, 2021, at 2:00 PM, the Senate Committee on Redistricting and Elections convened a Joint Meeting of the Senate Redistricting and Elections Committee and the House Redistricting Committee to begin discussion on the redistricting process. PX138.

42. Following this meeting, staff member Erika Churchill distributed to the joint committee members the legislative redistricting criteria ordered by the North Carolina Superior Court for Wake County in its September 3, 2019, Judgment in the matter *Common Cause v. Lewis*, No. 18 CVS 014001, 2019 N.C. Super. LEXIS 56 (the “2019 Criteria”). PX1404. Consistent with state Constitutional requirements, including the Supremacy Clauses in Article I, Sections 3 and 5, the 2019 Criteria set forth by the court in *Common Cause* specifically required that new maps comply with the VRA and other federal

requirements concerning the racial composition of districts, and required the parties to submit briefing and expert analysis on whether VRA districts were required within 14 days of the order, including consideration of whether the minimum Black Voting Age Population (“BVAP”) thresholds were met to implicate the VRA. *Common Cause v. Lewis*, No. 18 CVS 014001, 2019 N.C. Super. LEXIS 56, at *417 (N.C. Super. Ct. Sept. 3, 2019).

43. On Monday, August 9, 2021, the redistricting chairs of the joint committees released the “2021 Joint Redistricting Committee Proposed Criteria.” PX33.

44. The Joint Redistricting Committees received in-person public comment on the Proposed Criteria on Tuesday, August 10, 2021, beginning at 8:30 AM.

45. At that public comment period, Plaintiff Common Cause’s Counsel Allison Riggs urged legislators to change the criterion providing that “Data identifying the race of individuals or voters shall not be used in the construction or consideration of districts in the 2021 Congressional, House and Senate plans,” PX33, stating the following:

It is neither appropriate nor required to draw districts race-blind. As long as redistricting has occurred, it has been a tool used to harm voters of color. Beyond compliance with the Voting Rights Act, it is entirely appropriate to advance race-equity to consider race in the drawing of districts, to ensure that voters of color are not being packed or cracked. Additionally, in *Covington v. North Carolina*, this legislative body tried the same thing with respect to race-blind redistricting. A three-judge panel, including Republican and Democratic appointees, and a unanimous Supreme Court, rejected your race-blind remedial drawing of two Senate districts and two House districts. In fact, there is apparently not a federal judge out there who agrees with this approach, and we urge you to abandon that criteria.

PX1487.

46. On Thursday, August 12, 2021, the Joint Redistricting Committees convened to debate and vote on the 2021 Joint Redistricting Committee Proposed Criteria.

47. At this meeting, Senator Newton, Chair of the Senate Redistricting Committee, made the following statement:

The second question I want to address is the decision to exclude racial data from being used by this committee in the drawing of districts; of course we understand that North Carolina is obligated to comply with Section 2 of the Voting Rights Act when drawing districts in the 2021 Congressional, House, and Senate plans, but during the last decade the Supreme Court told us that there is not sufficient evidence of racially polarized voting in North Carolina to justify the consideration of race when drawing districts. If you have new evidence or new studies of racially polarized voting in North Carolina, we would be willing to examine that evidence, and nothing in this criteria prevents any member from bringing forward such evidence during this process.

PX77 at 10-11 (8/12/2021 Transcript).

48. In response, Senator Dan Blue stated that the Supreme Court of North Carolina held in *Stephenson v. Bartlett* that legislators were first required to determine whether districts are required to comply with the VRA. PX77 at 15 (8/12/2021 Transcript). Senator Blue queried how this would be possible without the use of racial data, stating, “I think that *Stephenson* makes it relatively clear that before you consider clustering or groupings, you have to make that VRA determination.” PX77 at 15 (8/12/2021 Transcript).

49. Senator Newton replied, “The chairs have considered the various options and we will comply with the law and the methodology we used in 2019 [sic] passed muster and we’re going to continue with that methodology.” PX77 at 15 (8/12/2021 Transcript).

50. Senator Warren Daniel then proposed that the Joint Committees add a sentence under the criteria stating, “The Committee will draw districts that comply with the Voting Rights Act.” PX77 at 15 (8/12/2021 Transcript). The amendment was adopted into the final criteria. PX77 at 18-19 (8/12/2021 Transcript).

51. After Senator Daniel proposed his amendment, Senator Blue proposed an amendment titled “Voting Rights Act.” This amendment provided: “As condemned by the United States Supreme Court in *Cooper v. Harris* and *Covington v. State of North Carolina*, African-Americans shall not be packed into any grouping or district to give partisan advantage to any political party.” PX77 at 53-55 (8/12/2021 Transcript); PX73 (proposed

amendment). During debate on this amendment, Senator Blue offered the following comment on the amendment:

The amendment is sort of self-explanatory. I simply say that for the four decades since the 1980s redistricting, starting with *Gingles v. Edmisten*, and through *Shaw v. Reno*, and through the series of cases at the early part of this century, and the cases in the last redistricting cycle, North Carolina has basically been the state with the chin out before the Supreme Court to get our redistricting plans struck down. And we've spent tens of millions of dollars over that time period, from the 80s forward, to have the Supreme Court basically say no to all of those efforts that we've done. So this is an effort to make sure that we make an effort to try and save the taxpayers what now is collectively more than 50 million dollars in efforts and futility, by setting forth that related to Senator Daniel's earlier amendment, that we know what the Voting Rights Act requires, we know what the Supreme Court has said, and this is the language that they have used with respect to, in both *Cooper v. Harris* and *Covington v. North Carolina*, what you've got to do to comply with the Voting Rights Act. I just offer the amendment so that it's constantly before us, so that we don't get tempted to sort of skirt to the edge again and cost the taxpayers another 10 to 20 million dollars defending this thing back up through the Court of Appeals or the Supreme Court, or a three-judge panel and the Supreme Court. So, I move for the adoption of the amendment.

PX77 at 53-55 (8/12/2021 Transcript).

52. During debate on the amendment, Senator Clark raised concerns about how North Carolina could comply with the VRA without considering racial data: "How do we intend to comply with the Voting Rights Act if we don't use the racial data that is required to comply with it?" PX77 at 56 (8/12/2021 Transcript). In response, Defendant Daniel expressed the view that prior case law in North Carolina did not require the use of racial data:

Just as Senator Newton explained at the beginning of the meeting, in the event that evidence is presented to the committee that there's racially polarized voting in North Carolina then that might be something the committee would need to address. At this point, the courts in 2019 and even the Democrats' own expert have said that there is not racially polarized voting in North Carolina, and so that's sort of where we think we're at.

53. PX77 at 56-57 (8/12/2021 Transcript). Senator Clark then responded: "Given that the *Stephenson* requirement is there, that we do VRA districts first, is it not incumbent upon the General Assembly itself to perform racially polarized studies in order to make that

determination that, as we are here today, that there is no racial polarization in North Carolina with regard to voting?” PX77 at 57 (8/12/2021 Transcript). Senator Daniel responded by saying, “We don’t feel that that is necessary at this point at the outset of the map drawing.” PX77 at 57 (8/12/2021 Transcript).

The amendment offered by Senator Blue failed. PX77 at 63 (8/12/2021 Transcript).

In that same meeting, Representative Hall said:

We’re agreeing – or at least we’re proposing in this criteria not to use racial data at all in the drawing of these maps, but as Senator Daniel has said, members of the committee and members of the public are welcome to gather whatever evidence and put forth evidence that might fall under Section 2 of the Voting Rights Act, that that may require some use of racial data. And, of course, that will be up to this body, to this committee, and ultimately two bodies of the two chambers as to whether to consider that and how to do that. But at this point, none of that evidence has been put forth.

PX77 at 86:10-23 (8/12/2021 Joint Committee Transcript).

54. On August 12, 2021, the Joint Redistricting Committees adopted the final redistricting criteria (“Adopted Criteria”), which were as follows:

Equal Population. The Committees will use the 2020 federal decennial census data as the sole basis of population for the establishment of districts in the 2021 Congressional, House, and Senate plans. The number of persons in each legislative district shall be within plus or minus 5% of the ideal district population, as determined under the most recent federal decennial census. The number of persons in each congressional district shall be as nearly as equal as practicable, as determined under the most recent federal decennial census.

Contiguity. No point contiguity shall be permitted in any 2021 Congressional, House, and Senate plan. Congressional, House, and Senate districts shall be compromised of contiguous territory. Contiguity by water is sufficient.

Counties, Groupings, and Traversals. The Committees shall draw legislative districts within county groupings as required by *Stephenson v. Bartlett*, 355 N.C. 354, 562 S.E.2d 377 (2002) (*Stephenson I*), *Stephenson v. Bartlett*, 357 N.C. 301, 582 S.E.2d 247 (2003) (*Stephenson II*), *Dickson v. Rucho*, 367 N.C. 542, 766 S.E.2d 238 (2014) (*Dickson I*) and *Dickson v. Rucho*, 368 N.C. 481, 781 S.E. 2d 460 (2015) (*Dickson II*). Within county groupings, county lines shall not be traversed except as authorized by *Stephenson I*, *Stephenson II*, *Dickson I*, and *Dickson II*.

Division of counties in the 2021 Congressional plan shall only be made for reasons of equalizing population and consideration of double bunking. If a county is of sufficient population size to contain an entire congressional district within the county’s boundaries, the Committees shall construct a district entirely within that county.

Racial Data. Data identifying the race of individuals or voters *shall not* be used in the construction or consideration of districts in the 2021 Congressional, House, and Senate plans. The Committees will draw districts that comply with the Voting Rights Act.

VTDs. Voting districts (“VTDs”) should be split only when necessary.

Compactness. The Committees shall make reasonable efforts to draw legislative districts in the 2021 Congressional, House and Senate plans that are compact. In doing so, the Committee may use as a guide the minimum Reock (“dispersion”) and Polsby-Popper (“permitter”) scores identified by Richard H. Pildes and Richard G. Neimi in *Expressive Harms, “Bizarre Districts,” and Voting Rights: Evaluating Election-District Appearances After Shaw v. Reno*, 92 Mich. L. Rev. 483 (1993).

Municipal Boundaries. The Committees may consider municipal boundaries when drawing districts in the 2021 Congressional, House, and Senate plans.

Election Data. Partisan considerations and election results data *shall not* be used in the drawing of districts in the 2021 Congressional, House, and Senate plans.

Member Residence. Member residence may be considered in the formation of legislative and congressional districts.

Community Consideration. So long as a plan complies with the foregoing criteria, local knowledge of the character of communities and connections between communities may be considered in the formation of legislative and congressional districts.

PX34; LDTX15.

D. Establishing the District Lines in the 2021 Enacted Plans

55. On Wednesday, September 1, 2021, the Joint Redistricting Committees announced a Joint Public Hearing Schedule, that would consist of 13 public hearings held from September 8, 2021, through September 30, 2021.⁵; PX86.

56. The 13 public hearings listed in the Joint Public Hearing Schedule were as follows:

- a. 6:00 PM on Wednesday, September 8, 2021, at Caldwell Community College and Technical Institute;
- b. 4:00 PM on Tuesday, September 14, 2021, at Forsyth Technical Community College;
- c. 5:00 PM on Tuesday, September 14, 2021, at Elizabeth City State University;
- d. 6:00 PM on Wednesday, September 15, 2021, at Durham Technical Community College;
- e. 5:00 PM on Wednesday, September 15, 2021, at Nash Community College;
- f. 5:00 PM on Thursday, September 16, 2021, at Alamance Community College;
- g. 3:00 PM on Thursday, September 16, 2021, at Pitt Community College;
- h. 5:00 PM on Tuesday, September 21, 2021, at Western Carolina University;
- i. 3:00 PM on Wednesday, September 22, 2021, at Central Piedmont Community College;
- j. 3:00 PM on Thursday, September 23, 2021, at Mitchell Community College, Iredell County Campus;
- k. 4:00 PM on Tuesday, September 28, 2021, at UNC Pembroke;
- l. 5:00 PM on Wednesday, September 29, 2021, at UNC Wilmington; and,
- m. 6:00 PM on Thursday, September 30, 2021, at Fayetteville Technical Community College.

PX86.

1. Selection of County Groupings

57. On Tuesday, October 5, 2021, the Senate Committee on Redistricting and Elections and the House Committee on Redistricting each convened separately. The General

⁵ 9.1.21 released Hearing schedule:
<https://www.ncleg.gov/documentsites/committees/House2021-182/2021/Public%20Hearing%20Schedule.pdf>

Assembly’s members were tasked with creating State House districts containing between 82,645 and 91,345 people; that is 86,995 plus or minus 5% from the ideal population. PX79 12:25–13:4 (Oct. 5, 2021). Members were tasked with creating Senate districts containing between 198,348 and 219,227 people; that is 208,788 people plus or minus 5% from the ideal population. PX80 6:5–10 (Oct. 5, 2021).

58. In both meetings, the Redistricting Chairs announced utilization of county groupings described in the academic paper *N.C. General Assembly County Clusterings from the 2020 Census* (the “Duke Academic Paper”), published on the Duke University website “Quantifying Gerrymandering.” PX79 at 8:2-4 (10/5/2021 House Redistricting Transcript); PX80 at 1–21 (10/5/2021 Senate Redistricting Transcript); PX70 (Quantifying Gerrymandering). These groupings were then verified by non-partisan staff. PX79 8:4-7 (Oct. 5, 2021).

59. The Duke Academic Paper states that “[t]he one part of *Stephenson v. Bartlett* which this analysis does not reflect is compliance with the Voting Rights Act,” PX70 (Quantifying Gerrymandering), a fact that was known to the Redistricting Chairs and announced publicly in both the House and Senate Redistricting Committee Meetings. PX80 at 18:6-9 (10/5/2021 Senate Redistricting Transcript); PX79 at 9:14-16 (10/5/2021 House Redistricting Transcript).

60. In the meeting of the Senate Committee on Redistricting and Elections, Defendant Hise provided the set of sixteen possible Senate cluster options, based upon the Duke Academic Paper, that constituted the set of options eligible for adoption (the “Duke Senate Clusters”). PX71 (“Duke Senate Groupings Maps 11x17”).

61. In this meeting, Senator Blue asked how leadership had ensured compliance with the VRA, as required under the North Carolina Constitution, in the mandated clusters without any demographic analysis. PX80 at 20-21 (10/5/2021 Senate Redistricting

Transcript). Senator Marcus stated the committee needed to conduct a Racial Polarization Analysis (“RPV”) study to ensure legal compliance. PX80 at 26 (10/5/2021 Senate Redistricting Transcript). Chair Hise confirmed the Chairs’ views that no demographic data was legally required, and that there was no directive to staff to order any RPV analysis or provide racial data to members drawing maps. PX80 at 26-27 (10/5/2021 Senate Redistricting Transcript); PX80 at 24:16-24 (10/5/2021 Senate Redistricting Transcript); PX146 Hise Dep. 185:14-22. Defendant Hise also said “this committee is still open to consider any information that exists on racially polarized voting,” Ex 80 at 31:24-32:2 (10/5/2021 Senate Redistricting Transcript), and that “if information does come forward regarding racially polarized voting, we will consider it.” PX80 at 26:12-15 (10/5/2021 Senate Redistricting Transcript).

62. In the meeting of the House Committee on Redistricting, Defendant Hall provided the set of eight possible House cluster options, based upon the Duke Academic Paper, that constituted the set of options eligible for adoption (the “Duke House Clusters”). PX72 (“Duke House Groupings Maps 11x17”).

63. In this Meeting, Representative Harrison similarly questioned how the committee would comply with the VRA, as the Duke Academic Paper stated its analysis did not reflect compliance with the VRA as required by *Stephenson*. PX79 at 36 (10/5/2021 House Redistricting Transcript). Representative Reives inquired about the obligations under the VRA and how to comply with them. PX79 at 75 (10/5/2021 House Redistricting Transcript). Chair Hall stated the committees made a decision not to use racial data, contrary to redistricting criteria used in the previous two sessions, which Chair Hall alleged to be “the best way” to ensure compliance with the VRA as well as other state and federal law. PX79 at 35 (10/5/2021 House Redistricting Transcript).

64. On Friday, October 8, 2021, Legislative Defendants received a letter from Allison J. Riggs, current counsel for Plaintiff Common Cause, concerning the county

clustering option maps introduced on Tuesday, October 5, 2021. PX1412. Representative Hall chose not to read this letter, and Sen. Hise took no action after receiving this letter. PX146 Hise Dep. 200:23-201:1, PX145 Hall Dep. 249:11-16.

65. On Monday, October 25, 2021, Legislative Defendants received a second letter from Allison J. Riggs, current counsel for Plaintiff Common Cause, concerning draft Senate map, “SST-4,” and its chosen grouping “Duke Senate 02.” PX1413. No action was taken in response to this letter. PX146 Hise Dep. 206:17-20, 211:2-6.

66. Overall, the redistricting chairs unilaterally decided not to undertake or commission any racially polarized voting study for the 2021 redistricting cycle. PX146 Hise Dep. 135:19-25. Plaintiffs evidence, however, fails to sufficiently show that any of the districts were required to be VRA districts and, to the extent *Stephenson* requires this determination at the outset, Plaintiffs do not assert a VRA claim.

2. The Map-Drawing Process

67. At the October 5, 2021, meetings, the House and Senate Chairs of the Redistricting Committees announced in their respective committee meetings that they would make computer stations available to legislators to draw maps, beginning the morning of October 6, 2021. PX1468 Daye Aff. ¶ 6. There would be four stations available to the House in Room 643 of the Legislative Office Building, and there would be four stations available to the Senate in Room 544 of the Legislative Office Building. *Id.* The stations would be open during business hours, and both the rooms and the screens of the station computers would be live streamed while the stations were open. *Id.*

68. Legislative Defendants sought to instill public confidence by requiring legislators to draw and submit maps using software on computer terminals in the redistricting committee hearing rooms. PX79 at 3:1-20 (statement of Rep. Destin Hall, Chairman, H. Comm. on Redistricting) (Oct. 5, 2021, H. Redistricting Comm. Hr’g Tr.). That

software did not include political data, and the House and Senate Committees would only consider maps drawn and submitted on the software. *Id.* at 52:3-8.

69. According to Representative Hall, the Committee and “the House as a whole” would “only consider maps that are drawn in this committee room, on one of the four stations.” PX79 at 4:15-19. “So, if a map is not drawn on one of these four stations, in this committee room, during those committee hours that the committee is open, then those maps will not be considered for a vote by this committee, and of course, will not be considered for a vote by the House.” *Id.* at 4:19-24. Legislators could ensure that was the case, Representative Hall asserted, because “when you put a map into one of these computers, that becomes a matter of public record, and we can tell which were drawn on these computers. It has to be drawn in this committee room.” *Id.* at 4:25-5:4. Representative Hall assured the public that this process would be fundamentally different from “what’s happened in the past,” where “some outside entity, a consultant, goes and they draw the map behind closed doors”; in 2021, we “will literally be drawing on the stations that you see.” *Id.* at 41:23-42:13.

70. The Committees chose this method to draw the maps on their own accord—not because the law required them to. *See, e.g.*, PX79 34:17–35:4 (Oct. 5, 2021). The Committees took “the unprecedented step of being as transparent” as they possible could. PX79. 35:21–24 (Oct. 5, 2021).

71. The Committees chose not to take racial data into account in selecting county groupings because they did not take into account in 2017 and 2019, and courts approved the 2017 and 2019 plans. PX79 37:17–25 (Oct. 5, 2021). This gave them “confidence that, without using racial data, [they would] comply with the Voting Rights Act.” PX79 39:3–5 (Oct. 5, 2021). Further, they took into account the fact plaintiffs’ experts in previous cases “all said that there is no legally significant racially polarized voting in North Carolina.” PX79 37:10-16 (Oct. 5, 2021); *see also* PX80 26:3-15 (Oct. 5, 2021).

72. Representative Hall testified that he personally drew nearly all of the House map enacted as House Bill 976, and that he did so over multiple days at an official computer terminal. PX145 at 110:4-9, 116:11-15, 120:5-24; Trial Tr. 01/05/2022. Representative Hall also testified that, between his sessions at the public terminal, he met with his then-General Counsel, Dylan Reel, and others about the map-drawing in a private room adjacent to the public map-drawing room. *Id.* at 128:2-132:17.

73. While the four computer terminals in the committee hearing room did not themselves have election data loaded onto them, the House and Senate Committees did not actively prevent legislators and their staff from relying on pre-drawn maps created using political data, or even direct consultation of political data. PX79 at 66:11-66:16. Representative Hall and Senator Ralph E. Hise, Jr., one of the Chairs of the Senate Redistricting Committee, confirmed that no restrictions on the use of outside maps were ever implemented or enforced. PX145 at 70:22-71:1 (Hall Dep.); PX 146 at 40:2-6.

3. The 2021 Redistricting Plans are Enacted

74. A placeholder version of the state House Map was filed on Thursday, October 28, 2021, as House Bill 976 (“HB976”) where it passed its first reading. A committee substitute (“HBK-14”) received a favorable review and, after one amendment, passed its second and third readings on the House and its first reading in the Senate on November 2, 2021. It received a favorable report from the Senate Redistricting Committee on November 3, 2021, without alteration and passed its second and third readings on November 4, 2021.

75. HB976 was ratified into law on November 4, 2021, as S.L. 2021-175. S.L. 2021-175 is entitled “AN ACT TO REALIGN NORTH CAROLINA HOUSE OF REPRESENTATIVES DISTRICTS FOLLOWING THE RETURN OF THE 2020 FEDERAL DECENNIAL CENSUS” and re-writes N.C.G.S. § 120-2(a) to divide the State of North Carolina into one-hundred-twenty (120) districts, with each district electing one

Representative, “[f]or the purpose of nominating and electing members of the North Carolina House of Representatives in 2022 and periodically thereafter.” 2021 N.C. Sess. Laws 175, § 1.

76. A proposed version of the state Senate map (“SST-13”) was filed on Friday, October 29, 2021, as Senate Bill 739 (“SB739”) and received its first reading in the Senate that day. It was then referred to the Senate Redistricting Committee on November 1 where the Redistricting Committee adopted a substitute along party lines (“SBK-7”). On November 2, Senator Marcus offered an amendment entitled “SBVAmend-2” to the Senate Redistricting Committee.⁶ Senator Clark also offered an amendment entitled “SCGAmend-3” to the Senate Redistricting Committee.⁷ Both amendments were adopted and included in the final version of SB739. The bill then passed its second and third readings in the Senate on November 3 along party lines and passed all three readings and the House Redistricting Committee without any alteration on November 3 – 4, 2021.

77. SB739 was ratified into law on November 4, 2021, as S.L. 2021-173. S.L. 2021-173 is entitled “AN ACT TO REALIGN THE DISTRICTS OF THE NORTH CAROLINA STATE SENATE FOLLOWING THE RETURN OF THE 2020 FEDERAL DECENNIAL CENSUS” and re-writes N.C.G.S. § 120-1(a) to establish the composition of the fifty (50) senatorial districts in the State of North Carolina, and apportion seats among those districts with each district electing one senator, “[f]or the purpose of nominating and electing members of the Senate in 2022 and periodically thereafter.” 2021 N.C. Sess. Laws 173, § 1.

⁶ <https://www.ncleg.gov/documentsites/committees/Senate2021-154/2021/11-02-2021/Adopted%20Amendments/S739-ATU-40.printing.pdf>

⁷ <https://www.ncleg.gov/documentsites/committees/Senate2021-154/2021/11-02-2021/Adopted%20Amendments/S739-ABA-40.printing.pdf>

78. A proposed Congressional map (“CST-13”) was filed on October 29, 2021, as Senate Bill 740 (“SB740”) and passed its first reading and received a favorable report from the Senate Redistricting Committee on November 1, 2021. It proceeded unaltered through its second and third readings in the Senate and its first reading in the House on November 2, received a favorable report from the House Redistricting Committee on November 3, and proceeded unaltered through its second and third readings in the House on November 4, 2021.

79. SB740 was ratified into law on November 4, 2021, as S.L. 2021-174. S.L. 2021-174 is entitled “AN ACT TO REALIGN THE CONGRESSIONAL DISTRICTS FOLLOWING THE RETURN OF THE 2020 FEDERAL DECENNIAL CENSUS” and re-writes N.C.G.S. § 163-201(a) to divide the State of North Carolina into fourteen (14) districts “[f]or purposes of nominating and electing members of the House of Representatives of the Congress of the United States in 2022 and periodically thereafter[.]” 2021 N.C. Sess. Laws 174, § 1.

80. The State House, State Senate and Congressional Maps all passed along party lines.

81. The State House map, HB976, passed the House on a strict party line vote, with 67 Republican Representatives in favor and 49 Democratic Representatives opposed. HB976 also passed the Senate on a strict party line vote, with 25 Republican Senators in favor and 21 Democratic Senators opposed.

82. The State Senate map, SB739, passed the Senate on a strict party line vote, with 26 Republican Senators in favor and 19 Democratic Senators opposed. SB739 also passed the House on a strict party line vote, with 65 Republican Representatives in favor and 49 Democratic Representatives opposed.

83. The Congressional map, SB740, passed the Senate on a strict party line vote, with 27 Republican Senators in favor and 22 Democratic Senators opposed. SB740 also

passed the House on a strict party line vote, with 65 Republican Representatives in favor and 49 Democratic Representatives opposed.

84. Plaintiffs challenge the North Carolina Congressional Districts, North Carolina Senate Districts, and North Carolina House of Representatives Districts established, respectively, by acts of our General Assembly ratified on November 4, 2021, in N.C. Sess. Laws 2021-174 (hereinafter “S.L. 2021-174” or “S.B. 740”), N.C. Sess. Laws 2021-173 (hereinafter “S.L. 2021-173” or “S.B. 739”), and N.C. Sess. Laws 2021-174 (hereinafter “S.L. 2021-175” or H.B. 976”) (collectively hereinafter, the “Enacted Plans”).

III. Extreme Partisan Gerrymandering Claims

A. Evidence Showing Partisan Intent, Effects, or a Lack Thereof

1. Direct Evidence

85. There is no express language showing partisan intent within the text of the session laws establishing the Enacted Plans.

86. The Adopted Criteria expressly forbade partisan considerations and election results data from being used in drawing districts in the Enacted Plans.

87. No elections have been conducted under the Enacted Plans to provide direct evidence of partisan effects that could be attributed as a result of the Enacted Plans.

88. The 2021 Congressional Plan was passed on strict party-line votes in the House on November 4 and the Senate on November 2. No member of the Democratic party in either chamber voted for the plan.

89. The General Assembly enacted the 2021 House Plan, on strict party-line votes, on November 4. No member of the Democratic party in either chamber voted for the plan.

90. The General Assembly enacted the 2021 Senate Plan, on strict party-line votes, on November 4. No member of the Democratic party in either chamber voted for the plan.

2. Circumstantial Evidence

a. Recent History of Partisan Redistricting Litigation and Legislation

91. The General Assembly’s intentional redistricting for partisan advantage has been subject to judicial review in multiple cases over the past decade.

92. First, in *Rucho v. Common Cause*, 139 S. Ct. 2484 (2019), the plaintiffs challenged North Carolina’s congressional districting maps in federal court as unconstitutional partisan gerrymanders. The well-established record showed that Republican legislators leading the redistricting effort instructed their mapmaker to use political data to draw a map that would produce a congressional delegation of ten republicans and three democrats. *Common Cause v. Rucho*, 318 F. Supp. 3d 777, 807-808 (M.D.N.C. 2018).

93. The federal district court concluded that all but one of the districts in North Carolina’s 2016 Congressional Plan violated the Equal Protection Clause by intentionally diluting the voting strength of Democrats. In examining intent, effects, and causation, the concern was that such a degree of vote dilution meant the elected representatives would feel free to ignore the concerns of the supporters of the minority party. *Id.* at 867. The district court also found partisan gerrymandering claims justiciable under the First Amendment. *Id.* at 929. Despite the undisputed findings of partisan intent in drawing the challenged districts, the Supreme Court of the United States held that partisan gerrymandering claims present political questions beyond the reach of the federal courts. 139 S. Ct. at 2506-07.

94. Then, in *Common Cause v. Lewis*, 18 CVS 14001 (N.C. Super. Ct. Sep. 03, 2019), the plaintiffs challenged North Carolina’s legislative maps in state court as unconstitutional partisan gerrymanders. After a federal court had struck down certain districts as unconstitutional racial gerrymanders, *Id.* at 13-14, and in 2017, the Senate

Redistricting Committee and the House Select Committee on Redistricting met to enact new plans where leaders stated that they would again employ the same mapmaker to draw these new plans and the adopted criteria allowed for political considerations and the use of election data results, *id.* at 14-16. While Republican legislators did not publicly state that they drew the maps for partisan advantage, there was meaningful dispute that this was the case. *Id.* at 23.

95. Prior to final judicial approval of the 2019 remedial maps, the court in *Common Cause* determined that the 2017 legislative maps at issue were the result of extreme partisan gerrymandering, and ordered those maps to be remedied to the extent necessary to cure that defect—in other words, to redraw the 2017 legislative maps so that the partisan gerrymandering would not be classified as “extreme.” To the extent the 2021 redistricting committees sought to retain the district lines of the 2019 maps, partisan bias, although not “extreme” by the *Common Cause* standard, is present in the Enacted Maps.

96. The three-judge panel concluded that 14 of the House district county groupings and 7 of the Senate district county groupings violated the North Carolina Constitution by operating through vote dilution such that an election would not reflect the will of the people, *Id.* at 302, by seeking to diminish the electoral power of supporters of a disfavored party, *id.* at 307, and by burdening the protected expression and association of voting, banding together in a political party, and spending on elections. *Id.* at 320. Unlike the federal court, however, the three-judge panel found that these claims were justiciable and the standards for evaluating the plaintiffs’ claims were satisfactory and manageable.

97. Finally, in *Harper v. Lewis*, 19 CVS 12667 (N.C. Super. Ct. Oct. 28, 2019), the plaintiffs sought a declaration that the 2016 congressional districts, as challenged in *Rucho v. Common Cause*, violated the rights of Democratic voters in North Carolina under the North

Carolina Constitution’s Free Elections Clause, Equal Protection Clause, and Freedom of Speech and Freedom of Assembly Clauses. *Id.* at 1. The three-judge panel agreed with the ruling in *Common Cause v. Lewis* that extreme partisan gerrymandering is violative of the North Carolina Constitution and presented justiciable issues. *See Harper v. Lewis generally.* Noting that “the 2016 congressional districts have already been the subject of years-long litigation in federal court arising from challenges to the districts on partisan gerrymandering grounds,” the Court found that there was a detailed record of the partisan intent and effects of the 2016 congressional plan. The Court held that the Plaintiffs had shown a likelihood of success on the merits and granted the preliminary injunction, enjoining the use of the 2016 congressional districts in the 2020 election.

98. Redistricting for political gain occurred well before these most recent instances, but it has not been forbidden by the people of North Carolina through a constitutional amendment or legislative act.

99. Since the 2000 Census, there has been several proposed redistricting bills in both the House and Senate of the General Assembly. The most prominent proposed redistricting bill has been related to establishing—by constitutional amendment and statute—an independent redistricting commission.

100. In all the various iterations of proposed bills, this commission would be tasked with either the redistricting process in its entirety, removing this power from the General Assembly, or with introducing plans to the General Assembly. In all these proposed bills, the redistricting plans were to be done without consideration of political affiliation of voters, voting data from previous elections, location of incumbents’ residences, or demographic data outside of that provided by the U.S. Census Bureau. None of these bills passed, or even crossed over. With few exceptions, when Democrats have controlled the House and Senate,

Republicans have introduced these bills; and when Republicans have controlled the House and Senate, Democrats have introduced these bills.

101. From 2001-2010, the Democratic Party had control of the General Assembly. A version of the independent redistricting commission was proposed and, with the exception of the 2005-2006 session where a Democrat was the primary sponsor of the bill, Republican members of the legislature were the primary sponsors of these bills. These bills were introduced at least once during each session. H.B. 318, 2001 Leg., 144th Sess. (N.C. 2001); S.B. 283, 2001 Leg., 144th Sess. (N.C. 2001); S.B. 285, 2001 Leg., 144th Sess. (N.C. 2001); S.B. 1437, 2001 Leg., 144th Sess. (N.C. 2001); H.B. 1060, 2003 Leg., 145th Sess. (N.C. 2003); H.B. 1090, 2003 Leg., 145th Sess. (N.C. 2003); S.B. 650, 2003 Leg., 145th Sess. (N.C. 2003); S.B. 651, 2003 Leg., 145th Sess. (N.C. 2003); H.B. 1425, 2005 Leg., 146th Sess. (N.C. 2005); H.B. 1448, 2005 Leg., 146th Sess. (N.C. 2005); S.B. 430, 2005 Leg., 146th Sess. (N.C. 2005); H.B. 76, 2007 Leg., 147th Sess., (N.C. 2007); S.B. 1122, 2007 Leg., 147th Sess., (N.C. 2007); H.B. 252, 2009 Leg., 148th Sess., (N.C. 2009); S.B. 25, 2009 Leg., 148th Sess., (N.C. 2009); H.B. 894, 2009 Leg., 148th Sess., (N.C. 2009).

102. Similarly, from 2011-present, Republicans have had control over the General Assembly, and a version of this bill has had a Democratic primary sponsor; however, in the 2011-2012, 2013-2014, 2015-2016, 2016 Extra Session 4, and 2017-2018 sessions, at least one Republican was a primary sponsor of these bills. Since Republican control, Democrats have been the prominent sponsor of these bills in both the House and Senate. H.B. 783, 2011 Leg., 149th Sess., (N.C. 2011); S.B. 591, 2011 Leg., 149th Sess., (N.C. 2011); H.B. 824, 2011 Leg., 149th Sess., (N.C. 2011); H.B. 606, 2013 Leg., 150th Sess., (N.C. 2013); H.B. 910, 2013 Leg., 150th Sess., (N.C. 2013); S.B. 155, 2013 Leg., 150th Sess., (N.C. 2013); S.B. 722, 2013 Leg., 150th Sess., (N.C. 2013); H.B. 49, 2015 Leg., 152nd Sess., (N.C. 2015); S.B. 28, 2015 Leg., 152nd Sess., (N.C. 2015); H.B. 92, 2015 Leg., 152nd Sess., (N.C. 2015); H.B. 6, 2015 Leg.,

152nd Sess., (N.C. 2015); H.B. 200, 2017 Leg., 153rd Sess., (N.C. 2017); S.B. 209, 2017 Leg., 153rd Sess., (N.C. 2017); H.B. 674, 2017 Leg., 153rd Sess., (N.C. 2017); S.B. 702, 2017 Leg., 153rd Sess., (N.C. 2017); S.B. 800, 2017 Leg., 153rd Sess., (N.C. 2017); H.B. 69, 2019 Leg., 154th Sess., (N.C. 2019); H.B. 574, 2019 Leg., 154th Sess., (N.C. 2019); S.B. 641, 2019 Leg., 154th Sess., (N.C. 2019); H.B. 648, 2019 Leg., 154th Sess., (N.C. 2019); H.B. 827, 2019 Leg., 154th Sess., (N.C. 2019); S.B. 673, 2019 Leg., 154th Sess., (N.C. 2019); H.B. 436, 2021 Leg., 155th Sess., (N.C. 2021); H.B. 437, 2021 Leg., 155th Sess., (N.C. 2021); H.B. 542, 2021 Leg., 155th Sess., (N.C. 2021); S.B. 716, 2021 Leg., 155th Sess., (N.C. 2021).

b. Stated Redistricting Objectives of the General Assembly in the 2021 Enacted Plans

103. The General Assembly established a detailed record of the stated purposes of the configurations of the 2021 districts.

(i) *The 2021 Congressional Plan*

104. The legislative record shows that stated goals achieved by the 2021 Congressional Plan included the following:

- a. CD1 is anchored in northeastern North Carolina to incorporate suggestions from a public hearing in Pasquotank that this region be maintained as a community of interest. The district was configured to take in the Outer Banks and most of the State’s shoreline and to keep the finger counties of northeastern North Carolina together, as well as most of the counties that run along the State’s border with Virginia. LDTX78 Senate Tr. 3:7–4:3 (Nov. 1, 2021).
- b. CD2 was configured to contain most of rural northeastern North Carolina, to maintain whole counties (16 of 18 are whole), and to avoid splitting municipalities (none are split). One precinct is split in Pitt County and one in Wayne County for the purpose of equalizing population. LDTX78 Senate Tr. 4:4–15 (Nov. 1, 2021).
- c. CD3 was configured to keep mostly rural counties in southeastern North Carolina near the coast within the same district and to improve the compactness of the prior district. Input from a public hearing in New Hanover was incorporated, including that Cape Fear River Basin be kept in one district, that New Hanover and Brunswick Counties be kept together, and that Bladen and Columbus Counties be maintained in single district. LDTX78 Senate Tr. 4:16–5:11 (Nov. 1, 2021).

- d. CD4 was configured to be a four-county district south of Raleigh. These counties were chosen because they have similar geography, industry, and proximity to population base in the region in Fayetteville and Raleigh. An online comment requested that Cumberland, Harnett, and Sampson Counties be kept together in a congressional district, and this was accomplished by adding population in Johnston and one precinct in Wayne County. The district is highly compact and splits no municipalities. LDTX78 Senate Tr. 5:12–6:7 (Nov. 1, 2021).
- e. CD5 was configured to be based entirely in Wake County, comprising Garner, Knightdale, Raleigh, Rolesville, Wake Forest, Wendell, and Zebulon. These municipalities are viewed as sharing common interests, given that people live and work and commute within these municipalities; no municipalities were split. Any VTDs split were done for the purposes of maintaining municipal boundaries or equalizing population. LDTX78 Senate Tr. 6:8–20 (Nov. 1, 2021).
- f. CD6 was configured to include Durham and Orange Counties and a portion of Wake County that contains Apex, Cary, and Morrisville, which were all viewed as a coherent community of interest, and to match the configuration of this district that has existed in this region, in roughly the same form, for decades. No municipalities were split. LDTX78 Senate Tr. 6:21–7:11 (Nov. 1, 2021).
- g. CD7 runs from the Triangle west through the Central Piedmont region encompassing four whole counties, to include Alamance, Chatham, Lee, and Randolph; parts of Davidson, Guilford, and Harnett Counties and a portion of Wake County to bring together rural areas and smaller cities and towns. VTDs were only split for the purpose of equalizing population or keeping cities together. LDTX78 Senate Tr. 7:12–25 (Nov. 1, 2021).
- h. CD8 is rooted in the Sandhill region of North Carolina including eight whole counties and a portion of Mecklenburg County. The configuration was created in part based on a comment by the Moore County Democratic Chair, who suggested that Sandhills counties including Moore, Scotland, and Hoke to be kept together in a Sandhills district. LDTX78 Senate Tr. 8:3–22 (Nov. 1, 2021).
- i. CD9 constitutes the General Assembly’s effort to keep the City of Charlotte together in one district, given its cohesive community. This was not strictly possible, given that Charlotte is too large for one congressional district, but the adopted configuration succeeded in keeping 83% of Charlotte in one district that, in turn, is 97% composed of Charlotte. LDTX78 Senate Tr. 8:23–9:5 (Nov. 1, 2021).
- j. CD10 is composed of suburban and exurban areas that stretch between the population centers of Charlotte and the Triad region, which constitute a community of interest. The district keeps all of the City of High Point in a single district, based on a comment at a public hearing in Forsyth. There is one split municipality in Greensboro. LDTX78 Senate Tr. 9:6–20 (Nov. 1, 2021).
- k. CD11 is based in the northwest corner of North Carolina, containing eight whole counties and two partial counties. This was done out of a desire to maintain the incumbent in the district. Another key goal was maintaining Greensboro as much

as possible in the district, and the goal was achieved with more than 90% of Greensboro included. LDTX78 Senate Tr. 9:21–10:6 (Nov. 1, 2021).

- l. CD12 was configured to join suburbs outside Charlotte to an area in and around Winston-Salem, which was achieved by incorporating four whole counties and one partial county. No municipalities were split. LDTX78 Senate Tr. 10:7–16 (Nov. 1, 2021).
- m. CD13 contains municipalities and towns to the west and north of Charlotte based on an online comment suggesting that towns in North Mecklenburg, including Cornelius, Huntersville, and Davidson, be joined into a single district. LDTX78 Senate Tr. 10:17–11:5 (Nov. 1, 2021).
- n. Finally, CD14 is anchored in western North Carolina to take in the mountain counties up to the westernmost tip of the State; the General Assembly implemented a comment at a Jackson County public hearing asking that McDowell and Polk Counties be removed from the district and that it be drawn into Watauga County. LDTX78 Senate Tr. 11:6–21 (Nov. 1, 2021).

105. The Committees concluded that the congressional map satisfies the adopted criteria. LDTX78 Senate Tr. 11:22–12:16 (Nov. 1, 2021). All districts were drawn to zero population deviation or to one person less than ideal. There was no point contiguity used in the map and districts are compact. LDTX78 Senate Tr. 11:22–25; 12:10–11 (Nov. 1, 2021). County, VTD, and community of interest divisions were minimized. The 2021 Congressional Plan divided 11 counties solely to equalize population. VTDs were split only when necessary to balance population or keep municipalities whole, and a total of 24 VTDs were split. And there are districts wholly within Mecklenburg and Wake Counties, the only two counties of sufficient population to contain a whole Congressional district. Only two municipalities were split in the entire State, and community consideration was considered to keep cities and towns together. LDTX78 Senate Tr. 11:22–12:16 (Nov. 1, 2021).

106. The Committee concluded that no racial or political data was used in drawing the map. Member residence was considered. LDTX78 Senate Tr. 12:6–7; 12:12–16 (Nov. 1, 2021). Senator Daniel stated that, due to the political geography of the state—with Democrats congregated in the urban areas—the only way to accomplish a roughly equal

Republican-Democratic split is with a partisan gerrymander in favor of Democrats. LDTX78 Senate Tr. 18:11–21 (Nov. 1, 2021). Indeed, the largest counties had to be split to satisfy one-person, one-vote standards. *See, e.g.*, LDTX78 Senate Tr. 24:13–17 (Nov. 1, 2021).

107. One Senator noted that when metropolitan areas are split (as many have to be because of the population size), the metropolitan areas get more representatives in Congress who are able to advocate for the municipality as a whole. LDTX78 Senate Tr. 33:21–34:12 (Nov. 1, 2021). The online portal received over 4,000 comments between when they opened at November 1, 2021. LDTX78 Senate Tr. 39:5–14 (Nov. 1, 2021).

(ii) The 2021 Senate Plan

108. The legislative record shows that stated goals achieved by the 2021 Senate Plan included the following:

- a. SD1 was created out of county groupings in the northeastern corner of the State that would need to be comprised of 8 or 10 counties. The district includes 4 of the 5 “Finger Counties” together and combines them with the Northern Outer Banks, a suggestion made by persons at public hearings. About 70% of the counties and 81% of the population are in the Norfolk media market, with the others in the Greenville and Raleigh market. This district does not split VTDs or municipalities within the counties, as it comprises only whole counties. LDTX80 Senate Tr. 3:8–4:5 (Nov. 2, 2021); Trial Tr. 01/05/2022.
- b. SD2 follows the Roanoke River from Warren County to Albemarle Sound in Washington County. This comprises many of the counties on the Sound, including Chowan County, Hyde County, and Pamlico County. Five of the eight included counties are in the Greenville media market, with the others split between the Raleigh and Norfolk media markets. Two-third of the population of the district is within the Greenville media market. This district does not split VTDs or municipalities within the counties, as it is comprised only of whole counties. LDTX80 Senate Tr. 4:7–24 (Nov. 2, 2021).
- c. SD3 was created by the base county grouping map. It includes Beaufort, Craven, and Lenoir Counties. This district does not split VTDs or municipalities within the counties, as it is comprised only of whole counties. LDTX80 Senate Tr. 4:25–5:4 (Nov. 2, 2021).
- d. SD4 was created by the base county grouping map. It includes Green, Wayne, and Wilson Counties. This district does not split VTDs or municipalities within the

counties, as it is comprised only of whole counties. LDTX80 Senate Tr. 5:5–9 (Nov. 2, 2021).

- e. SD5 was created by the base county grouping map. It includes Edgecombe and Pitt Counties. This district does not split VTDs or municipalities within the counties, as it is comprised only of whole counties. LDTX80 Senate Tr. 5:11–15 (Nov. 2, 2021).
- f. SD6 is a single-county district containing only Onslow County. It was created by the base county grouping map and, as a single and whole county district, contains no split VTDs or municipalities. LDTX80 Senate Tr. 5:17–20 (Nov. 2, 2021).
- g. SD7 contains the majority of New Hanover County in the southeast corner of the State. Because New Hanover County’s population was slightly larger than the maximum allowable population in a single district, the Committee carved out three precincts and included them in SD7. These three precincts were selected to keep all municipalities in New Hanover County whole and to keep as much population as possible in SD7. SD7 contains no split VTDs or municipalities. LDTX80 Senate Tr. 5:21–6:13 (Nov. 2, 2021).
- h. SD8 contains Brunswick and Columbus Counties, in addition to three precincts of New Hanover County. It contains no split VTDs or municipalities. LDTX80 Senate Tr. 6:15–19 (Nov. 2, 2021).
- i. SD9 and SD12 comprise a two district, seven county cluster created by the base county groupings in the southeastern part of the State. SD9 contains all of Bladen, Jones, Duplin, and Pender Counties, as well as the majority of Sampson County. SD12 contains a small portion of Sampson County, as well as all of Harnett and Lee Counties. The Committee endeavored to keep as much of Sampson County as possible in SD9. The Committee considered moving a single precinct from northern Sampson County into SD12, but that would have split two municipalities and placed more Sampson County residents in SD12 than the chosen route: splitting two precincts, but leaving Spivey’s Corner intact in SD9 and Plainview whole in SD12. Both SD9 and SD12 contain two split VTDs, but no split municipalities. LDTX80 Senate Tr. 6:21–7:24 (Nov. 2, 2021).
- j. SD10 is a single-county district containing only Johnston County. It was created by the base county grouping map and, as a single and whole county district, contains no split VTDs or municipalities. LDTX80 Senate Tr. 8:1–4 (Nov. 2, 2021).
- k. SD11 was created by the base county grouping map. It includes Franklin, Nash, and Vance Counties. This district does not split VTDs or municipalities within the counties, as it is comprised only of whole counties. LDTX80 Senate Tr. 8:5–8 (Nov. 2, 2021).
- l. SD13, SD14, SD15, SD16, SD17, and SD18 were created out of the two-county grouping of Granville and Wake Counties. The Committee attempted to keep municipalities whole, while splitting as few precincts as possible. Some VTDs had to be split, however, to comply with one-person, one-vote standards. Raleigh had

to be split between multiple districts; 98% of Raleigh is within 3 Senate districts, though. Further, Cary and Apex were unable to be contained within a single district due to their populations and geographic constraints. All other municipalities (Fuquay-Varina, Holly Springs, Garner, Knightdale, Morrisville, Rolesville, Wake Forest, Wendell, and Zebulon) were kept whole. All in all, 10 VTDS were split to keep the municipalities whole and to balance out population. LDTX80 Senate Tr. 8:10–9:13 (Nov. 2, 2021), Trial Tr. 01/05/2022.

- a. SD13 contains all of Granville County, unincorporated areas in northern Wake County, as well as Rolesville, Wake Forest, Zebulon, and 2% of the population of Raleigh. LDTX80 Senate Tr. 9:14–23 (Nov. 2, 2021). Granville could be kept whole, so it had to be kept whole. However, it is not large enough to be a district by itself so it needed to be joined with a part of Wake County. Trial Tr. 01/05/2022.
- b. SD14 contains all of Garner, Knightdale, Wendell, and 21% of the population of Raleigh, including portions of southeast and downtown Raleigh. LDTX80 Senate Tr. 10:8–15 (Nov. 2, 2021).
- c. SD15 contains the western part of Raleigh, portions of downtown Raleigh, and portions of east Cary. 36% of the population of Raleigh resides within the district. The majority of the district’s population is from Raleigh (85%), with 12% from Cary. SD15 splits two precincts with other districts to balance population. LDTX80 Senate Tr. 10:24–11:7 (Nov. 2, 2021).
- d. SD16 is centered in Cary and contains western Wake County, including portions of Apex and all of Morrisville. 80% of Cary’s population is in the District, as well as 45% of Apex’s population. 69% of the district’s population is from Cary, 15% from Morrisville, and 13% from Apex. There are two split precincts to balance population. LDTX80 Senate Tr. 11:8–16 (Nov. 2, 2021).
- e. SD17 contains Holly Springs and Fuquay-Varina, as well as most of Apex and a small part of Cary. Three VTDs were split to keep Garner whole in SD 13, and another VTD was split to balance population between SD 16 and SD 17. LDTX80 Senate Tr. 11:20–25 (Nov. 2, 2021).
- m. SD19 and SD21 were created out of Cumberland and Moore Counties. SD19 is contained entirely within Cumberland County and was drawn to encompass as much of Fayetteville as possible, although Fayetteville has an irregular shape and many satellite annexations; indeed, it shares some precincts with other municipalities, such as Hope Mills. Ultimately, the Committee was unable to keep all of Fayetteville together but created a district that includes 88% of Fayetteville’s population and includes nearly 15% of the population of Hope Mills. The district has no split VTDs. SD21 includes all of Moore County and remainder of Cumberland County, including the remainder of Fayetteville and Hope Mills’ population. LDTX80 Senate Tr. 12:11–13:11 (Nov. 2, 2021), Trial Tr. 01/05/2022.
- n. SD20 and SD22 were created out of Chatham and Durham Counties. SD20 includes all of Chatham County, most of incorporated Durham County—including the portions of Chapel Hill in Durham County—and several peripheral Durham City precincts. The bulk of Durham City (70% of its population), which is too large

to comprise its own Senate District, is within SD22. No VTDs were split in either district. LDTX80 Senate Tr. 13:12–14:7 (Nov. 2, 2021).

- o. SD23 was created by the base county grouping map. It includes Caswell, Orange, and Person Counties. This district does not split VTDs or municipalities within the counties, as it is comprised only of whole counties. LDTX80 Senate Tr. 14:9–13 (Nov. 2, 2021).
- p. SD24 was created by the base county grouping map. It includes Hoke, Robinson, and Scotland Counties. This district does not split VTDs or municipalities within the counties, as it is comprised only of whole counties. LDTX80 Senate Tr. 14:15–15:8 (Nov. 2, 2021).
- q. SD25, SD29, SD34, and SD35 were created out of a seven-county grouping in the center of the State, including Alamance, Randolph, Cabarrus, Anson, Montgomery, Richmond, and Union Counties. Due to population disparities, Randolph, Cabarrus, and Union Counties were split between districts; the remainder were left whole. LDTX80, Senate Tr. 14:22–15:7 (Nov. 2, 2021).
 - a. SD25 contains all of Alamance County and eastern Randolph County. Faced with a choice between splitting VTDs and splitting municipalities, the Committee chose the former. One precinct was split, then, to keep all of Randleman in SD25. LDTX80, Senate Tr. 15:8–15:18 (Nov. 2, 2021).
 - b. SD29 includes all of Anson, Montgomery, and Richmond Counties; the remainder of Randolph County, including Asheboro; and the eastern half of Union County. Union County was split so as to keep all precincts whole. LDTX80, Senate Tr. 15:25–16:12 (Nov. 2, 2021).
 - c. SD34 contains most of Cabarrus County, minus the southern precincts which are in SD35. The Committee aimed to keep as much of the population of the county together as possible, which required splitting a precinct to avoid the District having a higher-than-allowable population. Another precinct was split so that all of Midland was kept in the same district. LDTX80, Senate Tr. 16:15–16:23; 17:14–17:19 (Nov. 2, 2021).
 - d. SD35 contains the remaining portions of Cabarrus and Union Counties. LDTX80, Senate Tr. 16:13–16:15 (Nov. 2, 2021).
- r. SD26, SD27, and SD28 are comprised of Guilford and Rockingham Counties. Each contains part of Greensboro, which is itself too large to comprise its own district. SD26 contains all of Rockingham County, as well as some unincorporated portions of Guilford County and some of Greensboro’s bedroom communities. While it does not contain any Greensboro precincts, it includes 4% of the city’s population. SD26 contains one VTD split, to keep the entire population of Kernersville in the district. SD27 includes southern parts of Greensboro, as well as High Point. SD28 contains the northern portion (about 2/3) of Greensboro and the majority (68%) of its population. LDTX80, Senate Tr. 17:20–19:4 (Nov. 2, 2021).
- s. SD30 was created by the base county grouping map. It includes Davie and Davidson Counties. This district does not split VTDs or municipalities within the

counties, as it is comprised only of whole counties. LDTX80, Senate Tr. 19:5–19:9 (Nov. 2, 2021).

- t. SD31 and SD32 are comprised of Stokes and Forsyth Counties. The Committee paired Forsyth with Stokes County, rather than with Yadkin County, because this pairing led to more compact districts and minimized municipality splitting; Germantown and King span the Stokes/Forsyth county line. SD31 includes all of Stokes County as well as suburban municipalities on the outskirts of Winston-Salem, such as Bethania, Clemons, Germantown, Kernersville, King, Lewis, Rural Hall, Tobaccoville, and Walkertown. Given that Winston-Salem is too large for one district, SD31 also contains 16% of the city’s population. SD32 contains the vast majority of the population of Winston-Salem (84%). Neither district contains split VTDs. LDTX80, Senate Tr. 19:11–21:4 (Nov. 2, 2021). Stokes County could be kept whole, so it was. Winston Salem is too populous to be a district by itself. Trial Tr. 01/05/2022.
- u. SD33 was created by the base county grouping map. It includes Rowan and Stanly Counties. This district does not split VTDs or municipalities within the counties, as it is comprised only of whole counties. LDTX80, Senate Tr. 21:19–21:24 (Nov. 2, 2021).
- v. SD36 is made up of Alexander, Surry, and Yadkin Counties and is the remainder of the grouping stemming from the combination of Stokes and Forsyth counties. This district does not split VTDs or municipalities within the counties, as it is comprised only of whole counties. LDTX80, Senate Tr. 21:5–21:18 (Nov. 2, 2021).
- w. SD37, SD38, SD39, SD40, SD41, and SD42 were created out of the two-county grouping of Iredell and Mecklenburg Counties. Naturally, Charlotte—the largest city in the State—is split between 5 of these Mecklenburg-based districts. Senate Tr. 21:25–22:4 (Nov. 2, 2021).
 - a. SD37 includes all of Iredell County and the northmost parts of Mecklenburg County, including Davidson (which spans both counties). SD37 also contains 33% of the population of Cornelius, which is too large to fit in SD37 alone; it is the only split municipality in the district. There are no split VTDs. LDTX80, Senate Tr. 22:5–23:22 (Nov. 2, 2021); Trial Tr. 01/05/2022.
 - b. SD38 includes much of northern Mecklenburg County, including the remainder of Cornelius, Huntersville and 14% of Charlotte. There are no split VTDs. LDTX80, Senate Tr. 23:3–23:14 (Nov. 2, 2021).
 - c. SD39 includes portions of western Mecklenburg County, including unincorporated territory along the Gaston County line and border with South Carolina. It also includes portions of Uptown, Still Creek, and West Charlotte. Indeed 81% of the district’s population is in Charlotte and the district contains 20% of the population of Charlotte. There are no split VTDs in the district. LDTX80, Senate Tr. 23:15–24:4 (Nov. 2, 2021).
 - d. SD40 includes northeastern Charlotte and unincorporated portions of Mecklenburg County running along the border with Cabarrus County. 24%

- of Charlotte’s population resides in the district. The district contains no split VTDs. LDTX80, Senate Tr. 24:5–24:13 (Nov. 2, 2021).
- e. SD41 includes south Charlotte, Matthews, and Mint Hill, as well as some unincorporated territory. 18% of Charlotte’s population is in this district, comprising about 71% of the district’s population. The district contains no split VTDs. LDTX80, Senate Tr. 24:14–24:25 (Nov. 2, 2021). This district encompasses Matthews and Mint Hill. Trial Tr. 01/05/2022.
 - f. SD42 includes portions of Uptown Charlotte, south Charlotte, and east Charlotte. No other portions of Mecklenburg County are included. 25% of Charlotte’s population lives in this district no split VTDs. LDTX80, Senate Tr. 25:1–25:18 (Nov. 2, 2021).
- x. SD43 and SD44 include Gaston, Cleveland, and Lincoln Counties. SD43 contains most of Gaston County, although 5 VTDs (in Cherryville, Landers Chapel, and Tryon) were placed in SD44 to even out population. SD44 includes these VTDs, as well as all of Lincoln and Cleveland Counties. LDTX80, Senate Tr. 25:19–26:6 (Nov. 2, 2021).
- y. SD45, SD47, and SD50 are drawn from a grouping of 17 western North Carolina counties. Given the counties’ geographic locations and populations, two of the 17 counties (Caldwell and Haywood) were required to be split. SD45 includes all of Catawba County, as well as the southeast portion of Caldwell County. SD47 contains the remainder of Caldwell County, including Lenoir. (Two VTDs were split between SD45 and SD47 to keep Lenoir whole.) SD47 also contains portions of Haywood County, including Canton, and all of Alleghany, Ashe, Avery, Madison, Mitchell, Watauga, and Yancey Counties. SD50 includes the remainder of Haywood County, and all of Cherokee, Clay, Graham, Jackson, Macon, Swain, and Transylvania Counties. SD50 contains no split precincts or municipalities. LDTX80, Senate Tr. 27:3–28:18 (Nov. 2, 2021).
- z. SD46 includes all of Burke and McDowell Counties, as well as some unincorporated portions and small towns in Buncombe County. LDTX80, Senate Tr. 26:13–16 (Nov. 2, 2021). One VTD is split with SD49 to keep all of Woodfin within that district. SD49 contains the remainder of Buncombe County, including Asheville, Biltmore Forest, and Weaverville. LDTX80, Senate Tr. 26:21–26:2 (Nov. 2, 2021).
- aa. There were two options for how the Buncombe grouping could be formed. They opted for the one that formed Burke County, McDowell County, and Buncombe County together because it was the more compact version. The committee determined that Burke and McDowell counties could be kept whole, so they were. SD49 was drawn to include the precincts that make up Asheville. Trial Tr. 01/05/2022.
- bb. SD48 includes the whole of Henderson, Polk, and Rutherford Counties. LDTX80, Senate Tr. 26:7–26:12 (Nov. 2, 2021).

109. Ultimately, two amendments were accepted in the Senate Committee: (1) An amendment offered by Senator Clark changing the Guilford/Rockingham County grouping (SD26, SD27, and SD28). Senator Hise testified that this amendment was presented at the behest of Senator Robinson, a Democratic member from Guilford, who, under the version presented by the chairs, was double-bunked with Senator Garrett. Trial Tr. 01/05/2022. During debate, Senator Robinson attested in Committee that she understood the amendment complied with the VRA and considered it a fair draw. *Id.*; LDTX80, Senate Tr. 104:3–105:4 (Nov. 2, 2021). (2) An amendment offered by Senator Marcus changing the Durham/Chatham County grouping (SD20 and SD22). Senator Murdock, a Democratic member from Durham, attested in Committee that she understood the amendment complied with the VRA and considered it a fair draw. LDTX80, Senate Tr. 98-100 (Nov. 2, 2021).

110. The Committee concluded that the 2021 Senate Plan complies with the adopted criteria. The Committee determined that the Senate map successfully balances the criteria considered by Senators, including compliance with *Stephenson*, refusal to consider racial and political data, and minimizing the division of municipalities and VTDs. LDTX80, Senate Tr. 72:21–73:15 (Nov. 2, 2021).

(iii) The 2021 House Plan

111. The legislative record shows that stated goals achieved by the 2021 House Plan included the following:

- a. The mapmakers made every effort to keep previous districts intact. LDTX76, House Tr. 9:12–15 (Nov. 1, 2021).
- b. Rural areas lost immense population in the 2010s and, therefore, changes were necessary. For instance, House District 23 previously included only Edgecombe and Martin Counties. But Bertie County had to be added to meet population requirements. LDTX76, House Tr. 8:14–23 (Nov. 1, 2021).
- c. The House Committee Chair endeavored to keep counties whole whenever it was possible. For instance, although Chatham, Lee, and Polk Counties could have been split, they were not. LDTX76, House Tr. 9:20–10:4 (Nov. 1, 2021).

- d. The Chair also sought to minimize the splitting of VTDs. While the 2011 map had hundreds of split VTDs, the proposed map had only 6 VTD splits. LDTX76, House Tr. 10:5–11 (Nov. 1, 2021).
- e. The Chair honored municipal boundaries and made every effort to keep municipalities whole. To the extent splits were necessary, the majority of them were in areas with little to no population. LDTX76, House Tr. 10:12–19 (Nov. 1, 2021).
- f. Every district in the map proposed by the Chair is contiguous. LDTX76, House Tr. 10:20–21 (Nov. 1, 2021).
- g. The bare minimum number of incumbents were “double-bunked” into the same districts. LDTX76, House Tr. 10:22–10:25 (Nov. 1, 2021).

112. Goals for certain House districts in certain counties were as follows:

- a. Because the Wake county grouping added two house districts during this redistricting cycle, Representative Hall was unable to keep the districts similar to the previous redistricting plan. Towns like Wake Forest, Rolesville, and Fuquay-Varina were sought to be kept whole, with Raleigh in as few districts as possible. Trial Tr. 01/05/2022.
- b. Because Mecklenburg County grouping added one House District and an attempt was made to keep it similar to the previous redistricting plan for the county. Mint Hill was unsplit and combined with Matthews because the two communities are similar. Trial Tr. 01/05/2022.
- c. The Guilford County grouping added no seats, and a goal was to change the districts as little as possible considering past litigation of districts in the county. Only a few precincts were moved for population balancing. Trial Tr. 01/05/2022.
- d. Pitt County was previously paired with Lenoir, and therefore its configuration could no longer be kept the same. An attempt was made to not split Greenville and ECU. Trial Tr. 01/05/2022.
- e. In the Buncombe County grouping, Asheville had been divided up and a goal was to keep Asheville entirely within two districts. Trial Tr. 01/05/2022.
- f. Districts in New Hanover County were intended to remain largely the same. Wilmington is kept almost entirely within Districts 18 and 20. Trial Tr. 01/05/2022.
- g. The goal for the Cumberland County grouping was to change the districts as little as possible considering past litigation of districts in the county. A small number of precincts were changed for population purposes. Trial Tr. 01/05/2022.

- h. The Forsyth County cluster districts are largely similar to the districts in the previous map with the biggest difference being that the county is now paired with Stokes county instead of Yadkin county. A goal was to not divide schools, including Wake Forest University. Winston-Salem had to be split because of its population. Trial Tr. 01/05/2022.

113. No simulated redistricting analysis was presented during the 2021 redistricting. None of the innumerable alternative redistricting plans on the record before this Court was presented to the General Assembly during the 2021 redistricting.

114. As shown above, although the redistricting process must start anew at the beginning of each decade, and no prior maps were loaded onto the map-drawing machines for legislators or other maps allowed into the room, Representative Hall sought to draw districts as close as possible to districts used in the past and with potential litigation in mind.

**c. Plaintiffs’ and Legislative Defendants’ Experts Analysis
of the Enacted Plans**

(i) Harper Plaintiffs’ Expert Dr. Jowei Chen

115. Plaintiffs’ expert Jowei Chen, Ph.D., is an Associate Professor in the Department of Political Science at the University of Michigan, Ann Arbor. PX482 at 2 ¶2. Dr. Chen is also a Research Associate Professor at the Center for Political Studies of the Institute for Social Research at the University of Michigan and a Research Associate at the Spatial Social Science Laboratory at Stanford University. *Id.*

116. Dr. Chen has extensive experience in redistricting matters. PX482 at 2 ¶4. Dr. Chen has published academic papers on legislative districting and political geography in several political science journals, including The American Journal of Political Science and The American Political Science Review, and Election Law Journal. *Id.* at 2 ¶3. His academic areas of expertise include legislative elections, spatial statistics, geographic information systems (GIS) data, redistricting, racial politics, legislatures, and political geography. *Id.* He also has expertise in the use of computer simulations of legislative districting and in

analyzing political geography, elections, and redistricting. *Id.* Dr. Chen has presented expert testimony regarding his simulation methodology in numerous prior partisan gerrymandering lawsuits, including *Common Cause v. Lewis*.

117. Dr. Chen was qualified and accepted as an expert at trial in the fields of redistricting, political geography, simulation analyses, and geographic information systems. Trial Tr. 01/03/2022.

118. Dr. Chen analyzed the partisan bias of the enacted congressional plan on a statewide and district-by-district basis. PX482 at 3 ¶6. Dr. Chen did not analyze the state legislative districts in the Enacted Plan. Based on his analysis, Dr. Chen concluded that partisan intent predominated over the 2021 Adopted Criteria in drawing the adopted congressional plan, and that the Republican advantage in the enacted plan cannot be explained by North Carolina’s political geography or adherence to the Adopted Criteria. PX482 at 49 ¶¶77-78, 98, 100.

119. In his academic research on legislative districting, partisan and racial gerrymandering, and electoral bias, Dr. Chen has developed various computer simulation programming techniques that allow him to produce a large number of nonpartisan districting plans that adhere to traditional districting criteria using U.S. Census geographies as building blocks. PX482 at 4 ¶7. Dr. Chen’s simulation process ignores all partisan and racial considerations when drawing districts, and the computer simulations are instead programmed to draw districting plans following various traditional districting goals, such as equalizing population, avoiding county and Voting Tabulation District (VTD) splits, and pursuing geographic compactness. *Id.* By randomly generating a large number of districting plans that closely adhere to these traditional districting criteria, Dr. Chen assesses an enacted plan drawn by a state legislature and determines whether partisan goals motivated the legislature to deviate from these traditional districting criteria. *Id.* Specifically, by

holding constant the application of nonpartisan, traditional districting criteria through the simulations, he is able to determine whether the enacted plan could have been the product of something other than partisan considerations. *Id.*

120. Because Dr. Chen analyzed only the enacted congressional plan, findings based upon his statewide, regional, and district-level analysis are made in more detail below.

(ii) Harper Plaintiffs' Expert Dr. Christopher Cooper

121. Christopher A. Cooper, Ph.D., has been a tenured or tenured-track professor in the field of political science since 2002 and is currently the Robert Lee Madison Distinguished Professor of Political Science and Public Affairs at Western Carolina University. PX425 at 1 (Cooper Rep.). Dr. Cooper was previously accepted as an expert in *Common Cause v. Lewis, et al.*, 18 CVS 014001 (Sept. 3, 2019).

122. Dr. Cooper was qualified and accepted as an expert at trial in the field of political science with a specialty in the political geography and political history of North Carolina. Trial Tr. 01/03/2022.

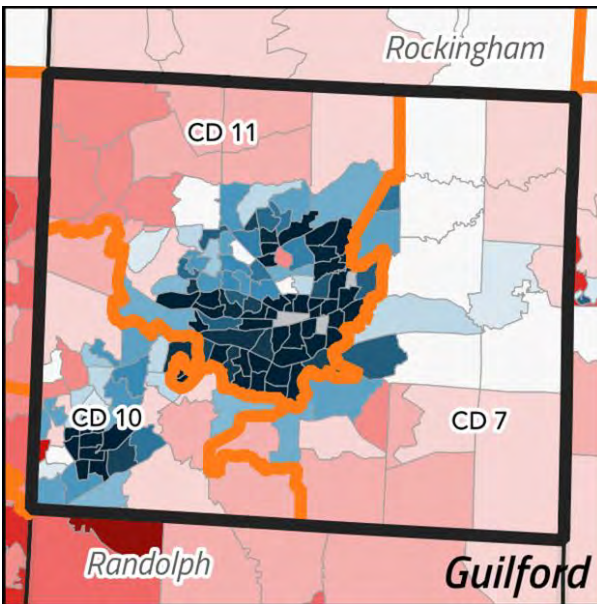
123. Dr. Cooper analyzed the 2021 Congressional Plan the partisan effects of each district's boundaries.

124. Although North Carolina gained an additional congressional seat as a result of population growth that came largely from the Democratic-leaning Triangle (Raleigh-Durham-Chapel Hill) and the Charlotte metropolitan areas, the number of anticipated Democratic seats under the enacted map actually decreases, with only three anticipated Democratic seats, compared with the five seats that Democrats won in the 2020 election. PX425 at 3. Trial Tr. 01/03/2022.

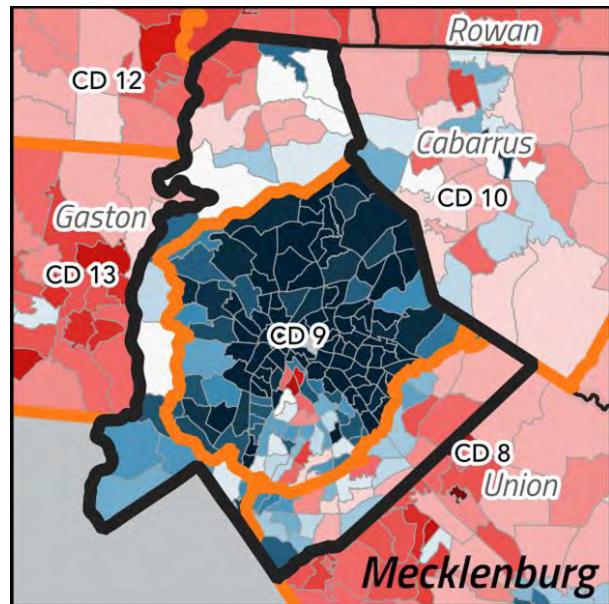
125. The 2021 Congressional Plan reduces the anticipated number of Democratic seats, disadvantaging Democratic voters, by splitting the Democratic-leaning counties of Guilford, Mecklenburg, and Wake among three congressional districts each. PX425 at 3.

There was no population-based reason to divide each of these three Democratic-leaning counties across three districts and in the congressional plan in effect for the 2020 election, Guilford County fell entirely within one district, while Mecklenburg and Wake counties were each divided into only two districts. PX425 at 3; Trial Tr. 01/03/2022.

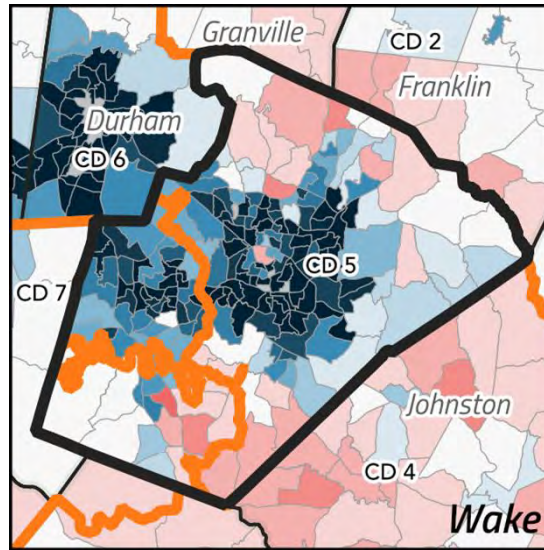
126. Dr. Cooper produced a series of maps showing the congressional district boundaries in Guilford, Mecklenburg, and Wake counties, displaying the congressional district boundaries in yellow, the county boundaries in black, and VTD boundaries in gray. Dr. Cooper also used the combined, two-party vote differential in the results of the 2020 Secretary of Labor and Attorney General elections to measure and display partisanship of the VTDs on these maps. In each map, darker red shading indicates a larger Republican vote margin in the VTD, darker blue shading indicates a larger Democratic vote margin in the VTD, and lighter colors indicate VTDs that were closer to evenly split in Democratic and Republican vote shares in the 2020 Secretary of Labor and Attorney General elections. PX425 at 15.



PX436 (Cooper Map 1)



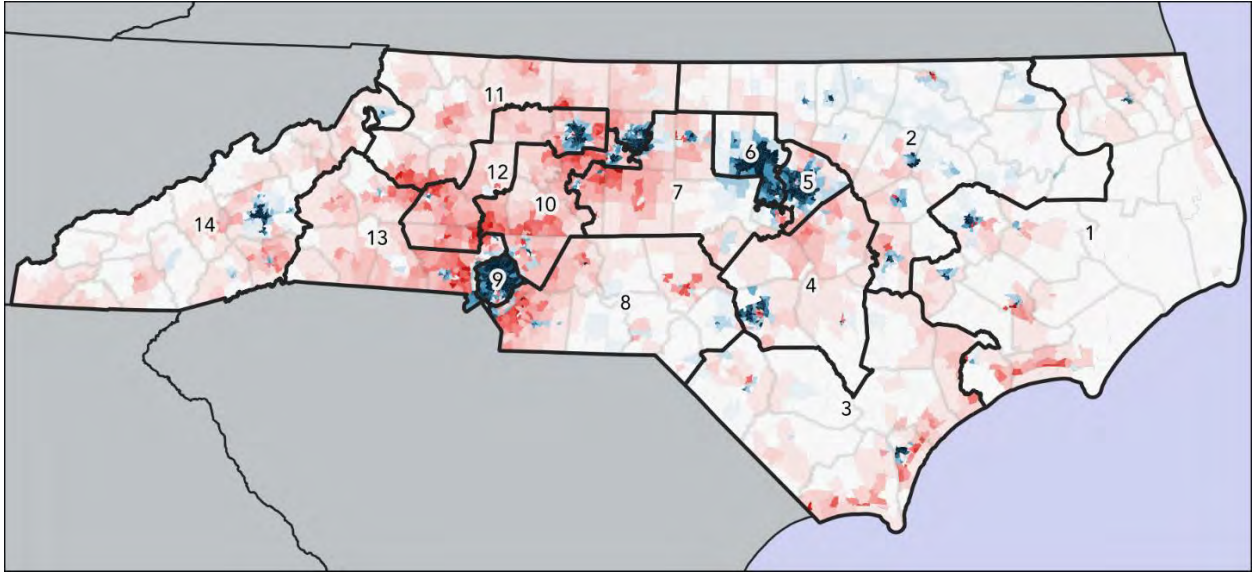
PX437 (Cooper Map 2)



PX438 (Cooper Map 3)

127. The congressional district map is best understood as a single organism given that the boundaries drawn for a particular congressional district in one part of the state will necessarily affect the boundaries drawn for districts elsewhere in the state. PX425 at 15. Trial Tr. 01/03/2022. Thus, the Court finds that the “cracking and packing” of Democratic voters in Guilford, Mecklenburg, and Wake counties has “ripple effects throughout the map.” PX425 at 15.

128. Dr. Cooper produced a map showing the state-wide congressional map with red-and-blue shading of VTDs based on the two-party vote margin in the results of the 2020 Secretary of Labor and Attorney General elections. PX425 at 15.



PX439 (Cooper Map 4)

129. Dr. Cooper calculated the two-party vote margin in the results of the 2020 Secretary of Labor and Attorney General elections for the districts in the 2021 Congressional Plan in order to estimate the partisan lean of each district. By this measure, the Court finds that the 2021 Congressional Plan will result in 10 Republican seats, 3 Democratic seats, and 1 competitive seat. PX425 at 20 & Table 1. Other measures of the partisan lean of each district in the 2021 Congressional Plan, including the Cook Political Report’s Partisan Voter Index (PVI) and the percentage of the electorate that voted for Donald Trump in the 2020 election, are consistent with the two-party vote margin in the results of the 2020 Secretary of Labor and Attorney General elections. PX425 at 20 & Table 1.

130. The 2021 Congressional Plan places the residences of an incumbent Republican representative and an incumbent Democratic representative within a new, overwhelmingly Republican district, NC-11, “virtually guaranteeing” that the Democratic incumbent will lose her seat. PX425 at 4. The 2021 Congressional Plan includes one district where no incumbent congressional representative resides. *Id.* That district, NC-4,

“overwhelmingly favors” the Republican candidate based on the district’s partisan lean. PX425 at 4.

131. The 2021 House and Senate Plans similarly benefit the Republican Party. PX425 at 49. Although certain county groupings were mandated by the *Stephenson* county grouping rule, Legislative Defendants retained discretion over certain county groupings where there were alternate possibilities. *Id.* Specifically, Legislative Defendants chose from between 16 potential different county grouping maps in the Senate and 8 different potential county grouping maps in the House. *Id.* In addition, Legislative Defendants retained discretion over where to draw the district boundaries within each grouping, with the exception of single district county groupings. *Id.*

132. Legislative Defendants’ exercise of this discretion in the Senate and House 2021 Plans resulted in Senate and House district boundaries that enhanced the Republican candidates’ partisan advantage, and this finding is consistent with a finding of partisan intent.

133. Dr. Cooper also explained how partisan redistricting carried out across the State has led to a substantial disconnect between the ideology and policy preferences of North Carolina’s citizenry and their representatives in the General Assembly.

134. Findings based upon Dr. Cooper’s analysis of each district in the 2021 Congressional Plan and State Senate and House Plans are made below.

**(iii) *Harper Plaintiffs’ and Plaintiff Common Cause’s
Expert Dr. Jonathan Mattingly***

135. Jonathan Mattingly, Ph.D., is a North Carolina native, and the James B. Duke Professor of Mathematics at Duke. PX629; PX630. Dr. Mattingly submitted a report for Harper Plaintiffs that demonstrates the extent of partisan redistricting in each of the enacted maps through longstanding statistical methods. PX629. Dr. Mattingly is an expert in applied

mathematics, probability, and statistical science. Dr. Mattingly developed his method of evaluating partisan gerrymandering in his academic research, where he leads a group at Duke University which conducts non-partisan research to understand and quantify gerrymandering. *Id.*; Trial Tr. 01/03/2022. The General Assembly, in fact, used Dr. Mattingly’s publicly-released findings from his nonpartisan research to determine possible county clusters. *Id.* at 6.

136. Dr. Mattingly has testified in two previous cases. In the federal partisan gerrymandering case relating to North Carolina’s congressional districts and in the 2019 *Common Cause* case, in which the court found that “Dr. Mattingly’s simulated maps provide a reliable and statistically accurate baseline against which to compare the 2017 Plans,” that “[b]y comparing Dr. Mattingly’s simulated plans to the enacted plans, the Court can reliably assess whether the characteristics and partisan outcomes under the enacted plans could plausibly have resulted from a nonpartisan process,” and that Dr. Mattingly’s analysis allows the court to “reliably assess whether the enacted plans reflect extreme partisan gerrymanders.” *Common Cause*, 2019 WL 4569584, at *29.

137. Dr. Mattingly was qualified and accepted as an expert at trial in the fields of applied math, statistical science, and probability. Trial Tr. 01/03/2022.

138. Dr. Mattingly used the Metropolis-Hasting Markov Chain Monte Carlo (“MCMC”) Algorithm to create a representative set, or “ensemble,” of 100,000 maps for the state legislative districts and 80,000 maps for congressional districts as benchmarks against which he could compare the enacted maps. PX629 at 10, 72; Trial Tr. 01/03/2022. The algorithm produced maps that accorded with traditional districting criteria. *Id.* at 9, 72; Trial Tr. 01/03/2022. Dr. Mattingly tuned his algorithm to ensure that the nonpartisan qualities of the simulated maps were similar to the nonpartisan qualities of the enacted map with respect to compactness and, for his primary ensembles, municipality splits. *Id.* Dr. Mattingly

also designed the algorithm to develop maps that respected the county clustering requirement for state legislative maps under *Stephenson I*. *Id.* at 5–6. The algorithm did not incorporate as output requirements any ideas of proportional representation or notions of fairness. *Id.* at 2. The MCMC Algorithm that Dr. Mattingly employed ensured that the collection of maps was a stable, random and representative sample from the distribution of nonpartisan maps that adhere to the redistricting criteria. *Id.* at 72; Trial Tr. 01/03/2022.

139. For Congressional Districts, Dr. Mattingly ensured that the total population of any district was within 1% of the ideal district population; he has verified in his prior work that the small changes necessary to require perfect population balance, which would require splitting VTDs, do not affect the results seen in an ensemble of maps where 1% population deviation is permitted. *Id.* After generating the sample of maps, Dr. Mattingly used votes from multiple prior North Carolina statewide elections reflecting a range of electoral outcomes to compare the partisan performance and characteristics of the 2021 Congressional Plan to the simulated plans. PX629 at 74; Trial Tr. 01/03/2022.

140. The Court finds, based upon Dr. Mattingly’s analysis, that the Congressional map is the product of intentional, pro-Republican partisan redistricting. PX629 at 75. The enacted map sticks at 4 Democrats and 10 Republicans despite large shifts in the statewide vote fraction across a wide variety of elections, in elections where no nonpartisan map would elect as few as 4 Democrats and many would elect 7 or 8. PX629 at 75. The Congressional map is “an extreme outlier” that is “highly non-responsive to the changing opinion of the electorate.” *Id.* at 74-75.

141. For State House and Senate Districts, after generating the sample of maps, Dr. Mattingly used historical elections data to simulate how his nonpartisan maps would perform under a variety of political climates. *Id.* at 10; Trial Tr. 01/03/2022. He considered the following statewide election contest in the years 2016 and 2020: races for Governor,

Lieutenant Governor, Attorney General, United States Senate, Commissioner of Insurance, State Treasurer, Secretary of State, and State Auditor. *Id.*

142. The Court finds, based upon Dr. Mattingly’s analysis, that the State House and Senate plans are extreme outliers that “systematically favor the Republican Party to an extent which is rarely, if ever, seen in the non-partisan collection of maps.” PX629 at 2. The intentional partisan redistricting in both chambers is especially effective in preserving Republican supermajorities in instances in which the majority or the vast majority of plans in Dr. Mattingly’s ensemble would have broken it. *Id.* at 3, 10. The House map is also especially anomalous under elections where a non-partisan map would almost always give Democrats the majority in the House because the enacted map denied Democrats that majority. *Id.* The probability that this partisan bias arose by chance, without an intentional effort by the General Assembly, is “astronomically small.” *Id.* at 3.

143. For the State House Districts, the enacted plan shows a systematic bias toward the Republican party, favoring Republicans in every single one of the 16 elections he considered. PX629 at 11. It is an outlier in its favoring of Republicans in the vast majority of the elections used in Dr. Mattingly’s analysis. *Id.* The only three elections where the enacted map is not an extreme outlier are in elections that have strong Republican vote fractions (Treasurer 2020, Senate 2016, and Lieutenant Governor 2016) where the Republicans do not need to gerrymander to keep a supermajority. PX629 at 12; PX634.

144. The North Carolina House maps show that they are the product of an intentional, pro-Republican partisan redistricting over a wide range of potential election scenarios. *Id.* at 10. Elections that under typical maps would produce a Democratic majority in the North Carolina House give Republicans a majority under the enacted maps. *Id.* Likewise, maps that would normally produce a Republican majority under nonpartisan maps

produce a Republican supermajority under the enacted maps. *Id.* Among every possible election that Dr. Mattingly analyzed, the partisan results were more extreme than what would be seen from nonpartisan maps. *Id.* at 11; Trial Tr. 01/03/2022. In every election scenario, Republicans won more individual seats than they statistically should under nonpartisan maps. *Id.* at 11.

145. The 2021 House Plan’s partisan bias creates firewalls protecting the Republican supermajority and majority in the House, and this effect is particularly robust when the Republicans are likely to lose the supermajority: the enacted plan sticks at 48 Democratic seats or fewer, even in situations where virtually all of the plans in the nonpartisan ensemble would elect 49 Democratic seats or more. *Id.* at 11; PX633 (Mattingly Figure 5.1.1).

146. For the State Senate Districts, the results are the same: the enacted plan is an outlier or an extreme outlier in elections where Democrats win a vote share between 47.5% and 50.5%. PX629 at 21. This range is significant because many North Carolina elections have this vote fraction, and this is the range where the non-partisan ensemble shows that Republicans lose the super-majority. *Id.* But the enacted map in multiple elections used in Dr. Mattingly’s analysis sticks at less than 21 Democratic seats, preserving a Democratic supermajority. Notably, the enacted map never favors the Democratic party in comparison to the non-partisan ensemble in a single one of the 16 elections that Dr. Mattingly considered.

147. Dr. Mattingly demonstrated the supermajority firewall by plotting the results of the statewide elections using the enacted Senate plan and his nonpartisan simulations in Figure 5.2.1, which is similar to Figure 5.1.1 for the House. PX629 at 22; PX643.

148. Although the effect is not as significant as in the House, the enacted plan elects fewer Democrats in each election than the majority or vast majority of plans in the non-partisan ensemble. *Id.* And in particular, the Senate plan sticks at 20 Democratic seats

across a variety of elections in which the overwhelming majority of non-partisan plans hit 21 and break the supermajority. *Id.*

149. Dr. Mattingly also performed an analysis to determine the extent of “cracking” and “packing” in the enacted maps. *Id.* at 12. In maps that are cracked and packed, it is expect to see that the concentrations of Democratic voters are outliers as compared to nonpartisan maps. *Id.* at 12.

150. For the Congressional maps, Dr. Mattingly ordered the fourteen districts in the congressional plan in his ensemble of nonpartisan plans from lowest to highest based on the Democratic vote fraction in each district, using statewide elections. PX629 at 75, Fig. 9.0.2; *see also id.* at 95-97.

151. The Court finds that cracking Democrats from the more competitive districts and packing them into the most heavily Republican and heavily Democratic districts is the key signature of intentional partisan redistricting and it is responsible for the enacted congressional plan’s non-responsiveness when more voters favor Democratic candidates, as shown in his charts. *Id.* at 75-76; Trial Tr. 01/03/2022. Across his 80,000 simulated nonpartisan plans, not a single one had the same or more Democratic voters packed into the three most Democratic districts – *i.e.*, the districts Democrats would win no matter what – in comparison to the enacted plan. *Id.* And not a single one had the same or more Republican voters in the next seven districts – *i.e.*, the competitive districts – in comparison to the enacted plan. *Id.* That was true across every single statewide election in 2016 and 2020. *Id.*

152. For the House, the enacted maps, as compared to the sample maps, there is an overconcentration of Democratic voters in the least Democratic districts and in the most Democratic districts. *Id.* at 16; PX637. The Court finds that the districts with the highest concentration of Democrats have far more Democratic voters than expected in nonpartisan

maps, and threshold districts have far fewer Democratic voters than expected in nonpartisan maps. *Id.*; Trial Tr. 01/03/2022.

153. In the middle districts—between the 60th most Democratic seat and the 80th most Democratic seat—the Democratic vote fraction in the enacted plan is far below the boxes representing the nonpartisan plans. PX629 at 16. These are the seats that determine the supermajority line and the majority line (if Republicans win the 61st seat, they win the majority, and if they win the 72nd most Democratic seat, they win the supermajority). The Court finds that the systematic depletion of Democratic votes in those districts signals packing, does not exist in the non-partisan ensemble, and is responsible for the map’s partisan outlier behavior. *Id.* Those Democrat votes are instead placed in the 90th to 105th most Democratic district, where they are wasted because those seats are already comfortably Democratic. *Id.*

154. For the Senate, the same structure appears where virtually all of the seats in the middle range that determines majority and supermajority control have abnormally few Democrats. *See* PX629 at 24; PX645.

155. While a redistricting plan’s resiliency to electoral environments is an important indicator of partisan intent, the Court finds that even if a districting plan is the product of an intentional partisan redistricting, a political gerrymander can still be broken in a wave election under the intentionally partisan maps. Trial Tr. 01/03/2022.

156. Dr. Mattingly also conducted a secondary analysis for each chamber in which he only considered plans that preserved the same or fewer incumbents than the enacted plans. The Court finds that this did not affect his results and that “a desire to prevent the pairing of incumbents cannot explain the extreme outlier behavior of the enacted plan.” PX629 at 19, 27.

157. Finally, Dr. Mattingly observed that the enacted Senate plan appeared to split very few municipalities in comparison to what was possible under a nonpartisan ensemble, while the enacted House plan split many more municipalities. PX629 at 10. He explored why the House and Senate plans would have treated municipality splits differently by creating two entirely new ensembles for the House and Senate – in the House, he created a new ensemble that prioritized preserving municipalities (as opposed to matching the enacted plan’s preservation of municipalities), and in the Senate, he created an ensemble that did not prioritize preserving municipalities. *Id.*

158. Dr. Mattingly concluded that the choice to preserve municipalities in the Senate but not in the House appeared to have been a partisan choice. He compared the partisan properties of the new ensembles to his original ensembles and found that, for the Senate plan, relaxing the requirement to preserve municipalities leads to an ensemble that is more favorable to the Democrats, meaning that the enacted plan would be an extreme outlier in more situations. *Compare* Figure 5.2.7 with Figure 5.2.1. Put differently, prioritizing municipality preservation in the Senate plan appears to enable more maps that favor Republicans. By contrast, for the House plan, where the enacted map does not prioritize preserving municipalities, he found that his new ensemble prioritizing municipalities would not have favored the Republican party in comparison. PX629 at 10. The Court finds that the mapmakers focused on municipalities in the state legislature only when doing so advantaged Republicans.

159. The partisan bias that Dr. Mattingly identified by comparing the enacted plans to his nonpartisan ensemble of plans could not be explained by political geography or natural packing. PX629 at 3. Moreover, Dr. Mattingly’s analysis did not rest on any assumption about proportional representation. *Id.*

(iv) Harper Plaintiffs’ Expert Dr. Wesley Pegden

160. Wesley Pegden, Ph.D., is Associate Professor in the Department of Mathematical Sciences at Carnegie Mellon University, and testified as an expert in probability. PX523 at 1 (Pegden Report). Dr. Pegden has published numerous papers on discrete mathematics and probability in high-impact, peer-reviewed journals, and has been awarded multiple prestigious grants, fellowships, and awards. *Id.*; PX524 (Pegden CV). He previously served on Pennsylvania’s bipartisan Redistricting Reform Commission under appointment by the Governor. PX523 at 1.

161. Dr. Pegden’s academic work on redistricting involves Markov Chains. A Markov Chain is “a sequence of random changes.” PX523 at 1 (Pegden Report). In 2017, before Dr. Pegden had ever served as an expert in redistricting litigation, he published a peer-reviewed article (PX628) entitled “Assessing Significance in a Markov Chain Without Mixing” in the Proceedings of the National Academy of Sciences—a top-ranked, science-wide journal. PX523 n.1. This article provides a new way to demonstrate that a given object is an outlier compared to a set of possibilities. PX628.

162. Dr. Pegden was qualified and accepted as an expert at trial in probability. Trial Tr. 01/03/2022.

163. Dr. Pegden explained that there are three ways to show that a given object is an outlier. One of these forms of outlier analysis, developed by Dr. Pegden and his co-authors, begins with the object in question, uses a Markov chain to make a series of small, random changes to the object, and then compares the objects generated by making the small changes to the original object. PX628 at 1. Dr. Pegden’s article illustrates this methodology using a redistricting plan. *Id.* at 3-5. The article demonstrates that, by using an existing plan as a starting point and then making small random changes to the district boundaries, one can prove the extent to which the existing plan is an outlier compared to all possible maps

meeting certain criteria. *Id.* Dr. Pegden’s article proves mathematical theorems showing that this approach can establish a redistricting plan’s outlier status in a way that is rigorously grounded in mathematics. PX523 at 4 (Pegden Report). In 2020—before this case was filed or the 2021 Plans were enacted—Dr. Pegden and three co-authors (including Dr. Mattingly) published a peer-reviewed article (PX627) titled “Separating Effect from Significance in Markov Chain Tests” in the journal *Statistics and Public Policy*.

164. In this case, Dr. Pegden used his form of outlier analysis to evaluate whether and to what extent the 2021 Plans were drawn with the intentional and extreme use of partisan considerations. To do so, using a computer program, Dr. Pegden began with the enacted plans, made a sequence of small random changes to the maps while respecting certain nonpartisan constraints, and then evaluated the partisan characteristics of the resulting comparison maps. PX523 at 3-11.

165. Dr. Pegden’s analysis proceeded in several steps. He began with the enacted map. His computer program then randomly selected a geographic unit on the boundary line between two districts and attempted to move or “swap” the unit from the district it is in into the neighboring district. PX523 at 8-9. Dr. Pegden’s method uses two different geographic units, VTDs and geounits. PX523 at 8. For the congressional plan, Dr. Pegden’s primary analysis used VTDs, not geounits. *Id.* But to verify that the choice between VTDs and geounits did not affect his results, he also repeated his analyses using geounits, which allows for the splitting of VTDs. *Id.* at 8, 46. Created by a computer program, geounits are compact collections of census blocks that lie entirely within one VTD and one district, containing on average 1000 people. There are roughly four geounits per VTD. *Id.* at 8.

166. When attempting to swap a randomly selected VTD or geounit from one district to another, Dr. Pegden allowed the swap to occur only if certain constraints were satisfied. PX523 at 7 (Pegden Report). These constraints were based on the 2021 Adopted Criteria and

included: contiguity, compact districts, county preservation, municipal preservation, VTD preservation, incumbency protection, and population deviation. *Id.*

167. Dr. Pegden applied these constraints in a “conservative” way, to “avoid second-guessing the mapmakers’ choices in how they implemented the districting criteria.” PX523 at 7. For example, his algorithm generated a comparison map only if it included an equal or lesser number of county splits, municipal splits, and VTD splits as the enacted plan. *Id.* His comparison maps could not double-bunk any incumbents that were not double-bunked in the enacted plan. *Id.* For compactness, comparison maps needed to have a Polsby-Popper score within a 5% margin of the enacted plan. And for population deviation, comparison maps needed to have district populations within 2% of the ideal district population. *Id.*

168. Dr. Pegden ran several “robustness checks” to ensure that implementing the criteria differently would not affect the results of his analysis. PX523 at 39-47. For incumbency, he re-ran his analysis without restricting the double-bunking of incumbents. *Id.* at 41. For compactness, he re-ran his analysis allowing for 0% difference between the compactness of generated maps and the enacted map, and also allowing for a 10% difference. *Id.* at 42-43. He also used a different measure of compactness altogether to ensure that using the Polsby-Popper measure was not affecting his results. *Id.* at 44. For district population, Dr. Pegden re-ran his analysis with a 1% threshold for population deviation and a 0.5% deviation (the latter of which allowed for VTD splits). *Id.* at 10, 45-46. He also ran a version of his analysis using, as his baseline map, a version of the enacted map that split no VTDs. *Id.* at 10, 47. None of these changes affected Dr. Pegden’s conclusion that the congressional map is an extreme partisan outlier and is more carefully crafted to ensure Republican advantage that nearly every possible redistricting plan. *Id.* at 41-47.

169. Because of this conservative implementation of the enacted criteria, Dr. Pegden’s algorithm does not seek to generate maps better than the enacted plan in terms of their adherence to non-partisan criteria like compactness. PX523 at 7. Rather, Dr. Pegden’s approach accepts the decisions the map-maker made and asks whether, “even if we accept that the mapmakers have made appropriate choices with respect to nonpartisan criteria such as compactness, population deviation, municipality preservation, incumbency protection, and so on, does their plan nevertheless stand out with respect to its *partisan* qualities?” *Id.*

170. Once Dr. Pegden’s algorithm made a swap satisfying his constraints, his algorithm evaluated the partisan characteristics of the comparison map that resulted from the swap. PX523 at 5, 9-10. For his main analysis, Dr. Pegden used data from the 2020 Attorney General race to analyze the congressional plan. *Id.* at 39. Dr. Pegden also re-ran his analysis using three additional elections—the 2020 Presidential election, the 2020 Lieutenant Governor election, and the 2020 Governor election. *Id.* at 39-40. Using these different historical elections did not alter Dr. Pegden’s conclusions. *Id.*

171. To evaluate the partisan characteristics of each comparison map, Dr. Pegden’s algorithm calculates the number of seats Democratic candidates would win, on average, if a random uniform swing were repeatedly applied to the historical voting data being used. PX523 at 9-10. This metric captures how a given comparison map would perform over a range of electoral environments centered around the base election being used (*i.e.*, the 2020 Attorney General’s election for Dr. Pegden’s primary analysis). *Id.*

172. Dr. Pegden’s algorithm repeats the foregoing steps billions or trillions of times. The algorithm begins with the enacted map, makes a small random change complying with certain constraints, and uses historical voting data to evaluate the partisan characteristics of the resulting map. PX523 at 5. The algorithm then repeats those steps, each time using the comparison map generated by the previous change as the starting point. *Id.* By repeating

this process many times, Dr. Pegden’s algorithm generates a large number of comparison maps in sequence, each map differing from the previous map only by one small random change. *Id.* at 5, 8.

173. Each sequence of billions or trillions of small changes in Dr. Pegden’s analysis is one “run.” PX523 at 5. For the congressional plan, a run consisted of approximately one trillion small changes. *Id.* His algorithm performs multiple runs for each map being analyzed, with each run beginning with the enacted plan as the starting point. *Id.*

174. The comparison maps generated by Dr. Pegden’s algorithm are not intended to provide a baseline for what neutral, nonpartisan maps of the North Carolina House or Senate should look like. PX523 at 7, 10. Instead, Dr. Pegden’s comparison maps are intended to be *similar* to the enacted map in question with respect their relevant nonpartisan characteristics, in order to assess how carefully created the enacted plan is to maximize partisan advantage. *Id.* Thus, when Dr. Pegden reports the number of Democratic seats expected under a particular set of generated maps, that does not necessarily reflect the number of Democratic seats that would be expected under a representative set of neutral, nonpartisan districting maps. *Id.* at 10. Nor does Dr. Pegden’s method “evaluate the fairness of a districting by whether it produces a ‘small’ or ‘large number of seats for one party.’” *Id.* The number of Democratic seats expected “is merely a metric used to compare one map to another”—*i.e.*, to determine whether “the enacted map is [an] extreme outlier with respect to how optimized for partisanship it is compared to the set of alternative comparison districts of North Carolina satisfying the districting criteria [he] impose[s].” *Id.*

175. As explained in further detail below, Dr. Pegden found, and the Court so finds, that the enacted congressional plan is more favorable to Republicans than 99.9999% of the comparison maps his algorithm generated by making small random changes to the enacted

plans. *Id.* at 13. And based on these results, Dr. Pegden’s theorems prove, and the Court so finds, that the enacted congressional map is more carefully crafted to favor Republicans than at least 99.9999% of all possible maps of North Carolina satisfying the nonpartisan constraints imposed in his algorithm. *Id.*

176. The Court finds that even without using applying the mathematical theories developed in his academic papers, Dr. Pegden’s first-level analysis provides evidence that the 2021 congressional plan was “drawn to optimize partisan advantage in the enacted plan.” PX523 at 5. In every run, the enacted congressional plan was in the most partisan 0.000031% of the approximately one trillion maps generated making tiny random changes to the district’s boundaries. PX523 at 13. “[I]f the districting had not been drawn to carefully optimize its partisan bias, we would expect naturally that making small random changes to the districting would not have such a dramatic and consistent partisan effect.” *Id.* at 5. And the Court also finds that Dr. Pegden’s second-level analysis provides mathematically precise calculations of how carefully crafted the plan is—that is, how precisely the district boundaries align with partisan voting patterns so as to advantage Republicans—when compared not just to the comparison maps generated in each run of his algorithm, but to all possible maps of North Carolina that satisfy his constraints. PX523 at 6-7.

177. Dr. Pegden conducted analyses of the 2021 House and Senate maps using the same method underlying his analysis of the congressional map. PX523 at 14-15. The Court finds, as did Dr. Pegden, that the House and Senate maps are partisan outliers in their partisan bias and the degree to which they are optimized for partisan advantage. *Id.*

178. While Dr. Pegden’s overall method for analyzing the House and Senate maps was the same as for the congressional map, he made certain changes to his criteria to account for differences in how state legislative maps are drawn in North Carolina. In particular, his comparison house and Senate maps used the same county clustering as used in the enacted

maps. PX523 at 7. And his House and Senate comparison maps needed to have district populations within 5% of the ideal district population—the same threshold that the General Assembly permitted in the 2021 Adopted Criteria. *Id.*; see PX34. All other criteria—contiguity, compactness, county traversals, municipality preservation, VTD preservation, and incumbency protection—were the same as for the congressional analysis. PX523 at 7. And Dr. Pegden performed similar robustness checks to ensure that changes to these criteria (for example, using a different compactness threshold) did not affect his results, which they did not. *Id.* at 48-59.

179. For some county groupings, because of Dr. Pegden’s conservative application of his constraints, it was impossible for his algorithm to find a swap that satisfied all of the constraints. PX523 at 8. When this occurred, Dr. Pegden ran a modification of his algorithm allowing multiple swaps in one step. *Id.* at 8-9.

180. Although Dr. Pegden found that the House and Senate maps are extreme partisan outliers on a statewide basis, his primarily analysis was inconclusive as to four particular House county clusters—Alamance, Brunswick/New Hanover, Cabarrus/Davie/Rowan/Yadkin, and Cumberland—which are discussed in more detail below. PX523 at 33. For these clusters, Dr. Pegden also re-ran his analysis using a different partisan metric—the “wave threshold”—to determine whether they may have been drawn to achieve “other conceivable partisan goals” besides merely maximizing Republican seat count, “such as facilitating the re-election of particular representatives in particular districts.” *Id.* The wave threshold metric captures, for a given map, the smallest uniform swing in election results that would be required to give the Democrats an additional seat. *Id.* Put differently, this metric captures how large of a Democratic wave election the cluster could withstand without losing any Republican seats. *Id.* For multiple of these groupings discussed further below, the Court finds that the enacted map was an extreme outlier in the degree to which

Democratic election performance would need to increase to produce an additional Democratic seat. *Id.* at 34-36.

181. The Court finds, as Dr. Pegden shows in his first-level analysis, that—in every run—the enacted House map was more favorable to Republicans than 99.99999% of the comparison maps generated by his algorithm making small random changes to the district boundaries. PX523 at 14. The Court also finds that the enacted Senate map was more favorable to Republicans than 99.9% of comparison maps. *Id.* at 15.

182. As with the congressional plan, Dr. Pegden’s second-level analysis provides mathematically precise calculations of how carefully crafted the 2021 House and Senate maps are—that is, how precisely the district boundaries align with partisan voting patterns so as to advantage Republicans—when compared not just to the comparison maps generated in each run of his algorithm, but to all possible maps of North Carolina that satisfy his constraints. For the enacted House map, the Court finds that the enacted map is more carefully crafted for Republican partisan advantage than at least 99.9999% of all possible maps of North Carolina satisfying his constraints. PX523 at 14. The Court also finds that the enacted Senate map is more carefully crafted for Republican partisan advantage than at least 99.9% of all possible maps of North Carolina satisfying Dr. Pegden’s constraints. *Id.* at 15.

183. These results cannot be explained by North Carolina’s political geography. PX523 at 4. Dr. Pegden’s algorithm compares the enacted map to other maps of North Carolina, with the very same political geography. And Dr. Pegden’s theorems do not depend on any aspect of North Carolina’s political geography. *Id.*

(v) *NCLCV Plaintiffs’ Expert Dr. Moon Duchin*

184. Dr. Duchin holds a Ph.D. and an M.S. in Mathematics from the University of Chicago as well as an A.B. in Mathematics and Women’s Studies from Harvard University. She is a Professor of Mathematics and a Senior Fellow in the Jonathan M. Tisch College of Civic Life at Tufts University. PX150 at 2.

185. Dr. Duchin’s general research areas are geometry, topology, dynamics, and applications of mathematics and computing to the study of elections and voting. Her redistricting-related work has been published in venues such as the Election Law Journal, Political Analysis, Foundations of Data Science, the Notices of the American Mathematical Society, Statistics and Public Policy, the Virginia Policy Review, the Harvard Data Science Review, Foundations of Responsible Computing, and the Yale Law Journal Forum. *Id.*

186. Dr. Duchin was qualified and accepted as an expert at trial in the field of redistricting. Trial Tr. 01/04/2022.

187. Dr. Duchin’s analysis seeks to address how a certain quantitative share of the vote should be translated to a quantitative share of the seats in a state legislature or Congressional delegation. *Id.* at 4. Dr. Duchin uses a Close-Votes-Close-Seats principle, which is where “an electoral climate with a roughly 50-50 split in partisan preference should produce a roughly 50-50 representational split.” *Id.* Close-Votes-Close-Seats is not tantamount to a requirement for proportionality. Rather, it is closely related to the principle of Majority Rule, which is where “a party or group with more than half of the votes should be able to secure more than half of the seats.” Close-Votes-Close-Seats is essentially a corollary (or byproduct) of Majority Rule; it is not practicable to design a map that always attains these properties. *Id.*

188. Dr. Duchin has previously analyzed the impacts of political geography in Massachusetts and found that even though Republicans tended to typically get over one-third

of the statewide vote, it was impossible to draw a single Congressional district with a Republican majority. *Id.* In North Carolina, however, Dr. Duchin’s analysis shows, and the Court so finds, that the political geography of North Carolina today does not lead only to a district map with partisan advantage given to one political party. *Id.* at 4-5.

189. The Enacted Plans behave as though they are built to resiliently safeguard electoral advantage for Republican candidates. Applying a standard technique in the field, Dr. Duchin overlayed each plan onto historical voting patterns from all 52 partisan elections since 2012 in order to show how the Enacted Plans would have performed in actual North Carolina elections. PX150 at 4-5.

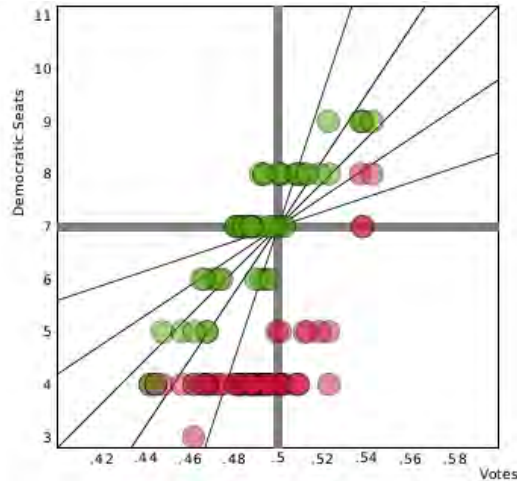
190. The results reveal a partisan skew in close elections. PX150 at 4. For instance, the 2020 vote for Chief Justice of the North Carolina Supreme Court resulted in a virtual tie, with the Republican candidate winning by 401 votes. PX150 at 6. The Enacted Plans would have converted that near tie at the ballot box into a resounding Republican victory in seat share across the board: Republicans would have won 10 (71%) of North Carolina’s congressional districts, 28 (56%) of North Carolina’s Senate districts, and 68 (57%) of North Carolina’s House districts. PX150 at 6 (line labeled JS120). Nor is that election unusual.

191. Under this analysis, the Court finds that in every single one of the 52 elections decided within a 6-point margin, the Enacted Plans give Republicans an outright majority in the state’s congressional delegation, the State House, and the State Senate. PX150 at 5-6. This is true even when Democrats win statewide by clear margins. For example, under this analysis, in the 2020 gubernatorial race, although voters in that election preferred the Democratic candidate by 4.6 percentage points, the Enacted Plans translate that preference into a Republican 10-4 (71%) majority in the state’s congressional delegation, a 27-23 (54%) majority in the state Senate, and a 62-58 (52%) majority in the state House—all when voters clearly prefer the other party. PX150 at 6.

192. The Enacted Plans resiliently safeguard electoral advantage for Republican candidates. PX150 at 5. This skewed result is not an inevitable feature of North Carolina’s political geography.

193. The result of Dr. Duchin’s “overlay” analysis for the Enacted Congressional Plan is clear: The plan is designed in a way that safeguards Republican majorities in any plausible election outcome, including those where Democrats win more votes by clear margins. The Enacted Congressional Plan will almost always yield 10 Republican seats and 4 Democratic seats. PX150 at 6. This includes Democratic victories as well as close elections. PX150 at 6.

194. The below figure demonstrates the bias the Enacted Congressional Plan creates across all 52 elections that Dr. Duchin studies by comparing Democratic vote share (on the x-axis) with Democratic seat share (on the y-axis) for every election. PX150 at 7. A map that responds to voters’ preferences would roughly track one of the diagonal lines crossing at the “(50, 50)” point, where a 50% vote share generates a 50% seat share. Along those lines, as either party wins more votes, it wins more seats. And if either party wins a majority of votes, it wins a majority of seats. But as the figure shows, the Enacted Congressional Plan (red dots) does not come near the diagonal lines or pass anywhere close to the (50, 50) point.



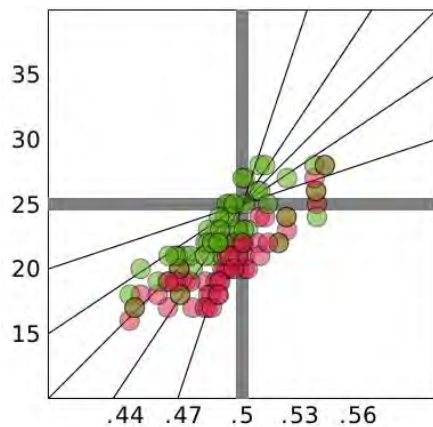
PX153 (Figure 2: Vote Shares and Seat Shares in Enacted & NCLCV Congressional Maps)

195. This shows that, under the Enacted Congressional Plan, more Democratic votes usually do not mean more Democratic seats, reflected in the flat red line near the bottom of the figure. Indeed, the bulk of the red dots are stuck on that line, where Democrats carry only 4 of 14 districts. And in each of the 12 statewide contests where the Democratic candidate won by less than seven percentage points, the winner carried only 4 or 5 of the 14 districts (these are the red dots in the lower-right quadrant, where more than half the votes generated less than half the seats for Democratic candidates). Under the Enacted Congressional Plan, a clear majority of Democratic votes does not translate into a majority of seats. The Court finds that the Enacted Congressional Plan achieves these results by the familiar means of “packing” and “cracking” Democratic voters across the state, as further described below.

196. The Enacted Senate Plan effectuates the same sort of partisan advantage as the Enacted Congressional Plan. The Enacted Senate Plan consistently creates Republican majorities and precludes Democrats from winning a majority in the Senate even when Democrats win more votes. Even in an essentially tied election or a close Democratic victory, the Enacted Senate Plan gives Republicans a Senate majority, and sometimes even a veto-

proof 30-seat majority. PX150 at 6. And that result holds even when Democrats win by larger margins. *Id.*

197. The below figure demonstrates the bias in the Enacted Senate Plan across all 52 recent partisan elections by comparing Democratic vote share (on the x-axis) with Democratic seat share (on the y-axis) across the 52 elections that Dr. Duchin used to analyze the plan. PX150 at 7. A map that responds to voters’ preferences would roughly track one of the diagonal lines crossing at the “(50, 50)” point, where a 50% vote share generates a 50% seat share. As with the Enacted Congressional Plan, the Enacted Senate Plan (red dots) does not come near the diagonal lines or pass anywhere close to the (50, 50) point. Instead, the Enacted Plan falls well below all of the lines on the y-axis and crosses the x-axis far to the right of the midpoint, showing a plan that consistently denies Democrats majorities even when voters clearly prefer Democratic candidates.

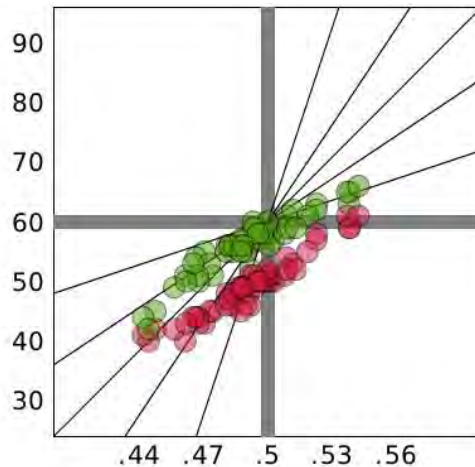


PX153 (Figure 2: Vote Shares and Seat Shares in Enacted & NCLCV Senate Maps)

198. As with the Enacted Congressional Plan, the Court finds that the Enacted Senate Plan achieves its partisan goals by packing Democratic voters into a small number of Senate districts and then cracking the remaining Democratic voters by splitting them across other districts, as further described below.

199. Similarly, the Enacted House Plan is also designed to systematically prevent Democrats from gaining a tie or a majority in the House. In close elections, the Enacted House Plan always gives Republicans a substantial House majority. That Republican majority is resilient and persists even when voters clearly express a preference for Democratic candidates. PX150 at 6.

200. The below figure plots Democratic vote share against Democratic seats across all 52 recent partisan elections studied by Dr. Duchin. Again, the Enacted House Plan (red dots) does not pass anywhere close to the (50, 50) point. Instead, the Enacted Plan falls well below the block trendlines on the y-axis and crosses the x-axis far to the right of the midpoint, showing a plan that consistently denies Democrats majorities or even a tie.



PX153 (Figure 2: Vote Shares and Seat Shares in Enacted & NCLCV House Maps)

201. As with the Enacted Congressional Plan and the Enacted Senate Plan, the Court finds that the Enacted House Plan achieves this resilient pro-Republican bias by the familiar mechanisms of packing and cracking Democratic voters, as further described below.

(vi) ***Plaintiff Common Cause’s Expert Dr. Daniel Magleby***

202. Dr. Magleby is a professor at Binghamton University, where he holds a courtesy appointment in the Department of Economics and is the director of the Center for the Analysis of Voting and Elections. PX1483 at 3.

203. Dr. Magleby was qualified and accepted as an expert at trial in the fields of political geography and legislative and congressional elections, mathematical modeling and political phenomena and measurements of gerrymandering. Trial Tr. 01/04/2022.

204. Dr. Magleby used a peer-reviewed algorithm that he developed to generate a set of unbiased maps against which he compared the enacted House, Senate, and congressional maps. PX1483 at 6. He designed this algorithm to prioritize maintaining voting districts and to draw maps that were contiguous and roughly equal in population. *Id.* Dr. Magleby then used this algorithm to develop a set of between 20,000 and 100,000 maps, from which he took a random sample of 1,000 maps that roughly met the North Carolina Legislature’s 2021 criteria for drawing districts. *Id.* at 6.

205. Dr. Magleby then aggregated statewide votes from statewide races between 2016 and 2020 to the voting district level in order to determine typical partisan performance in North Carolina state elections (a “seats carried” analysis). *Id.* at 8, 9. In order to match up the vote share to the newly enacted districts, Dr. Magleby determined which simulated district a precinct would fall in and assigned that precinct’s vote count to the hypothetical district. *Id.* at 7. If the precinct fell in more than one simulated district, Dr. Magleby assigned to the sample district the proportion of the votes as determined by the precinct’s population that fell in the simulated district. *Id.* at 7.

206. The Court finds, as Dr. Magleby found, that the level of partisan bias in seats in the House maps went far beyond expected based on the neutral political geography of North Carolina. *Id.* at 10.

207. In the neutral maps drawn using the Adopted Criteria for drawing maps, Dr. Magleby’s analysis found that Democrats most commonly won 52 seats in the North Carolina House of Representatives. *Id.* at 13. In the enacted map, on the other hand, Democrats won only 48 seats. *Id.* at 13. Out of 1,000 possible maps that the algorithm drew, only one map resulted in Democrats winning as few as 48 seats. *Id.* at 13. That amounts to a 0.1% chance that Democrats would win as few as 48 seats absent partisan bias under his analysis.

208. Because an analysis of “seats carried” is not sufficient to identify all partisan redistricting, Dr. Magleby also used median-mean calculations to measure the extent of partisan advantage—specifically, to understand how dramatically Democratic voters were treated from Republican voters and how durable that gerrymander is. *Id.* at 9. To calculate the median-mean difference, Dr. Magleby first calculated the average Democratic vote share in the House districts. *Id.* at 9–10. He then found the median Democratic vote share by lining up the enacted House districts from least Democratic to most Democratic and identifying the districts that fell in the middle. *Id.* at 10. In a nonpartisan map, a low median-mean difference is expected. *Id.*

209. The Court finds, as Dr. Magleby found, that the median-mean bias in the enacted maps was far more extreme than expected in nonpartisan maps. The nonpartisan House maps that Dr. Magleby drew most commonly had a median-mean difference in the Democratic vote share of between 0.0225 and -0.025. *Id.* at 15. The lowest median-mean difference in the generated maps was -0.034, and the highest was -0.005. *Id.* The enacted maps have a median-mean difference in Democratic vote share of -0.04. *Id.* No randomly

generated map had such an extreme median-mean share—meaning that in his analysis, he saw no simulated map that was as extreme and durable in terms of partisan advantage. *Id.*

(vii) Legislative Defendants’ Expert Dr. Michael Barber

210. Dr. Barber is an associate professor of political science at Brigham Young University and faculty fellow at the Center for the Study of Elections and Democracy in Provo, Utah. He received his PhD in political science from Princeton University in 2014 with emphases in American politics and quantitative methods and statistical analyses. Dr. Barber teaches undergraduate courses in American politics and quantitative research methods, including classes about political representation, Congressional elections, statistical methods, and research design. LDTX107 at 6. Dr. Barber’s research uses advanced statistical methods for the analysis of quantitative data, oftentimes in the context of election- and voting-related topics, and his research has been published numerous times in peer-reviewed journals. LDTX107 at 7.

211. Dr. Barber was qualified and accepted as an expert at trial in the areas of political geography, partisanship statistical analysis, and redistricting. Trial Tr. 01/05/2022.

212. Dr. Barber analyzed the Enacted Plans, as well as NCLCV Plaintiffs’ Optimized Maps, in the context of the partisan gerrymandering claims brought by Plaintiffs challenging the North Carolina Senate and North Carolina House of Representatives Districts. LDTX107 at 5.

213. Dr. Barber utilized a publicly-available and peer-reviewed redistricting simulation algorithm to generate 50,000 simulated district maps in each county grouping in which there are multiple districts in both the North Carolina House of Representatives and the North Carolina Senate. LDTX107 at 5. In Dr. Barber’s simulations, the model generates plans that adhere to the restrictions included in the North Carolina Constitution as well as the *Stephenson* criteria of roughly equal population, adherence to county cluster boundaries,

minimization of county traversals within clusters, and geographic compactness. LDTX107 at 22-23. Only after the simulated district plans are complete is the partisan lean of each district in each plan computed by utilizing two-party election results from eleven statewide elections from the past ten years; these results are disaggregated to the level of the VTD and then reassembled at the district level to compute the proportion of votes. LDTX107 at 23-24.

214. Dr. Barber’s method is not without limitations. Because it is impossible for a redistricting algorithm to account for all non-partisan redistricting goals—which can be idiosyncratic and district-specific—differences between the range of his simulated plans and the 2021 Plans may be the result of non-partisan goals the algorithm failed to account for, rather than of partisan goals. In Dr. Barber’s opinion, there is no way, then, to be sure that differences in partisan effects from simulated plans versus legislatively enacted plans result from partisan intent rather than from non-partisan goals the algorithm was not programmed to achieve. This means that the simulation method can be indicative on the question of partisan intent, but not necessarily dispositive, and under Dr. Barber’s analysis, it is plausible that the 2021 Plans were prepared without partisan data or considerations.

215. Dr. Barber’s definition of a partisan outlier is if the number of Democratic districts generated by the plan falls outside the middle 50% of simulation results, which he considers a conservative definition of an outlier rather than the traditional definition of falling outside the middle 95% or 90% of the comparison distribution. LDTX107 at 29. In the House of Representatives, one county grouping is a partisan outlier under this analysis, and in the Senate, two county groupings are partisan outliers under this analysis. LDTX107 at 5; *id.* at 157 (Guilford House grouping); *id.* at 227 (Granville and Wake Senate grouping); *id.* at 233 (Iredell and Mecklenburg Senate grouping).

216. Supporting Dr. Barber’s finding of limited partisan outliers is the spatial distribution of voters throughout the state, which can have an impact on the partisan

outcomes of elections when a state is, by necessity, divided into a number of legislative districts. This is largely the case because Democratic-leaning voters tend to cluster in dense, urban areas while Republican-leaning voters tend to be more equally distributed across the remainder of the state. This pattern holds true in North Carolina. LDTX107 at 10-13.

217. As a result of the spatial distribution of voters throughout the state, under Dr. Barber’s analysis there are many more VTDs with efficient Republican majorities than there are VTDs with efficient Democratic majorities. LDTX107 at 14. And therefore, Dr. Barber concludes the advantage between the expected Republican seat share in the state legislature compared to the statewide Republican vote share in the recent past is more due to geography than partisan activity by Republican map drawers. LDTX107 at 15.

(viii) Legislative Defendants’ Expert Dr. Andrew Taylor

218. Dr. Taylor is a tenured professor of political science at North Carolina State University and has taught at NC State since receiving his Ph.D. from the University of Connecticut in 1995. He teaches an array of courses in American politics, served as chair of the Department of Political Science from 2006 to 2010, and served as President of the North Carolina Political Science Association in 2012-13. LDTX108 at 2.

219. Dr. Taylor has written four books and published extensively in political science journals, including authoring twenty-eight peer-reviewed articles and other published work. His work utilizes a diverse array of methodologies, including different statistical techniques, and has included research on redistricting and North Carolina politics. *Id.*

220. Dr. Taylor was qualified and accepted as an expert at trial in the areas of political science, political history of North Carolina, and its constitutional provisions, and the comparative laws and Constitutions in other states and jurisdictions. Trial Tr. 01/04/2022.

221. Dr. Taylor analyzed the Enacted Plans deploying his knowledge of North Carolina political history and legislative politics, comparative politics, and American national and state politics and policy. LDTX108 at 2-3.

222. There is no recognized baseline of transparency for legislative redistricting, and the 2021 redistricting was a transparent and participatory process in comparison to North Carolina’s past redistricting and that by legislative bodies in other states. TR 01/04/2022.

223. Complaints about unfair district lines as removed from the concepts of free elections, equal protection, and free speech and assembly are different than how those ideas have historically been understood by political scientists. LDTX108 15–25. A free election is not generally understood by political scientists to be one without burdens on the right to vote (since basic regulatory frameworks necessarily place some burden on that right), and a given districting system is not generally understood as essential to the meaning of free elections (since even free elections have limited options in all events). *Id.* at 21–22.

224. Likewise in political science, an election is generally regarded as “equal” so long as “[e]ach person has one vote to elect one legislator who has one vote in the legislature,” and departures even from that ideal are tolerated (as in the case of non-citizens, who are counted towards the baseline of district population even though they are not permitted to vote). *Id.* at 23. In political science, equal outcomes are not generally accepted as a necessary facet of equal elections, administering such a rule would seem to be unworkable, and voting is not a feature of party participation but of individual participation as a citizen. *Id.* In this respect, it makes no sense to refer to citizens as having cast “wasted” votes; it is the parties, not voters, who are properly viewed as wasting votes.” *Id.* at 24.

225. Similarly, purportedly “fair” redistricting plans are not understood in the political-science field as germane to free speech, which can occur regardless of the shapes and sizes of districts. *Id.* at 24–25.

226. For many of these reasons, measuring gerrymanders can be elusive, problematic, and beyond the consensus of political scientists. *See id.* at 25–32. Measuring an alleged gerrymander as one that “produce[s] outcomes in which the share of the legislative body’s seats won by a party is not proportionate with its share of the aggregate statewide vote and/or . . . produce too many districts where there is little meaningful competition” runs into the problem that “proportionality was not an objective of the designers of our electoral system.” *Id.* at 27. Further, the goals of proportionality and competitiveness are often incompatible. *Id.* at 27–29.

227. Prominent political science measures of “fairness” have proven incapable of commanding consensus because they are all deficient in one or more respects. *Id.* at 29–38. Those methods tied to a measure of vote totals and seat totals are too tied into proportionality to present a meaningful notion of fairness, especially given that avoiding this problem would require gerrymandering in favor of the party complaining of unfairness. *Id.* at 34–37. Many measures of fairness are too subjective to be of use to political scientists. *See id.* at 38. All measures require judgment calls like choice of metrics and elections data for measuring partisan effect, which is a fluid concept that changes year to year. *Id.* at 37.

228. The Democratic Party’s message is successful only in limited geographic areas, LDTX108 at 38–41, so any partisan “effect” the Democratic Party or its supporters complain of could be understood as the natural and probable consequences of neutral factors that cannot be considered unfair or adverse as a factual matter. There has been a significant change in North Carolina’s political geography over the past thirty years. *Id.* at 39-40.

Whereas Democrats formerly did well in rural areas, especially in the eastern part of the state, and Republicans were competitive in urban and suburban areas, that is no longer true. “The transformation is not the result of redistricting.” *Id.* at 40. Instead, it is a function of slow social and economic forces, changes in the state’s citizenry, and party ideology. *Id.* at 40-41.

(ix) *Legislative Defendants’ Rebuttal Expert Sean Trende*

229. Sean Trende is currently enrolled as a doctoral candidate in political science at The Ohio State University. His coursework for his Ph.D. and M.A.S. included, among other things, classes on G.I.S. systems, spatial statistics, issues in contemporary redistricting, machine learning, non-parametric hypothesis tests and probability theory. He expects to receive his Ph.D. in May of 2021. His dissertation focuses on applications of spatial statistics to political questions. LDTX106 at 1-2. Mr. Trende is a Senior Elections Analyst with RealClearPolitics, where he’s been since January of 2009 after practicing law for 8 years. He is also a Visiting Scholar at the American Enterprise Institute and has authored or co-authored books analyzing demographic and political trends as well as the dynamics behind elections. He has spoken on these topics as well and has taught classes on American Politics and the Mass Media, Political Participation and Voting Behavior. *Id.* at 2. He sits on the advisory panel for the “States of Change: Demographics and Democracy” project, sponsored by the Hewlett Foundation. The project looks at trends among eligible voters and the overall population to explain the impact of changes on American politics. *Id.* at 4.

230. Mr. Trende has authored expert reports in 15 voting rights cases and currently serves as one of two special masters appointed by the Supreme Court of Virginia to redraw districts that will elect the commonwealth’s representatives to the House of Delegates, state Senate, and U.S. Congress. *Id.* at 7.

231. Mr. Trende was qualified and accepted as an expert at trial in the areas of political science, redistricting, drawing redistricting maps and analyzing redistricting maps. Trial Tr. 01/05/2022.

232. Mr. Trende created images by examining the Complaints filed by the plaintiffs in this action. He examined whether the districts were challenged as either partisan gerrymanders or districts that diluted minority voting power. LDTX106 at 7. He then downloaded the enacted plans from the legislative redistricting website and used R, a statistical programming tool, to color-code the districts by plaintiff group, based upon who challenged which districts. *Id.* In Exhibit 2 to his affidavit, Mr. Trende submitted 8 maps identifying the districts challenged by each Plaintiff group in these consolidated cases. *Id.* He also created color-coded maps showing each county in North Carolina, noting the number of counties in which a majority of voters voted for the Republican presidential candidate in the past decade (between 70 and 76 counties) and whether the Republican candidate performed better in a county than nationally. *Id.* at 8.

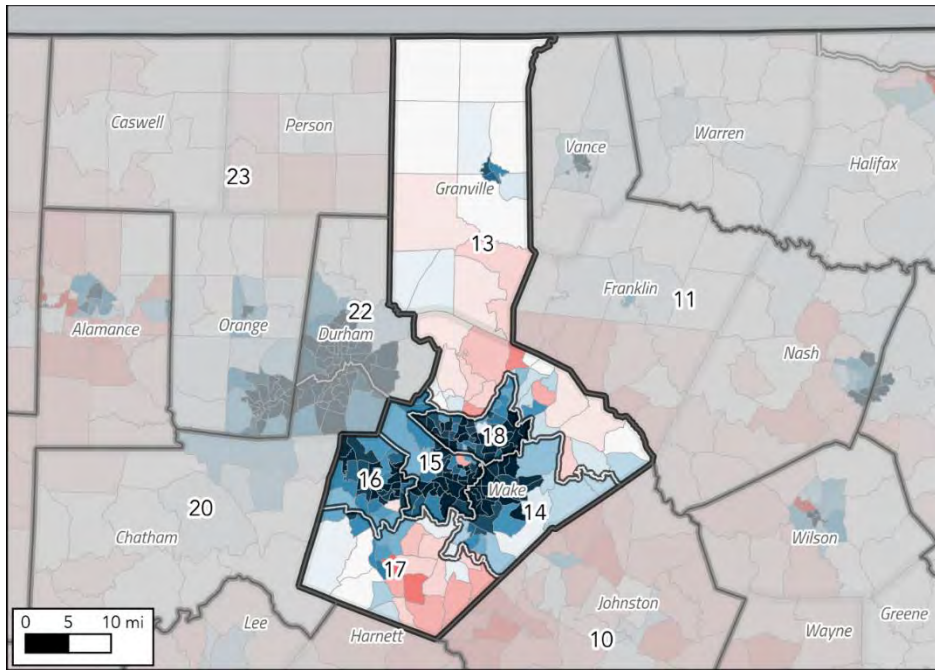
B. District-by-District Analysis

1. North Carolina Senate Districts

233. Plaintiffs' experts analyzed specific county groupings in the enacted Senate plan. Plaintiffs' experts concluded that partisan redistricting and bias in these groupings was responsible for the partisan bias that they found in their statewide analysis of the enacted Senate plan. The results of the analysis conducted by Legislative Defendants' expert Dr. Barber reinforce this conclusion.

a. Granville-Wake Senate County Grouping

234. The Granville-Wake County Grouping contains Senate District 13 (“SD13”), Senate District 14 (“SD14”), Senate District 15 (“SD15”), Senate District 16 (“SD16”), Senate District 17 (“SD17”), and Senate District 18 (“SD18”). SD13 is comprised of Granville County and portions of Wake County. SD14, SD15, SD16, SD17, and SD18 are comprised of portions of only Wake County. Plaintiffs challenge these Senate Districts as the product of unlawful partisan gerrymanders.

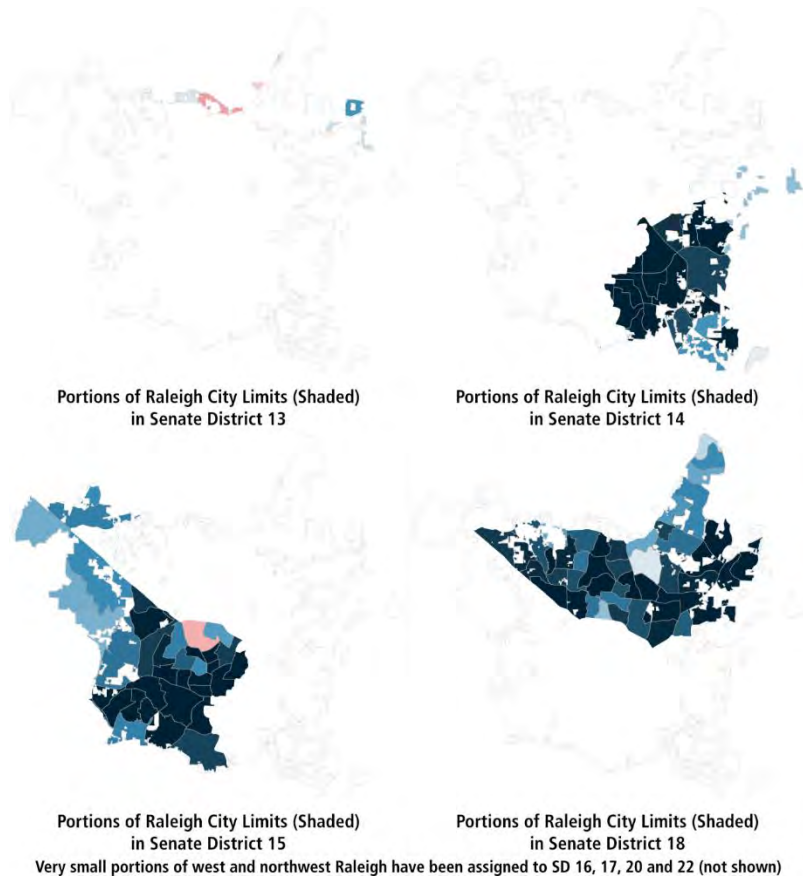


PX454 (Cooper Map 19)

235. Harper Plaintiffs challenge this Senate county grouping. Individual Harper Plaintiff Rebecca Harper resides in SD17. Individual Harper Plaintiff John Anthony Balla resides in SD18. No Individual Plaintiff resides in SD13, SD14, SD15, or SD16. Organizational Plaintiff NCLCV challenges every Senate District in this county grouping. Organizational Plaintiff Common Cause challenges every Senate District in this county grouping except for SD13 and 18.

236. The district lines in this cluster pack Democratic-leaning VTDs into Senate Districts 14, 15, 16, and 18, in order to make Senate District 13, in the north, and Senate District 17, in the south, as competitive as possible for Republican candidates. Senate District 13 pairs all of “purple” Granville County with the Republican-leaning VTDs on the northern and northeastern portions of Wake County, avoiding the Democratic-leaning VTDs in North Raleigh. Some of the Democratic-leaning VTDs in North Raleigh are packed into Senate District 18, leading to a “horn-shaped section” of that district that borders Senate District 13. PX425 at 50.

237. Raleigh is divided into all of the districts in this cluster, with most of Raleigh’s few Republican-leaning VTDs included in Senate District 13, in the north. PX425 at 50; PX455.



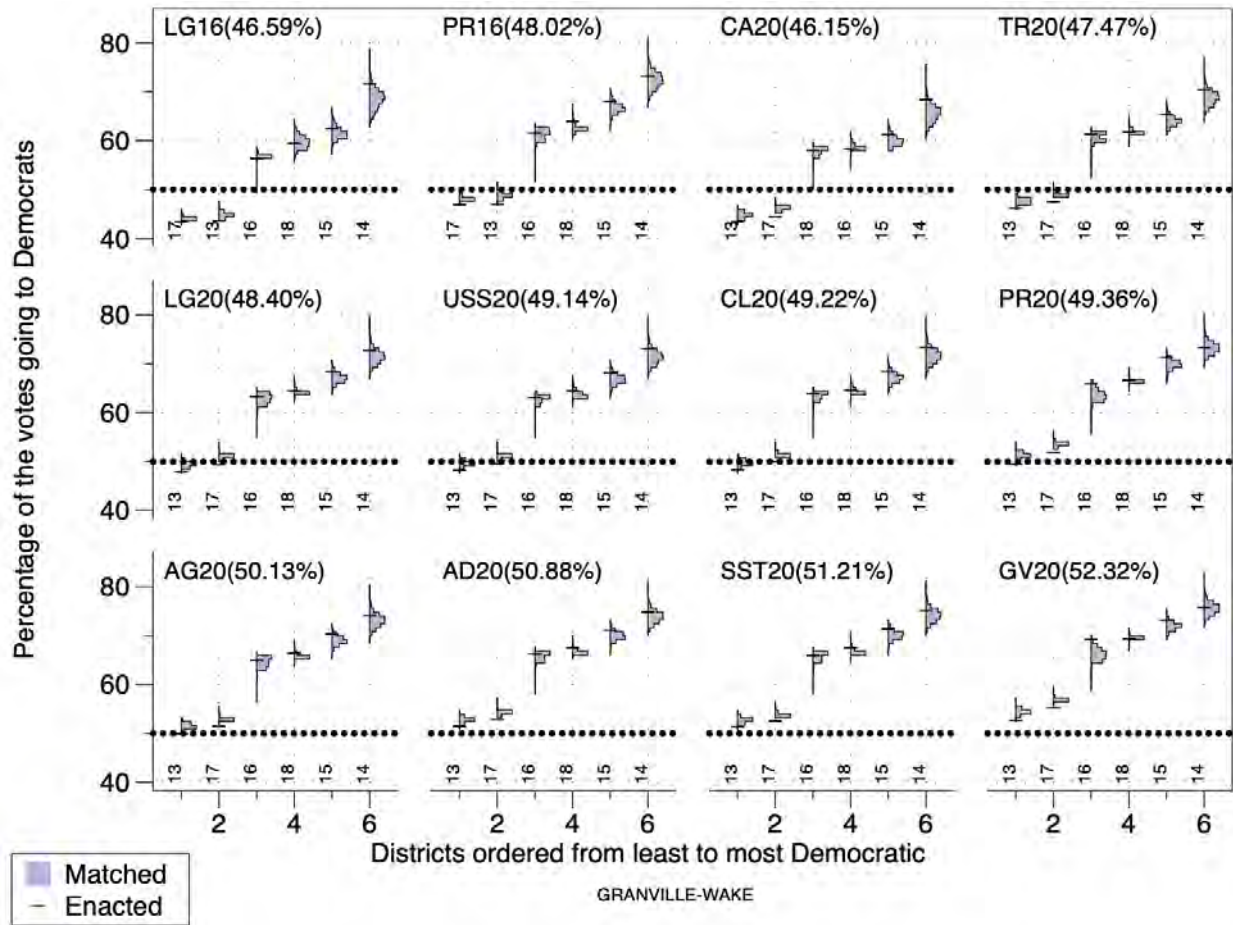
PX455 (Cooper Map 20)

238. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper’s analysis and independently establish that the Granville-Wake county grouping is an intentional, pro-Republican partisan redistricting.

239. Dr. Mattingly analyzed individual county groupings by plotting the Democratic vote fraction in each district in the grouping, ordered from least to most Democratic. *See* PX629 at 29. He conducted this analysis for the enacted plan (represented by a black line in his county-grouping-level figures) and for his ensemble of nonpartisan plans (represented by the blue histograms), using 12 prior statewide elections in 2020 and 2016. PX629 at 38; PX654. If the black line representing the enacted plan is above the dotted black line at 50%, the Democrats win that district under the enacted plan. *Id.* If all or the bulk of the blue histogram representing the ensemble is above the dotted black line at 50%, the Democrats would expect to win that district under the ensemble. *Id.* Dr. Mattingly labeled the historical election whose statewide vote counts he was using at the top of each plot. Black lines that are at the bottom of the corresponding blue histogram represent districts that Democrats have been cracked out of, because the enacted plan has many fewer Democrats than would be expected in the nonpartisan plans; black lines that are at the top of the corresponding blue histogram represent districts that Democrats have been packed into. *Id.*

240. Figure 6.2.4 shows Dr. Mattingly’s analysis of this grouping.

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PX663 (Mattingly Figure 6.2.4)

241. The Court finds that Democrats were cracked out of the two most Republican districts (District 17 and 13) and packed into the most Democratic districts (Districts 14, 15, 16, and 18). PX629 at 57; PX663. (Page 57 of Dr. Mattingly’s report concerning Granville-Wake contains a typo that he identified at his deposition: he states that Districts 17 and 18 are cracked, when he meant (and the Figure shows) that districts 17 and 13 are packed. He correctly states that “districts 14, 15, 16, and 18” are in fact packed.) The effect is that the Republicans win two out of six districts under the enacted plan in several elections where they never would under the nonpartisan ensemble, such as the Lieutenant Governor 2020 or Senate 2020 election. PX629 at 57; PX663. Dr. Mattingly quantified the cracking of Democrats: Across every election he considered, *none* of the approximately 40,000 plans in

his ensemble had as low a fraction of Democrats in the two most Republican districts in the Granville-Wake cluster as in the enacted plan. *Id.*

242. District 13 and District 17 favor Republicans in nearly all elections in Dr. Duchin’s sample as well. PX201 “SL-173” B14:BA19.

243. The Court finds, as Dr. Pegden’s findings show, that the Granville-Wake Senate county grouping is the result of intentional, pro-Republican partisan redistricting. In his first-level analysis, Dr. Pegden found that the enacted plan’s version of this grouping is more favorable to Republicans than 99.999989% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 99.999969% of all possible districting of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 30.

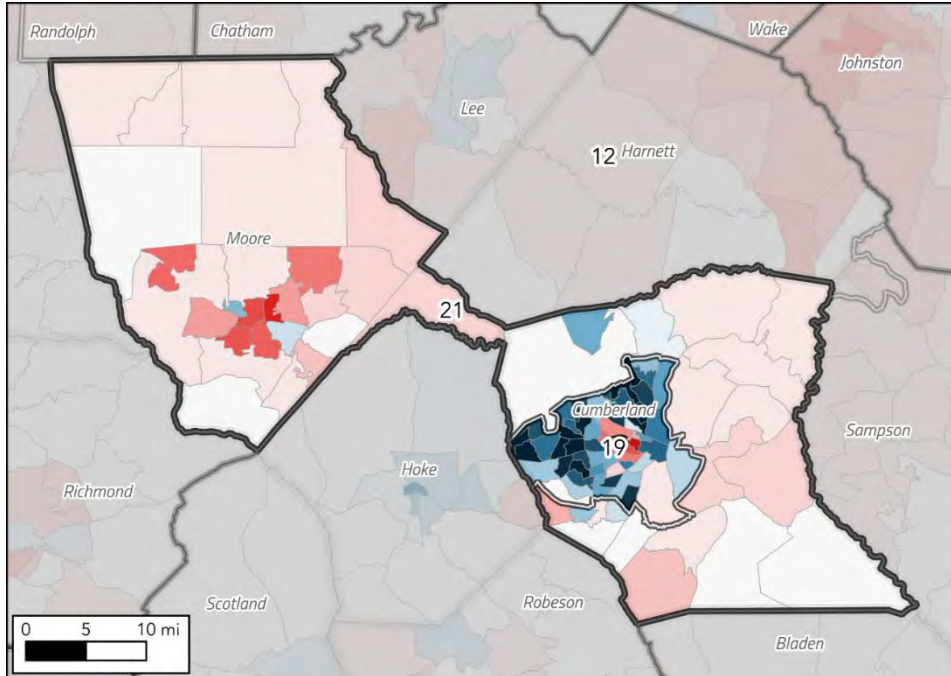
244. Drawing the districts in this manner also reduced compactness: The average Polsby-Popper score of Districts 13, 14, 15, 16, 17, and 18 is 0.31. PX150 at 15. Drawing more compact districts in Wake and Granville Counties would have generated more competitive districts in the cluster.

245. In the Granville-Wake Senate cluster, which Legislative Defendants’ expert Dr. Barber refers to as “solidly Democratic” and found to be a partisan outlier, *see* LDTX107 at 221, the enacted map is a partisan outlier under 10 of the 11 elections Dr. Barber analyzed. Under seven of those 11 elections, Democrats win fewer seats under the enacted map that they would under 96-100% of his simulations. *Id.* at 228.

246. The Court finds the districts in the Granville-Wake Senate county grouping, SD13, SD14, SD15, SD16, SD17, and SD18, to be the result of intentional, pro-Republican partisan redistricting.

b. Cumberland-Moore Senate County Grouping

247. The Cumberland-Moore County Grouping contains Senate District 19 (“SD19”) and Senate District 21 (“SD21”). SD19 is comprised of portions of Cumberland County. SD21 is comprised of Moore County and portions of Cumberland County. Plaintiffs challenge these Senate Districts as the product of unlawful partisan gerrymanders.

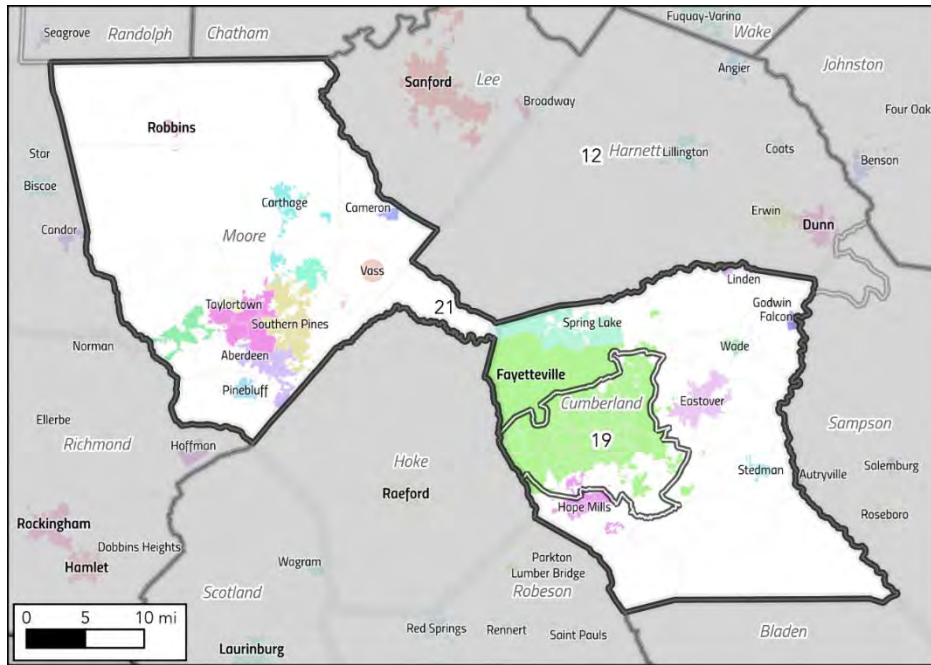


PX459 (Cooper Map 24)

248. Harper Plaintiffs challenge this Senate county grouping. Individual Harper Plaintiff Sarah Taber resides in SD19. No Individual Plaintiff resides in SD21. Organizational Plaintiff Common Cause challenges both Senate Districts in this county grouping.

249. The district lines pack Democratic voters in and around Fayetteville into Senate District 19, leaving Senate District 21 as a Republican-leaning district. PX425 at 59; Trial Tr. 01/03/2022.

250. The district lines split the cities of Fayetteville and Hope Mills across both districts in the cluster, PX460, but the most Democratic-leaning VTDs in those cities are packed into Senate District 19. PX425 at 59; PX459; Trial Tr. 01/03/2022.

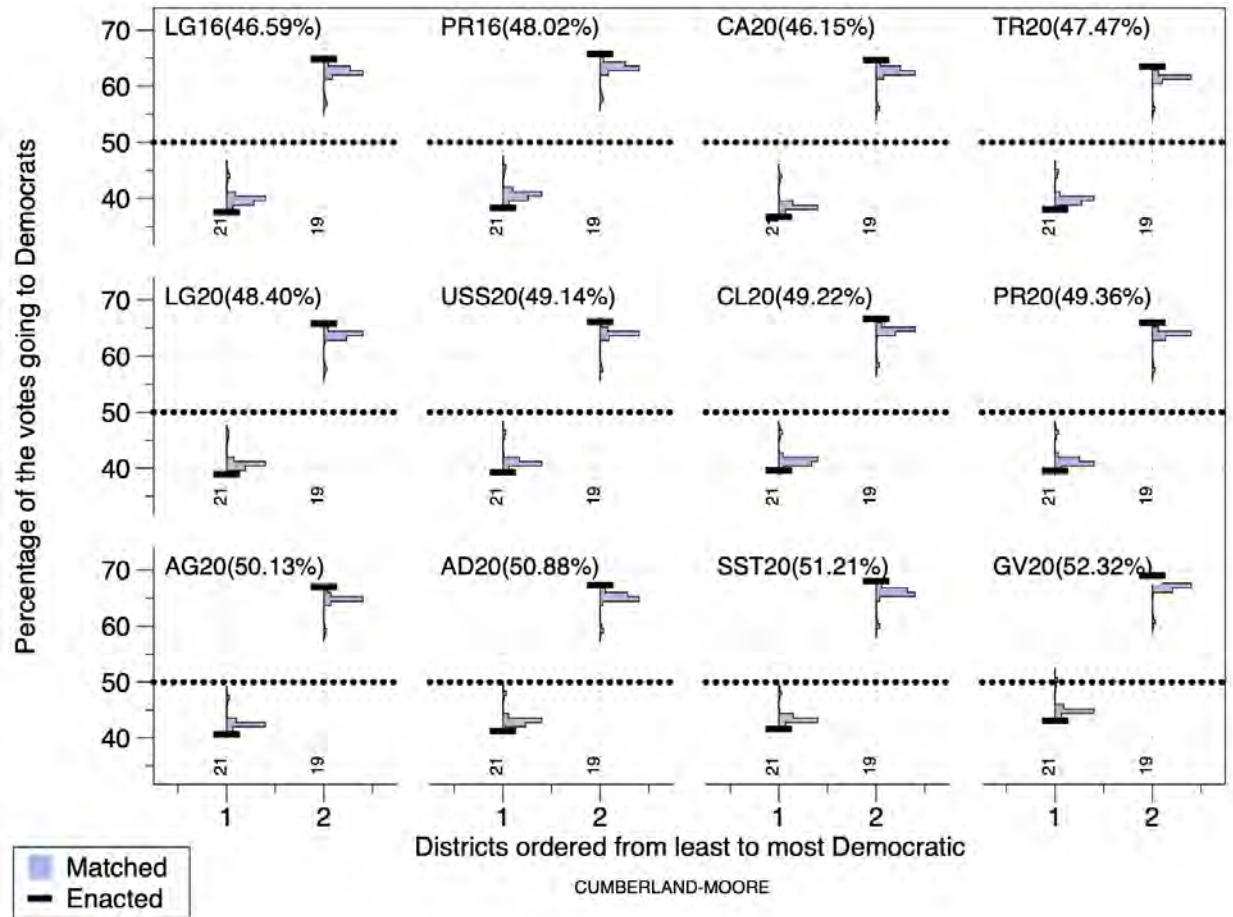


PX460 (Cooper Map 25)

251. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper’s analysis and independently establish that the Cumberland-Moore county grouping is an intentional, pro-Republican partisan redistricting.

252. Figure 6.2.10 shows Dr. Mattingly’s analysis of this grouping.

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PX665 (Mattingly Figure 6.2.10)

253. The Court finds that Democrats were cracked out of the most Republican district and packed into the most Democratic district to make the map maximally nonresponsive, even though this does not affect the number of seats won in the particular 12 elections that Dr. Mattingly considered. PX629 at 61; PX665.

254. The Court finds, as Dr. Pegden’s findings show, that the Cumberland-Moore Senate county grouping is the result of intentional, pro-Republican partisan redistricting. In his first-level analysis, Dr. Pegden found that the enacted plan’s version of this grouping is more favorable to Republicans than 99.9999949% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least

99.999984% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 28.

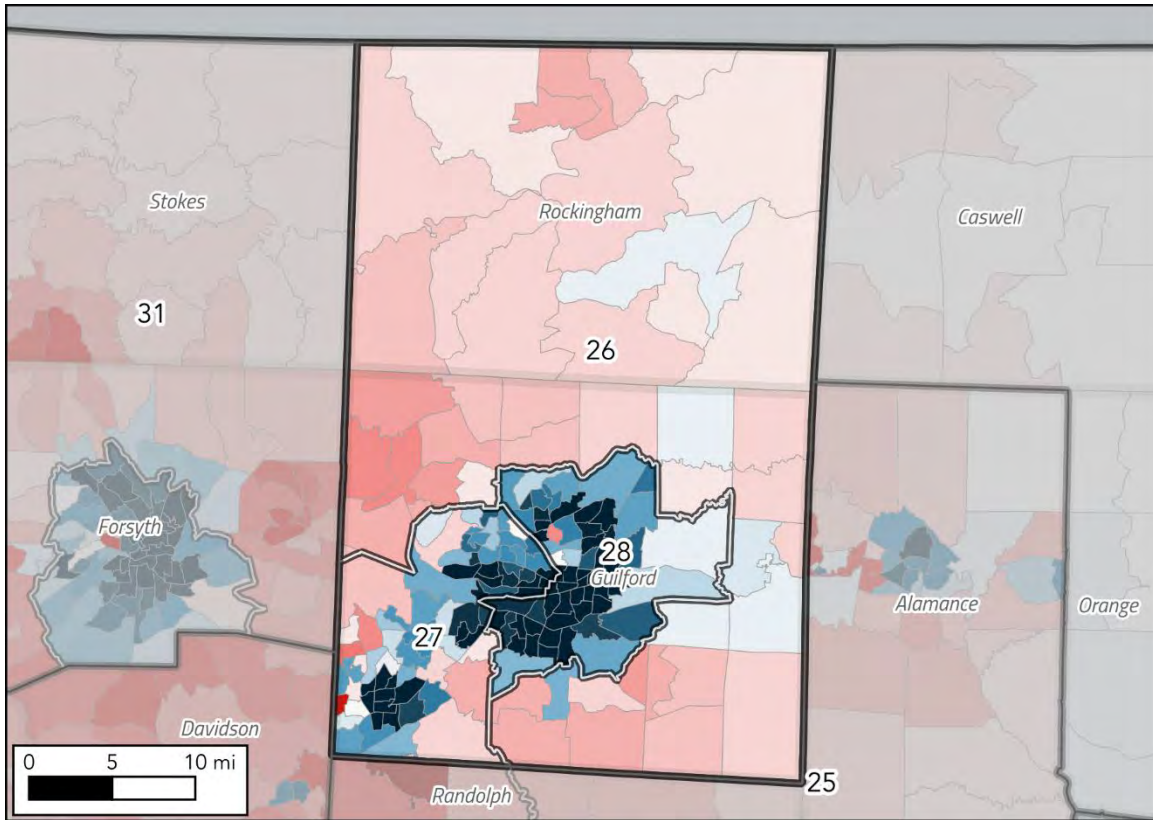
255. In the Cumberland-Moore Senate county grouping, under each of the 11 elections that Legislative Defendants’ expert Dr. Barber considered, Democrats win one seat under the enacted map and in 77% of Dr. Barber’s simulations, LDTX107 at 184, even though, under one election, Democrats would have won two seats under 93% of Dr. Barber’s simulations. *Id.* at 188.

256. The Court finds the districts in the Cumberland-Moore Senate county grouping, SD19 and SD21, to be the result of intentional, pro-Republican partisan redistricting.

c. Guilford-Rockingham Senate County Grouping

257. The Guilford-Rockingham County Grouping contains Senate District 26 (“SD26”), Senate District 27 (“SD27”), and Senate District 28 (“SD28”). SD26 is comprised of Rockingham County and portions of Guilford County. SD27 and SD28 are comprised of portions of only Guilford County. Plaintiffs challenge these Senate Districts as the product of unlawful partisan gerrymanders.

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PX456 (Cooper Map 21)

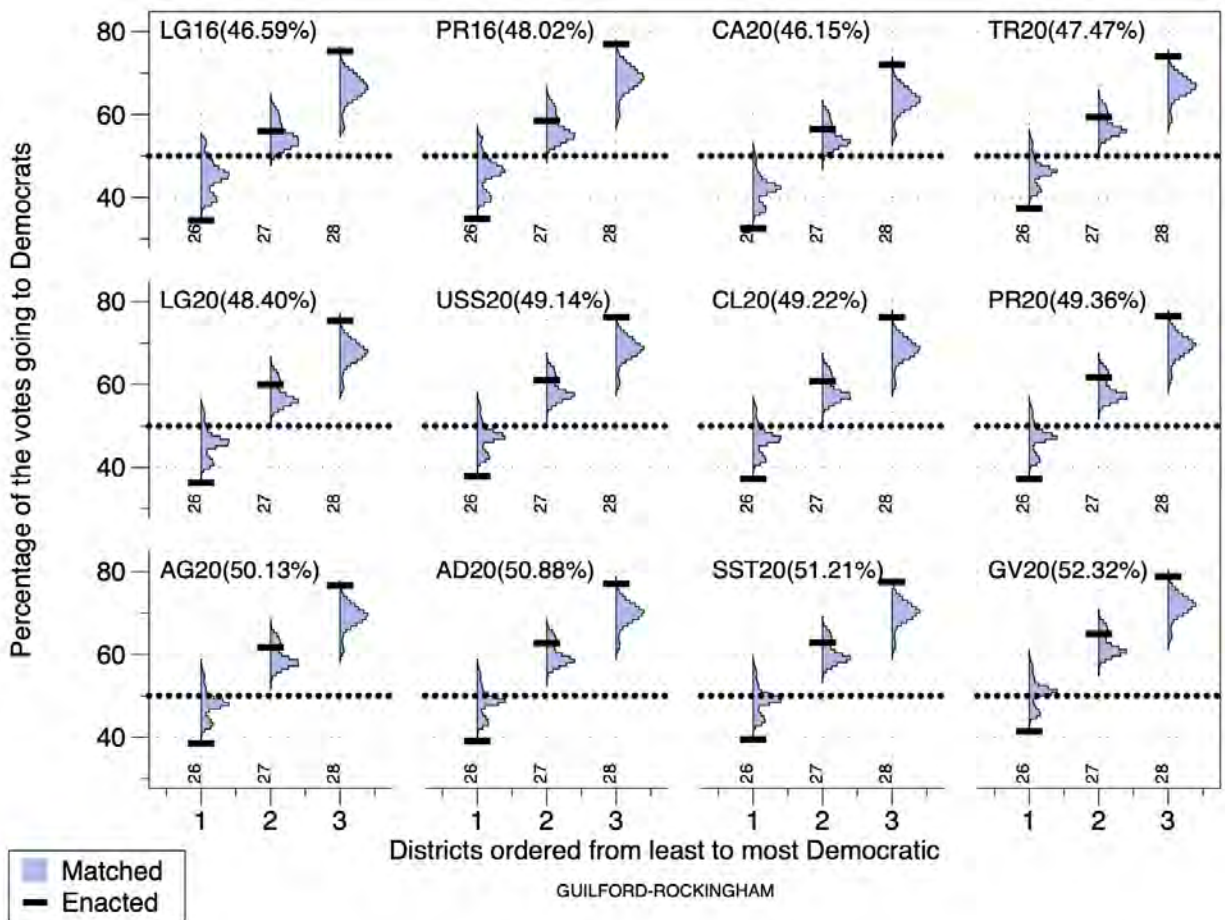
258. Harper Plaintiffs and Individual NCLCV Plaintiffs challenge this Senate county grouping. Individual NCLCV Plaintiffs Dandrielle Lewis and Talia Fernos and Individual Harper Plaintiffs David Dwight Brown, Joshua Perry Brown and Donald M. MacKinnon reside in SD27. Individual Harper Plaintiff Lily Nicole Quick resides in SD28. No Individual Plaintiff resides in SD26. Organizational Plaintiff NCLCV challenges all three Senate Districts in this county grouping. Organizational Plaintiff Common Cause challenges only SD27 and SD28.

259. Guilford County, which includes Greensboro and High Point, is among the most Democratic counties in North Carolina, while Rockingham leans toward the Republicans. The district lines pack Democratic voters into Senate Districts 27 and 28, allowing for a “safe Republican” Senate District 26 to wrap around those other districts in a

“C-shape” that connects the northern and southern boundaries of this cluster. House District 26 extends from Rockingham County into the Republican-leaning VTDs in western Guilford County on one side, and into southern Guilford County on the other, avoiding the most Democratic-leaning VTDs on the district’s inner borders. PX425 at 53.

260. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper’s analysis and independently establish that the Guilford-Rockingham county grouping is an intentional, pro-Republican partisan redistricting.

261. Figure 6.2.13 shows Dr. Mattingly’s analysis of this grouping.



PX666 (Mattingly Figure 6.2.13)

262. The Court finds that the three districts in the Guilford-Rockingham grouping are constructed to pack an exceptional number of Democrats in the most Democratic district

(District 28) to crack Democrats out of the most Republican district (District 26). PX629 at 63. The effect is to ensure a Republican victory in the district 26, when in some elections in the nonpartisan ensemble that district would go to the Democratic Party. PX629 at 63. None of the plans in Dr. Mattingly’s nonpartisan ensemble had fewer Democrats in the most Republican district than the enacted plan – in other words, zero of the plans in his nonpartisan ensemble cracked Democrats as substantially as the enacted plan. *Id.*

263. In the 2020 presidential election, 61% of Senate District 27’s major-party voters voted for President Biden. In Senate District 28, that figure was 76%. PX201 “SL-173” AO28:AO29. By wasting these surplus Democratic votes, the Enacted Senate Plan ensures that Senate District 26 will reliably vote for Republican candidates: In the same race, only 37% of District 26’s major-party voters cast their ballots for President Biden. PX201 “SL-173” AO27:AO29; PX422 at 53.

264. The Court finds, as Dr. Pegden’s findings show, that the Guilford-Rockingham Senate county grouping is the result of intentional, pro-Republican partisan redistricting. In his first-level analysis, Dr. Pegden found that the enacted plan’s version of this grouping is more favorable to Republicans than 99.999957% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 99.99987% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 31.

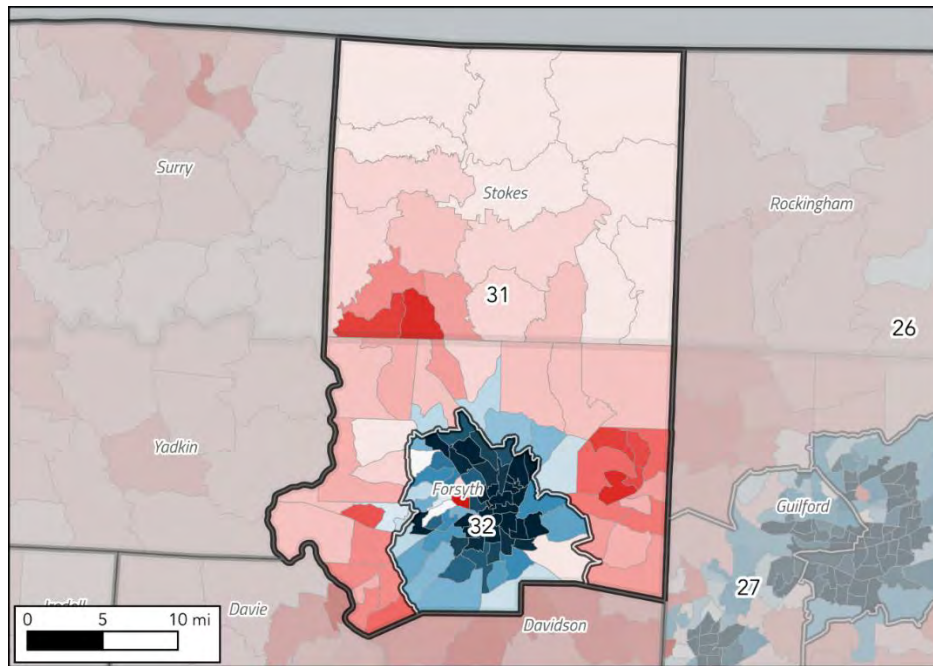
265. This grouping’s formation departs from traditional redistricting principles and reduces the compactness of these districts: The average Polsby-Popper score of the three districts is 0.33. PX150 at 15.

266. In the Guilford-Rockingham Senate cluster, which Legislative Defendants’ expert Dr. Barber refers to as “solidly Democratic,” the enacted map is in alignment with Dr. Barber’s simulations by creating two Democratic leaning districts. LDTX107 at 209, 215.

267. The Court finds the districts in the Guilford-Rockingham Senate county grouping, SD26, SD27, and SD28, to be the result of intentional, pro-Republican partisan redistricting.

d. Forsyth-Stokes Senate County Grouping

268. The Forsyth-Stokes County Grouping contains Senate District 31 (“SD31”) and Senate District 32 (“SD32”). SD31 is comprised of Stokes County and portions of Forsyth County. SD32 is comprised of portions of only Forsyth County. Plaintiffs challenge these Senate Districts as the product of unlawful partisan gerrymanders.



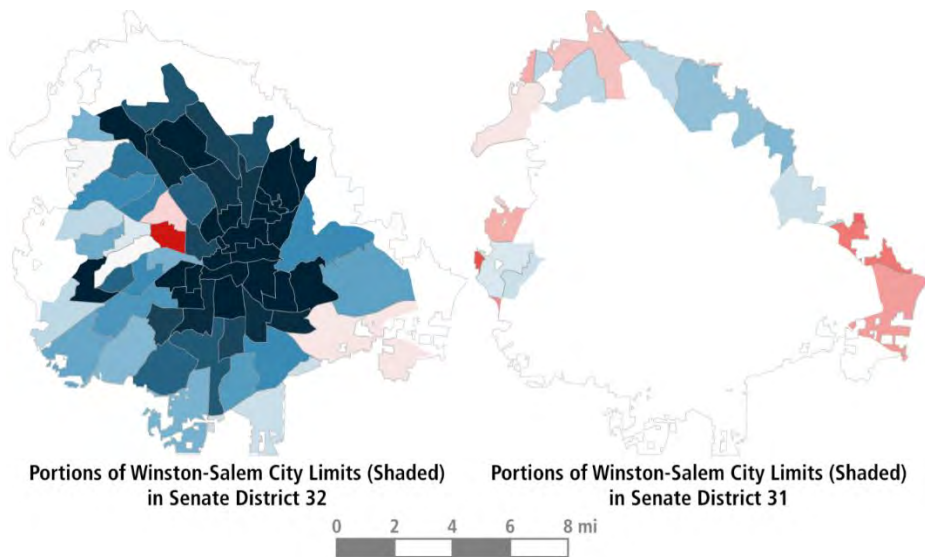
PX461 (Cooper Map 26)

269. Harper Plaintiffs challenge this Senate county grouping. Individual Harper Plaintiff Chenita Barber Johnson reside in SD32. No Individual Plaintiff resides in SD31. Organizational Plaintiff NCLCV challenges both Senate Districts in this county grouping.

270. Legislative Defendants decided to pair Forsyth County with Stokes County in this cluster, rather than pairing Forsyth County with Yadkin County, to the west; since Yadkin County has a lower Republican vote advantage than Stokes County, Legislative Defendants’ choice of pairing provided them with a better counter-weight to the heavily-Democratic VTDs in Winston-Salem. PX425 at 62.

271. Within the chosen cluster, Legislative Defendants packed the Democratic VTDs in Winston-Salem into Senate District 32, leaving Senate District 31 to wrap around three sides of the city and remain safely Republican. PX425 at 62-63; PX461.

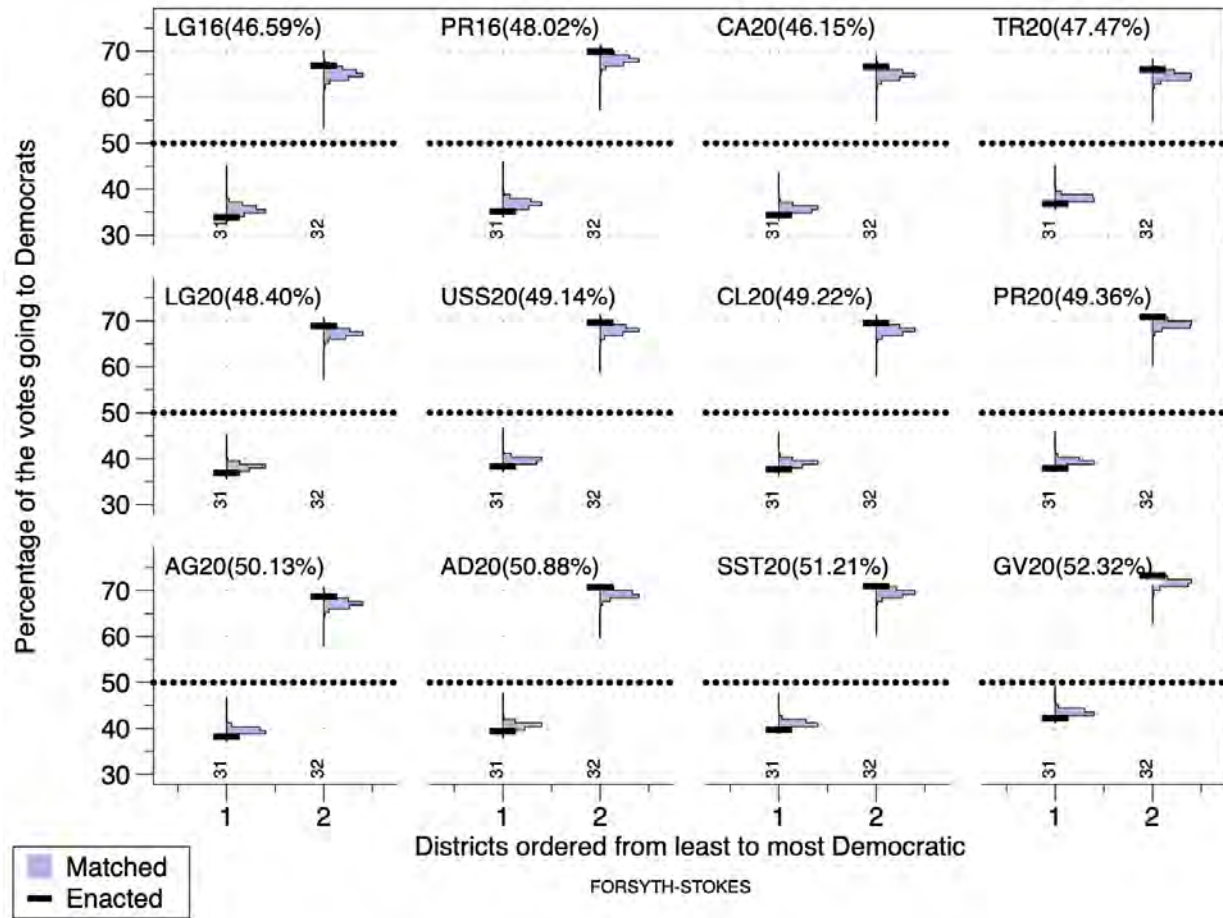
272. While Winston-Salem is split between both districts, a comparison of Dr. Cooper’s red-blue map (PX461) and his map showing the municipal boundaries within this cluster (PX462) illustrates how Senate District 31 captures the more Republican VTDs on the city’s edges. PX425 at 62.



PX462 (Cooper Map 27)

273. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper’s analysis and independently establish that the Forsyth-Stokes county grouping is an intentional, pro-Republican partisan redistricting.

274. Figure 6.2.7 shows Dr. Mattingly’s analysis of this grouping.



PX664 (Mattingly Figure 6.2.7)

275. The Court finds that, even though this does not affect the number of seats won in the particular elections that Dr. Mattingly considered, the two districts in Forsyth-Stokes maximize the number of Democrats in the most Democratic district and the number of Republicans in the most Republican district in a way that is almost never seen in the enacted map. PX629 at 59; PX664.

276. The Enacted Plan concentrates Forsyth County’s Democratic voters into one district—District 32—where Democratic candidates will win elections by more than 30-point margins. PX201 “SL-173” B33:BA33. District 32’s design foreordains electoral outcomes in

Senate District 31, which is safely Republican and never once elects a Democrat in any of the 52 elections Dr. Duchin studies. PX201 “SL-173” B32:BA32.

277. The Court finds, as Dr. Pegden’s findings show, that the Forsyth-Stokes Senate county grouping is the result of intentional, pro-Republican partisan redistricting. In his first-level analysis, Dr. Pegden found that the enacted plan’s version of this grouping is more favorable to Republicans than 99.9983% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 99.9947% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 29.

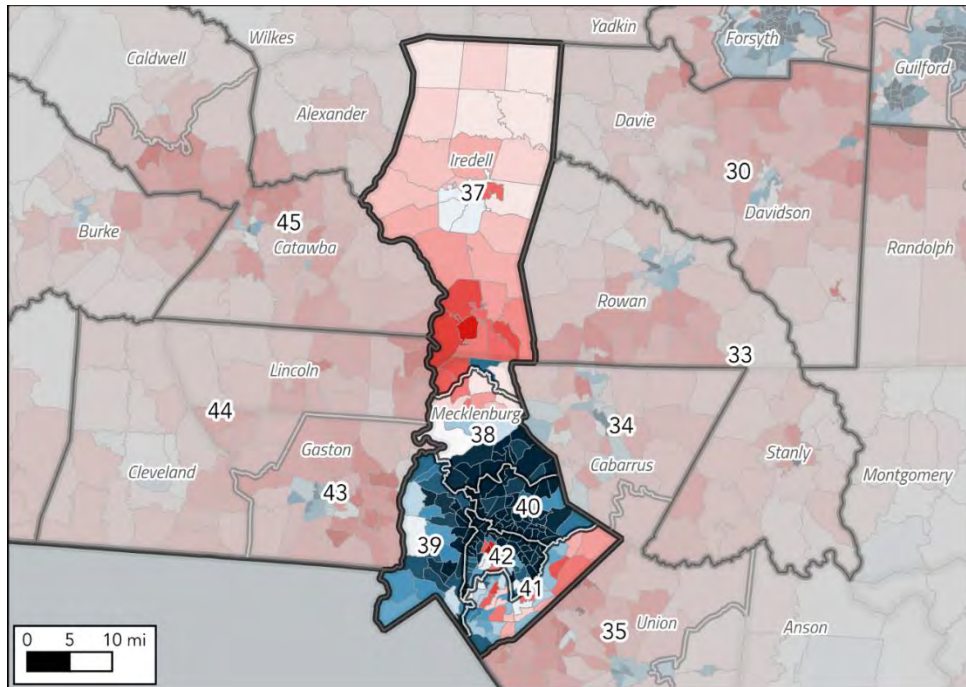
278. The Republican advantage in District 31 was the product of both a clustering decision and a drawing decision. District 32 is drawn to “pack” all of Winston-Salem’s most Democratic areas into one district, but Districts 31 and 32 clearly could have been configured such that Senate District 32 is not “packed” with Democrats.

279. In the Forsyth-Stokes Senate county grouping, a “slightly Democratic” grouping, 100% of Dr. Barber’s simulations, like the enacted maps, produce one Democratic leaning district. LDTX107 at 244. Under each of the 11 elections that Legislative Defendants’ expert Dr. Barber considered, Democrats win one seat under the enacted map, even though, under two of those elections, Democrats would have won two seats under 94% and 98% of Dr. Barber’s simulations, respectively. *Id.* at 248.

280. The Court finds the districts in the Forsyth-Stokes Senate county grouping, SD31 and SD32, to be the result of intentional, pro-Republican partisan redistricting.

e. Iredell-Mecklenburg Senate County Grouping

281. The Guilford-Rockingham County Grouping contains Senate District 37 (“SD37”), Senate District 38 (“SD38”), Senate District 39 (“SD39”), Senate District 40 (“SD40”), Senate District 41 (“SD41”), and Senate District 42 (“SD42”). SD37 is comprised of Iredell County and portions of Mecklenburg County. SD38, SD39, SD40, SD41, and SD42 are comprised of portions of only Mecklenburg County. Plaintiffs challenge these Senate Districts as the product of unlawful partisan gerrymanders.



PX457 (Cooper Map 22)

282. Harper Plaintiffs challenge this Senate county grouping. Individual Harper Plaintiff Virginia Walters Brien resides in SD40. Individual Harper Plaintiff Barbara Proffitt resides in SD41. No Individual Plaintiff resides in SD37, SD38, SD39, or SD42. Organizational Plaintiff NCLCV and Organizational Plaintiff Common Cause challenge all six Senate Districts in this county grouping.

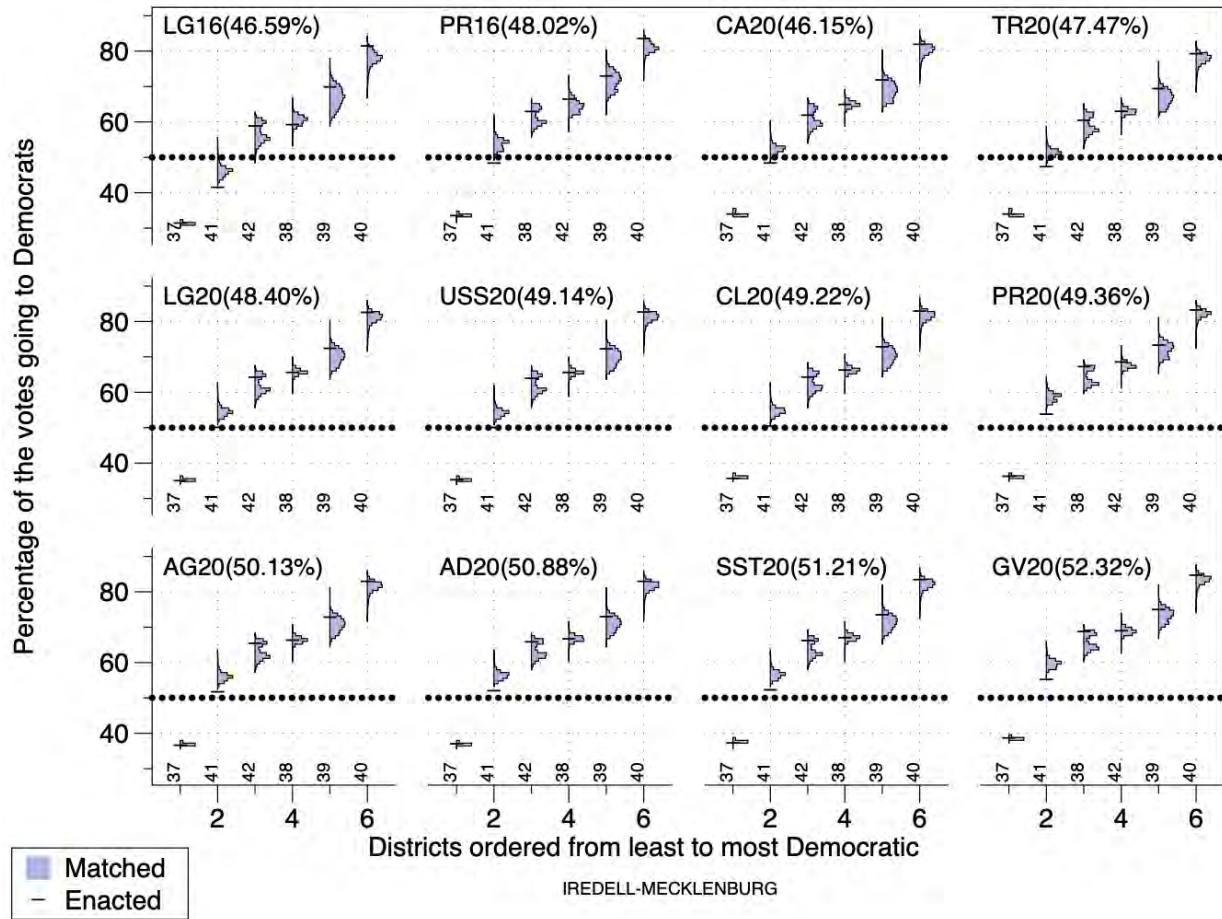
283. Mecklenburg County is the second most populous county in North Carolina and a Democratic stronghold. Every member of the current state legislative delegation from Mecklenburg County is a Democrat, as are all nine of its county commissioners. Democratic candidates also received the plurality of votes in every 2020 county-wide contest in Mecklenburg County. Yet Legislative Defendants drew district lines to create four “safe Democratic” seats, one “safe Republican” seat, and a “toss-up” seat. PX425 at 55.

284. The district lines pack Democratic voters into Senate Districts 38, 39, 40, and 42, allowing for Senate Districts 37 and 41 to be artificially favorable to Republican candidates. PX457. Senate Districts 39 and 40 do not include a single Republican-leaning VTD and almost all Republican-leaning VTDs in Mecklenburg County are included in either Senate District 37, a “safely Republican” seat, or Senate District 41, a “toss-up” seat. PX425 at 55-56.

285. Senate District 37 includes the residence of an incumbent Democrat and incumbent Republican in the same district, effectively eliminating the incumbent Democrat. The Democratic incumbent whose residence Legislative Defendants included in the safely Republican Senate District 37 lives approximately one mile from the Democratic-leaning district to the south, Senate District 38. PX425 at 55.

286. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper’s analysis and independently establish that the Iredell-Mecklenburg county grouping is an intentional, pro-Republican partisan redistricting.

287. Figure 6.2.1 shows Dr. Mattingly’s analysis of this grouping.



PX662 (Mattingly Figure 6.2.1)

288. The Court finds that Democrats were cracked out of the second most Republican district (District 41), and packed into SD40 and, to a lesser extent, SD39 (the two most Democratic districts). PX629 at 55; Figure 6.2.1. The effect is that the Republicans win two out of six districts under the enacted plan in many elections where the majority or vast majority of plans in the ensemble would elect only one Republican. PX629 at 55. One example is the President 2016 election. Dr. Mattingly quantified the cracking of Democrats: Across every election he considered, *none* of the approximately 80,000 plans in his ensemble had as low a fraction of Democrats in the two most Republican districts as in the enacted plan. *Id.*

289. The Enacted Senate Plan’s packing of Democratic voters in Mecklenburg County, thereby converting District 41 from a swing district into a district that will usually elect Republican candidates, results in a far lower average compactness score of 0.33, PX150 at 15, as well as a significant improvement in Republican performance. Enacted District 41 elected a Democrat in only 13 of the 52 studied elections. PX201 “SL-173” B42:BA42.

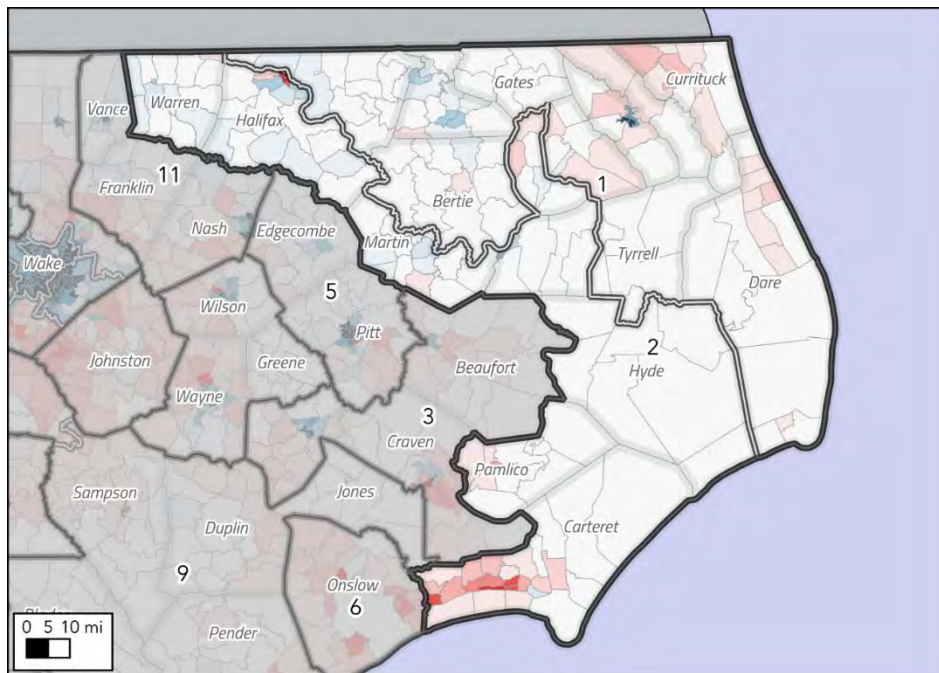
290. Dr. Pegden’s findings show that the Iredell-Mecklenburg Senate county grouping is the result of intentional, pro-Republican partisan redistricting. In his first-level analysis, Dr. Pegden found that the enacted plan’s version of this grouping is more favorable to Republicans than 99.998% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 99.9943% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 32.

291. In the Iredell-Mecklenburg Senate cluster, which Legislative Defendants’ expert Dr. Barber found to be a partisan outlier, *see* LDTX107 at 229, under two of the 11 elections Dr. Barber considered, Democrats win four seats under the enacted map, even though Democrats would have won 5 seats under 93% and 95% of Dr. Barber’s simulations, respectively. *Id.* at 234.

292. The Court finds the districts in the Iredell-Mecklenburg Senate county grouping, SD37, SD38, SD39, SD40, SD41, and SD42, to be the result of intentional, pro-Republican partisan redistricting.

f. Northeastern Senate County Grouping

293. The Northeastern County Grouping contains Senate District 1 (“SD1”) and Senate District 2 (“SD2”). SD1 is comprised of Bertie County, Camden County, Currituck County, Dare County, Gates County, Hertford County, Northampton County, Pasquotank County, Perquimans County, and Tyrrell County. SD2 is comprised of Carteret County, Chowan County, Halifax County, Hyde County, Martin County, Pamlico County, Warren County, Washington County. Plaintiffs challenge these Senate Districts as the product of unlawful partisan gerrymanders.

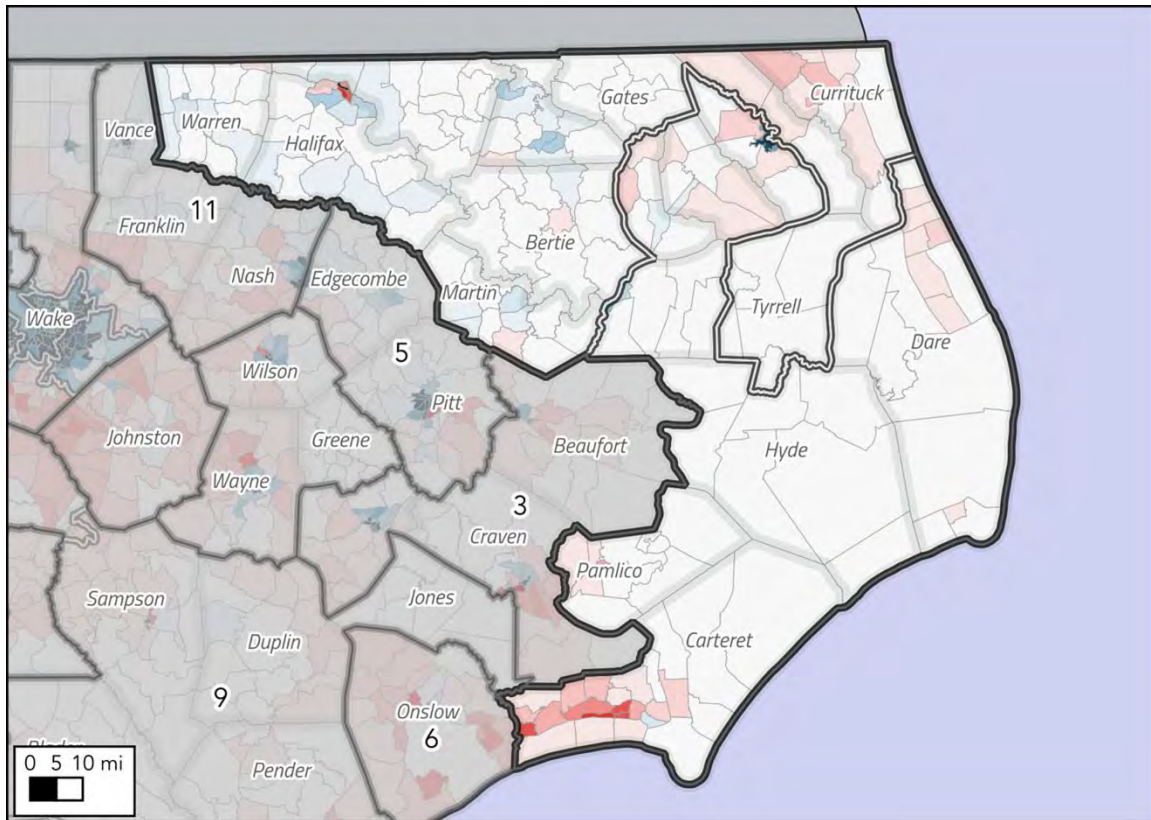


PX463 (Cooper Map 28)

294. Harper Plaintiffs and Individual NCLCV Plaintiffs challenge this Senate county grouping. Individual Harper Plaintiff Laureen Flood resides in SD1. Individual NCLCV Plaintiffs Edna Scott, Roberta Scott, Yvette Roberts, Dr. Cosmos George, Jereann King Johnson, Yarbrough Williams, Jr., and Reverend Dr. Deloris L. Jerman reside in SD2. Organizational Plaintiff NCLCV and Organizational Plaintiff Common Cause challenge both Senate Districts in this county grouping.

295. Legislative Defendants had two potential county grouping options to choose from for the Northeastern counties when drawing the 2021 Senate Plan. The size of the counties in each potential cluster is such that each cluster option is large enough for one Senate district. PX425 at 65.

296. Legislative Defendants' choice of clusters paired more Republican-leaning VTDs together in an arrangement that resulted in two Republican-leaning districts. PX425 at 65. The alternative county cluster groupings, which Legislative Defendants chose against, would have included Carteret, Chowan, Dare, Hyde, Pamlico, Pasquotank, Perquimans, and Washington counties in one district and Bertie, Camden, Currituck, Gates, Halifax, Hertford, Martin, Northampton, Tyrrell, and Warren counties in a second district. PX425 at 65; PX464.



PX464 (Cooper Map 29)

297. The alternative county cluster groupings that Legislative Defendants chose against would have created one district on the northern state border that included many of the more racially diverse counties in the state and that would favor the Democrats, and another district to the south that would favor Republicans. Such an arrangement would have been more representative of the counties included in these clusters, most of which include a large number of competitive VTDs (shown in light, non-colored shading in Dr. Cooper’s maps). PX425 at 65.

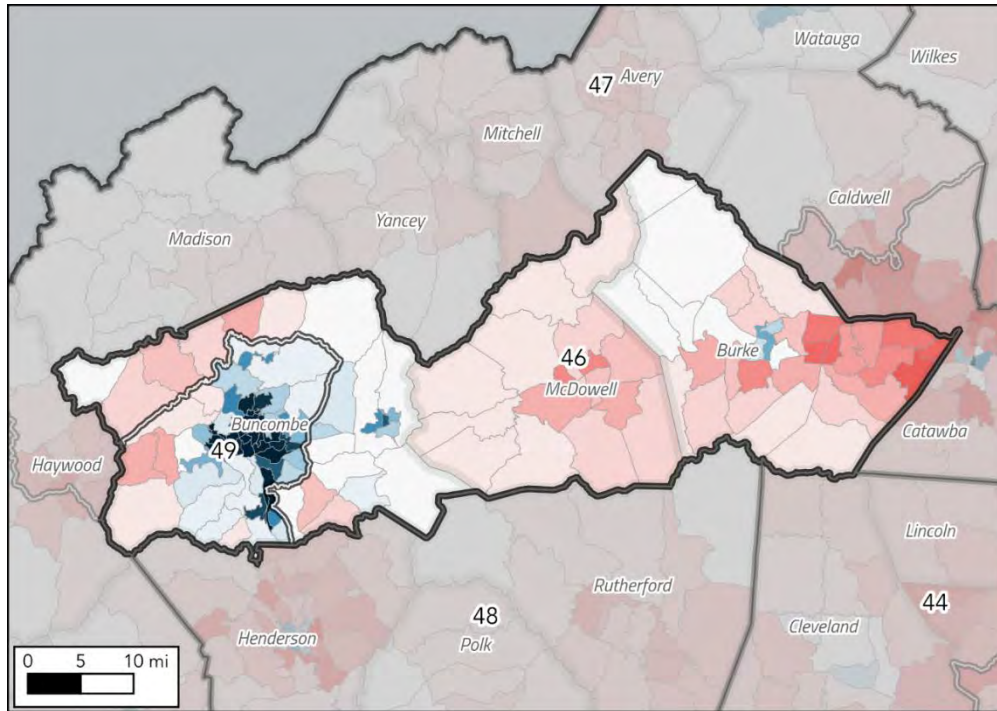
298. The Court finds, as Dr. Mattingly also showed, that their choice significantly advantaged the Republican Party. PX629 at 65. In the alternative cluster choice that the General Assembly rejected, Democrats would have won one seat under the results in every single 2016 and 2020 statewide election. In the cluster choice that the General Assembly rejected, the Republicans win both seats under the results in every single 2016 and 2020 statewide election. *Id.*

299. The enacted district configuration has 24 county traversals. District 2’s Polsby-Popper compactness score is just 0.11, and the average score of both districts is 0.16. PX150 at 15.

300. The Court finds the districts in the Northeastern Senate county grouping, SD1 and SD2, to be the result of intentional, pro-Republican partisan redistricting.

g. Buncombe-Burke-McDowell Senate County Grouping

301. The Buncombe-Burke-McDowell County Grouping contains Senate District 46 (“SD46”) and Senate District 49 (“SD49”). SD46 is comprised of Burke County, McDowell County, and portions of Buncombe County. SD49 is comprised of portions of only Buncombe County. Plaintiffs challenge these Senate Districts as the product of unlawful partisan gerrymanders.



PX458 (Cooper Map 23)

302. Harper Plaintiffs challenge this Senate county grouping. Individual Harper Plaintiff Mark S. Peters resides in SD46. Individual Harper Plaintiff Ann Butzner resides in SD49. Organizational Plaintiff NCLCV challenges both Senate Districts in this county grouping.

303. Legislative Defendants had discretion as to the counties included in this cluster and the adjacent cluster to the south. Rather than pair Buncombe County with Henderson County, which has become a “bedroom community” of Asheville, Legislative Defendants grouped Buncombe County with Burke and McDowell counties, to the east. Burke and McDowell counties include a greater number of heavily-Republican VTDs than does Henderson County, allowing for Legislative Defendants to neutralize the Democratic stronghold in and around Asheville to a greater extent than under the alternate potential grouping.

304. Within this county grouping, the mapmakers maximized Republican advantage by drawing one lopsidedly Democratic district (District 49), leaving the remaining district (District 46) reliably Republican. Notably, District 46 *never* elects a Democrat in any of the 52 elections in Dr. Duchin’s study. PX201 “SL-173” B47:BA47.

305. The Court finds that Legislative Defendants’ chosen county grouping allowed them to draw a map that packed Democratic voters in Senate District 49, leaving Senate District 46 to favor the Republican Party. PX425 at 57-58.

306. Grouping Henderson County with Polk and Rutherford counties in the bordering cluster to the south also allowed for Legislative Defendants to create a single-district cluster there that heavily favors the Republican candidate. PX425 at 57.

307. Dr. Barber’s analysis reflects that in 100% of his simulations, as with the enacted map, there is one Democratic district in this “very slightly Democratic” grouping, LDTX107 at 235, and 100% of his simulations produce 1 Democratic leaning district like the enacted maps under all 11 elections used in his analysis. *Id.* at 239.

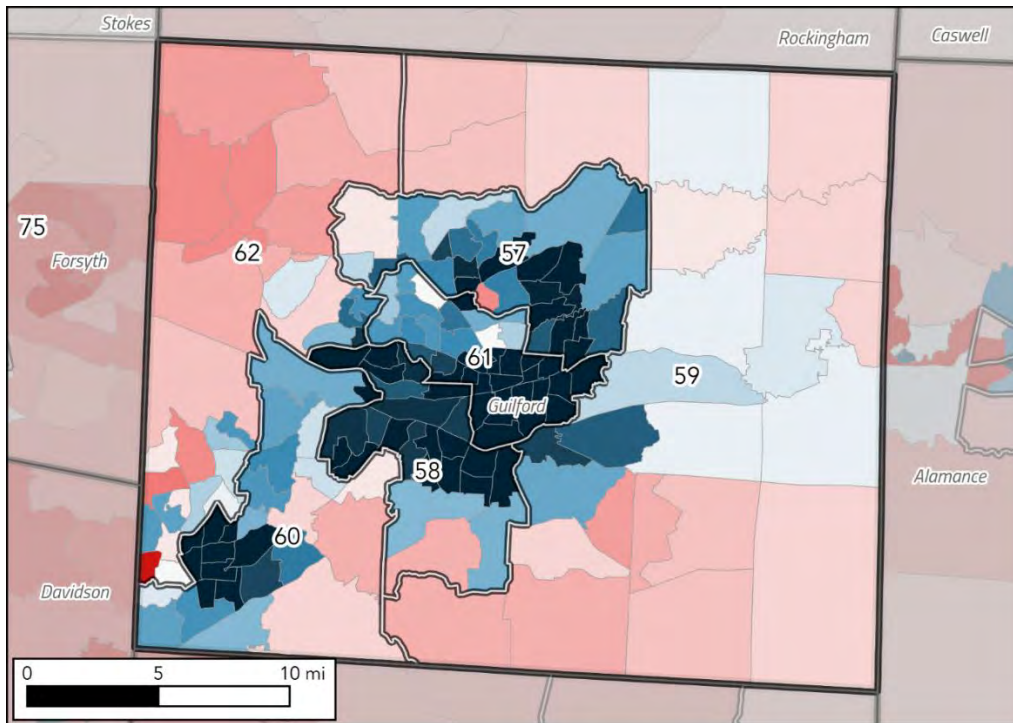
308. The Court finds the districts in the Buncombe-Burke-McDowell Senate county grouping, SD46 and SD49, to be the result of intentional, pro-Republican partisan redistricting.

2. North Carolina House of Representatives Districts

309. Plaintiffs’ experts analyzed specific county groupings in the enacted House plan. Plaintiffs’ experts concluded that partisan redistricting and bias in these groupings were responsible for the partisan bias that they found in their statewide analysis of the enacted House plan. The results of the analysis conducted by Legislative Defendants’ expert Dr. Barber largely reinforce this conclusion.

a. Guilford House County Grouping

310. The Guilford House County Grouping contains House District 57 (“HD57”), House District 58 (“HD58”), House District 59 (“HD59”), House District 60 (“HD60”), House District 61 (“HD61”), and House District 62 (“HD62”). All six House Districts are comprised of portions of only Guilford County. Plaintiffs challenge these House Districts as the product of unlawful partisan gerrymanders.



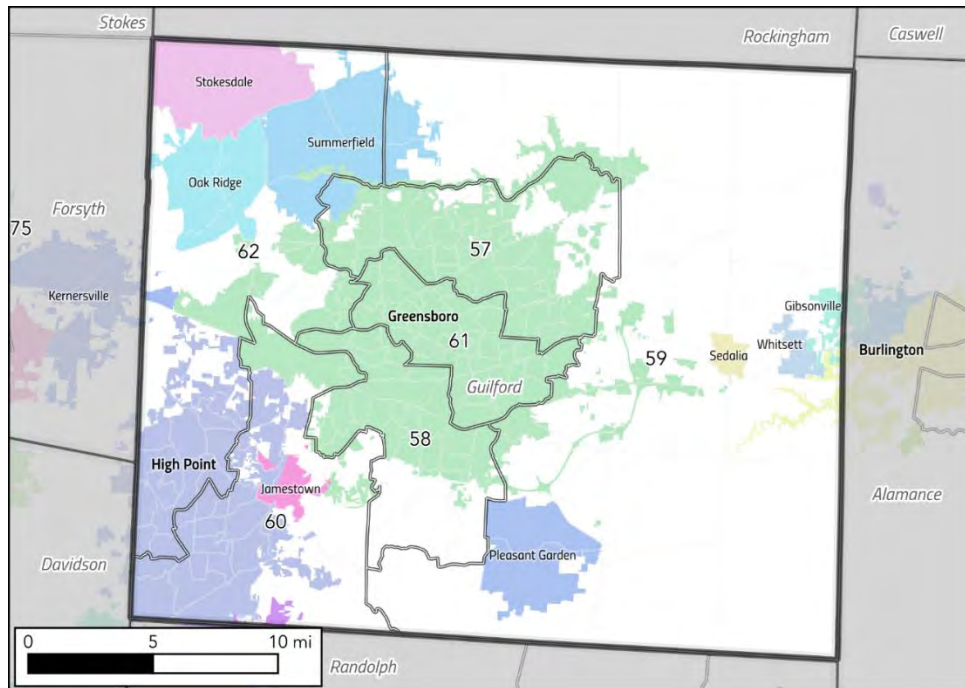
PX470 (Cooper Map 35)

311. Harper Plaintiffs challenge this House county grouping. Individual Harper Plaintiff David Dwight Brown resides in HD58. Individual Harper Plaintiff Lily Nicole Quick resides in HD59. Individual Harper Plaintiff Joshua Perry Brown resides in HD60. Individual Harper Plaintiff Donald M. MacKinnon resides in HD62. Individual NCLCV Plaintiff Talia Fernos resides in HD61. No Individual Plaintiff resides in HD57. Organizational Plaintiff Common Cause challenges every House District in this county

grouping. Organizational Plaintiff NCLCV challenges only HD59 and HD62 in this county grouping.

312. Legislative Defendants packed Democratic-leaning VTDs into House Districts 57, 58, 60, and 61, allowing House Districts 59 and 62 to be artificially favorable to Republican candidates. PX425 at 76; TR 01/03/2022.

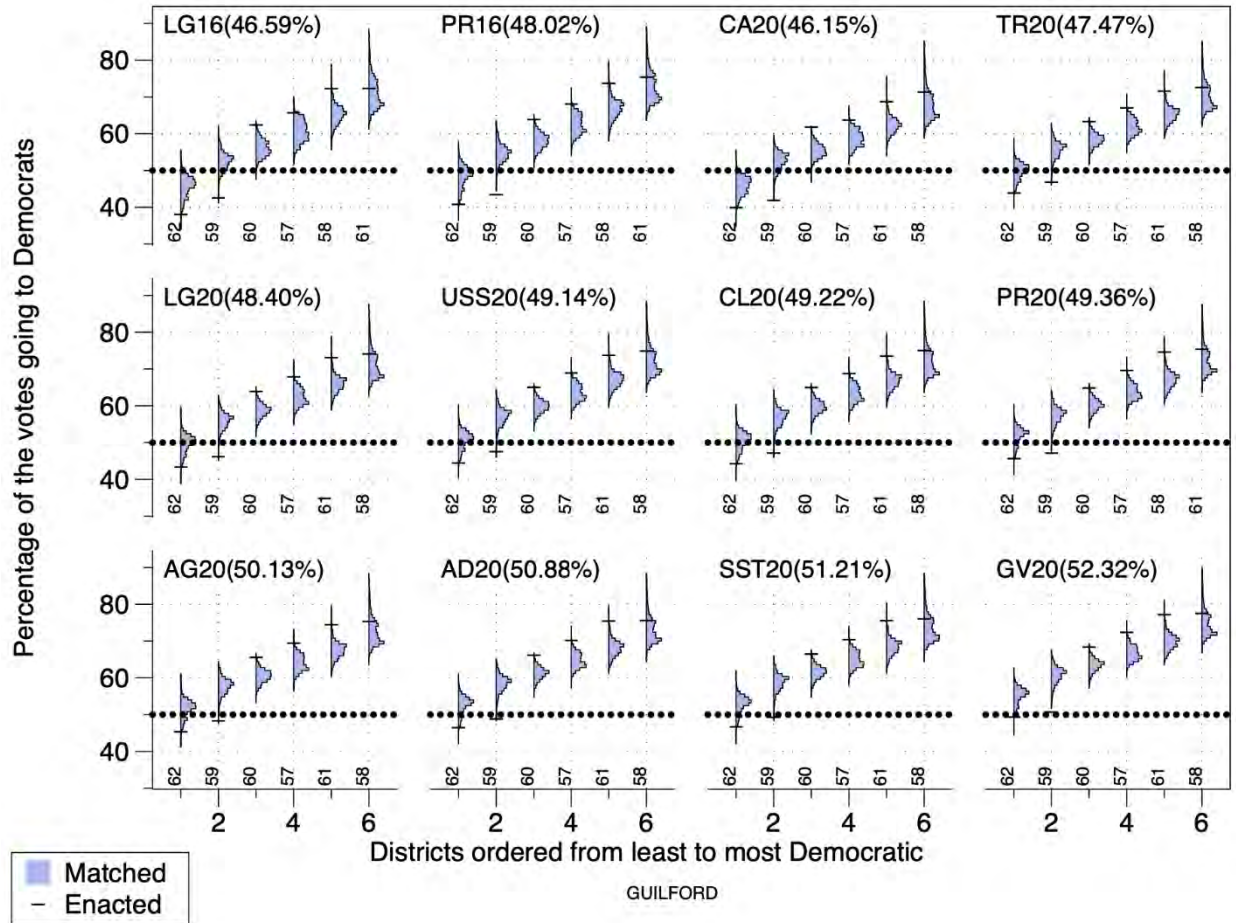
313. A comparison of Dr. Cooper’s red-blue map (PX470) and his map showing the municipal boundaries within this cluster (PX471) illustrates how the district boundaries split Greensboro and High Point in a way that ensures the most Democratic-leaning VTDs in those municipalities are kept out of House Districts 59 and 62. PX425 at 76.



PX471 (Cooper Map 36)

314. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper’s analysis and independently establish that the Guilford county grouping is an intentional, pro-Republican partisan redistricting.

315. Figure 6.1.10 shows Dr. Mattingly’s analysis of this grouping.



PX653 (Mattingly Figure 6.1.10)

316. The Court finds that Democrats were again cracked out of the two least Democratic (*i.e.*, most-Republican) districts in this grouping (Districts 59 and 62) and packed into heavily Democratic districts (Districts 57, 58, 60, and 61). PX629 at 36; PX653. The effect is that the Republicans regularly win two out of six seats in this cluster even in situations where the Democrats would win all six in the majority or vast majority of plans in the nonpartisan ensemble. This is seen in the Senate 2020, President 2020, and Attorney General 2020 races, among others. PX653. Dr. Mattingly quantified the cracking and packing of Democrats in the Guilford cluster: over all of the elections considered and all of the around 80,000 plans in the ensemble, none of the plans have a higher Democratic fraction in the four most Democratic districts or a lower Democratic fraction in the two most

Republican districts, in comparison to the enacted plan. PX629 at 36. In other words, this grouping shows more cracking and packing of Democrats than every single plan in the nonpartisan ensemble. *Id.*

317. Due to the packing in two districts—Districts 59 and 62—that favor Republican candidates, District 62 never elected a Democrat in Dr. Duchin’s 52-election sample, and District 59 did so only once. PX201 “SL-175” B60:BA60, B53:BA63.

318. The Court finds, as Dr. Pegden’s findings show, that the Guilford House county grouping is the result of intentional, pro-Republican partisan redistricting. In his first-level analysis, Dr. Pegden found that the enacted plan’s version of this grouping is more favorable to Republicans than 99.99997% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 99.99991% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 19.

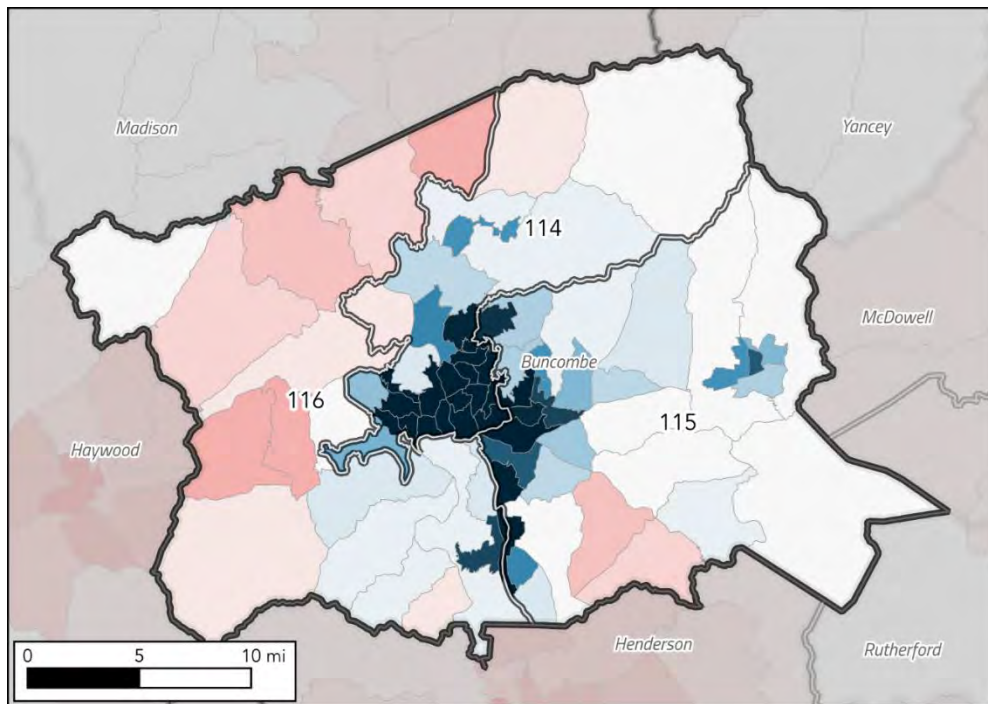
319. The Enacted Plan for this grouping has an average Polsby-Popper score of 0.30. PX150 at 16.

320. In the Guilford House county grouping—which Legislative Defendants’ expert Dr. Barber himself labeled a “partisan outlier,” *see* LDTX107 at 5 (“the Guilford County grouping in the House of Representative . . . is a partisan outlier”)—the enacted map is a partisan outlier under each of the 11 elections he considered. Under nine of those 11 elections, the enacted map produces fewer Democratic districts than 93-100% of his simulations. *Id.* at 158. Under four of those nine elections, the enacted map produces four Democratic districts when 100% of his simulations produce a greater number, and under three more of the nine elections, the enacted map produces four or five Democratic districts when 99% of his simulations produce a greater number. *Id.*

321. The Court finds the districts in the Guilford House county grouping, HD57, HD58, HD59, HD60, HD61, and HD62, to be the result of intentional, pro-Republican partisan redistricting.

b. Buncombe House County Grouping

322. The Buncombe House County Grouping contains House District 114 (“HD114”), House District 115 (“HD115”), and House District 116 (“HD116”). All three House Districts are comprised of portions of only Buncombe County. Plaintiffs challenge these House Districts as the product of unlawful partisan gerrymanders.



PX472 (Cooper Map 37)

323. Harper Plaintiffs challenge this House county grouping. Individual Harper Plaintiff Mark S. Peters and Ann Butzner reside in HD115. No Individual Plaintiff resides in HD114 or HD 116. Organizational Plaintiffs NCLCV and Common Cause challenge the House Districts in this county grouping.

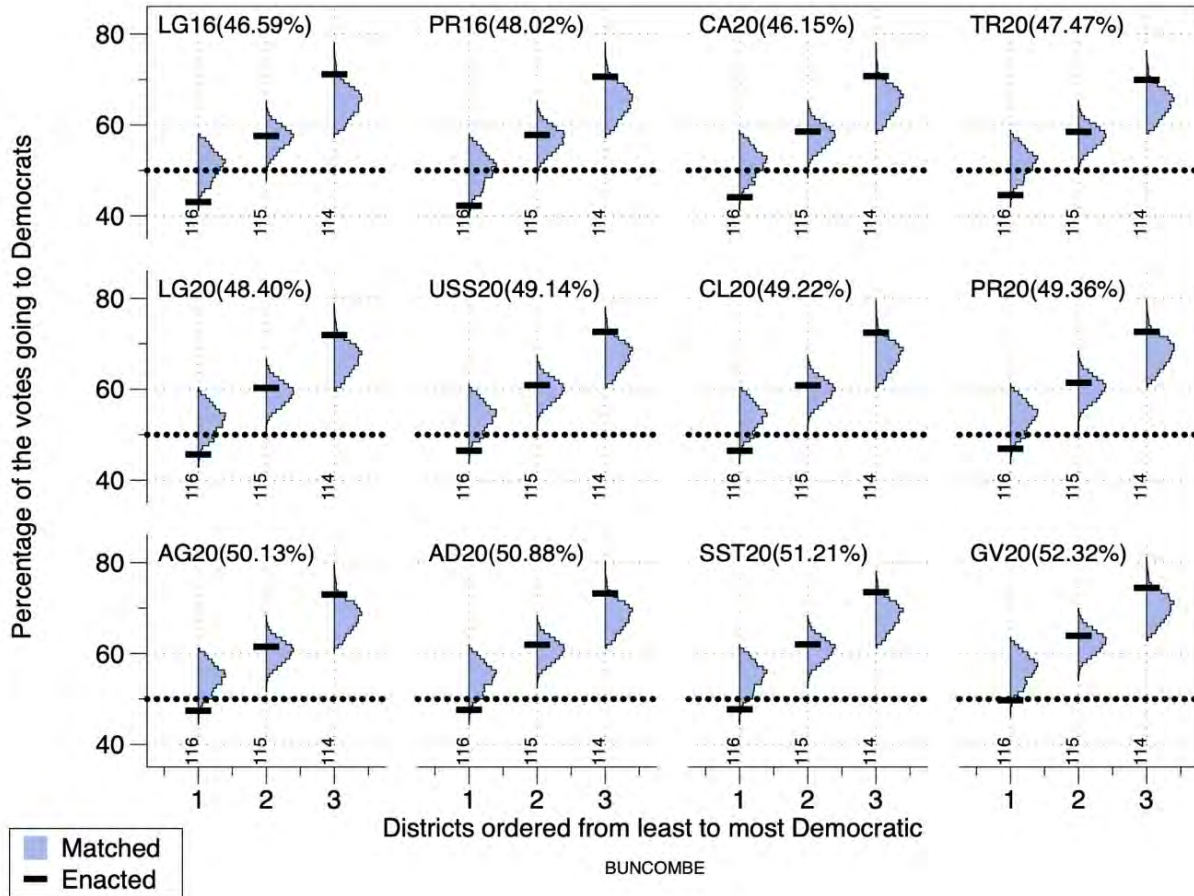
324. Buncombe County is an overwhelmingly Democratic county and has been trending more Democratic each year. PX425 at 79. All three House Districts in Buncombe are currently represented by members of the Democratic Party. *Id.*

325. Legislative Defendants shifted the district lines where they meet in Asheville to pack as many Democratic voters as possible into House District 114, thereby creating a Republican-leaning district in House District 116. Prior to the enactment of these lines in the 2021 House Plan, the district in the western part of Buncombe County that is now House District 116 was considered a safely Democratic district. PX425 at 79.

326. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper’s analysis and independently establish that the Buncombe county grouping is the result of intentional, pro-Republican partisan redistricting.

327. Figure 6.1.13 shows Dr. Mattingly’s analysis of the Buncombe House county grouping:

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PX654 (Mattingly Figure 6.1.13)

328. The Court finds that Democrats were packed into the most Democratic leaning district in this grouping (114) and cracked out of the most Republican district (116). PX629 at 38; PX654. In the enacted plan, there is a huge jump in Democratic vote share between the least Democratic district and the middle Democratic district. *Id.* This jump means that elections in the grouping will be nonresponsive to the votes cast and, as the figure above shows, cost Democrats a seat in multiple electoral environments, because the black line for District 116 often falls below the 50% line in elections where the majority or overwhelming majority of the blue histogram rises above it (for example, the Governor 2020, President 2020, and Senate 2020 race, among other examples). See PX629 at 38; PX654.

329. Dr. Mattingly mathematically quantified the cracking and packing across all the 2020 and 2016 statewide elections he considered. Specifically, Dr. Mattingly calculated the average Democratic vote share in the two least Democratic districts and the average Democratic vote share in the three most Democratic districts, for both the enacted plans and his ensemble plans. PX629 at 16. He found that, across every election, at most 1.2% of the plans in the nonpartisan ensemble had the same or fewer Democrats in the least Democratic district as the enacted plan (District 116). PX629 at 38. The Court finds that this signifies cracking of Democrats to enable Republicans to win a district they would not win under the nonpartisan ensemble.

330. The Court finds, as Dr. Pegden’s findings show, that the Buncombe House county grouping is the result of intentional, pro-Republican partisan redistricting. In his first-level analysis, Dr. Pegden found that the enacted plan’s version of this grouping is more favorable to Republicans than 99.979% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 99.938% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 16.

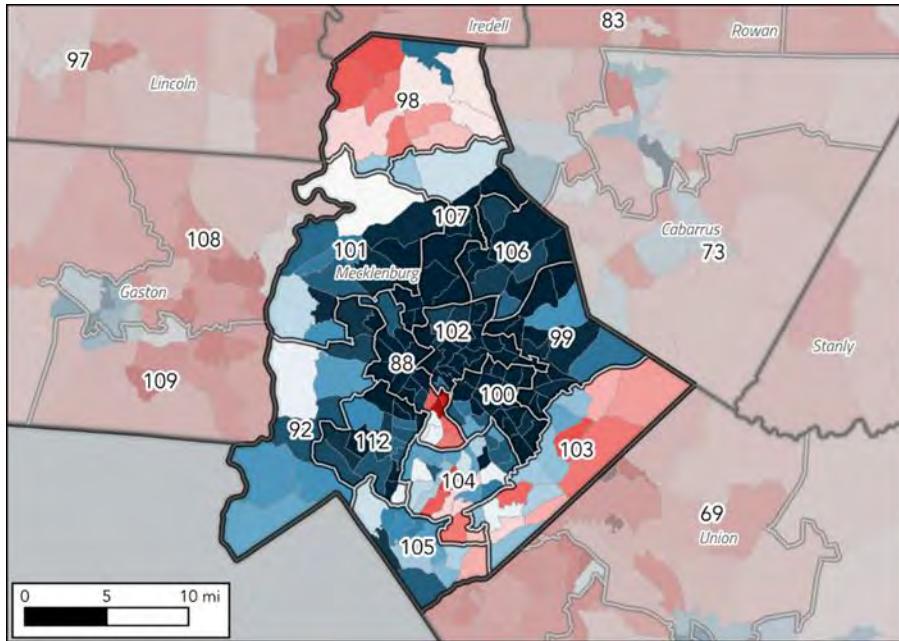
331. HD116 is the least compact district in the entire Enacted House Plan and is designed such that it never elects a Democrat in the entire set of 52 elections compiled by Dr. Duchin. PX150 at 16; PX201 “SL-175” B118:BA118.

332. In the Buncombe House county grouping, under each of the 11 elections that Legislative Defendants’ expert Dr. Barber considered, Democrats win two seats under the enacted map, even though, under 10 of those 11 elections, Democrats would have won three districts in the majority of Dr. Barber’s simulations, including in 98% of the simulations under the 2020 Governor election. LDTX107 at 98.

333. The Court finds the districts in the Buncombe House county grouping, HD114, HD115, and HD116, to be the result of intentional, pro-Republican partisan redistricting.

c. Mecklenburg House County Grouping

334. The Mecklenburg House County Grouping contains House District 88 (“HD88”), House District 92 (“HD92”), House District 98 (“HD98”), House District 99 (“HD99”), House District 100 (“HD100”), House District 101 (“HD101”), House District 102 (“HD102”), House District 103 (“HD103”), House District 104 (“HD104”), House District 105 (“HD105”), House District 106 (“HD106”), House District 107 (“HD107”), and House District 112 (“HD112”). All thirteen House Districts are comprised of portions of only Mecklenburg County. Plaintiffs challenge these House Districts as the product of unlawful partisan gerrymanders.



PX465 (Cooper Map 30)

335. Harper Plaintiffs challenge this House county grouping. Individual NCLCV Plaintiff Timothy Chartier resides in HD98. Individual Harper Plaintiff Mary Elizabeth Voss resides in HD101. Individual Harper Plaintiff Virginia Walters Brien resides in HD102.

Individual Harper Plaintiff Barbara Proffitt resides in HD103. No Individual Plaintiff resides in HD88, HD92, HD99, HD100, HD104, HD105, HD106, HD107, or HD112. Organizational Plaintiff NCLCV challenges HD98 and HD103 in this county grouping. Organizational Plaintiff Common Cause challenges the House Districts in this county grouping.

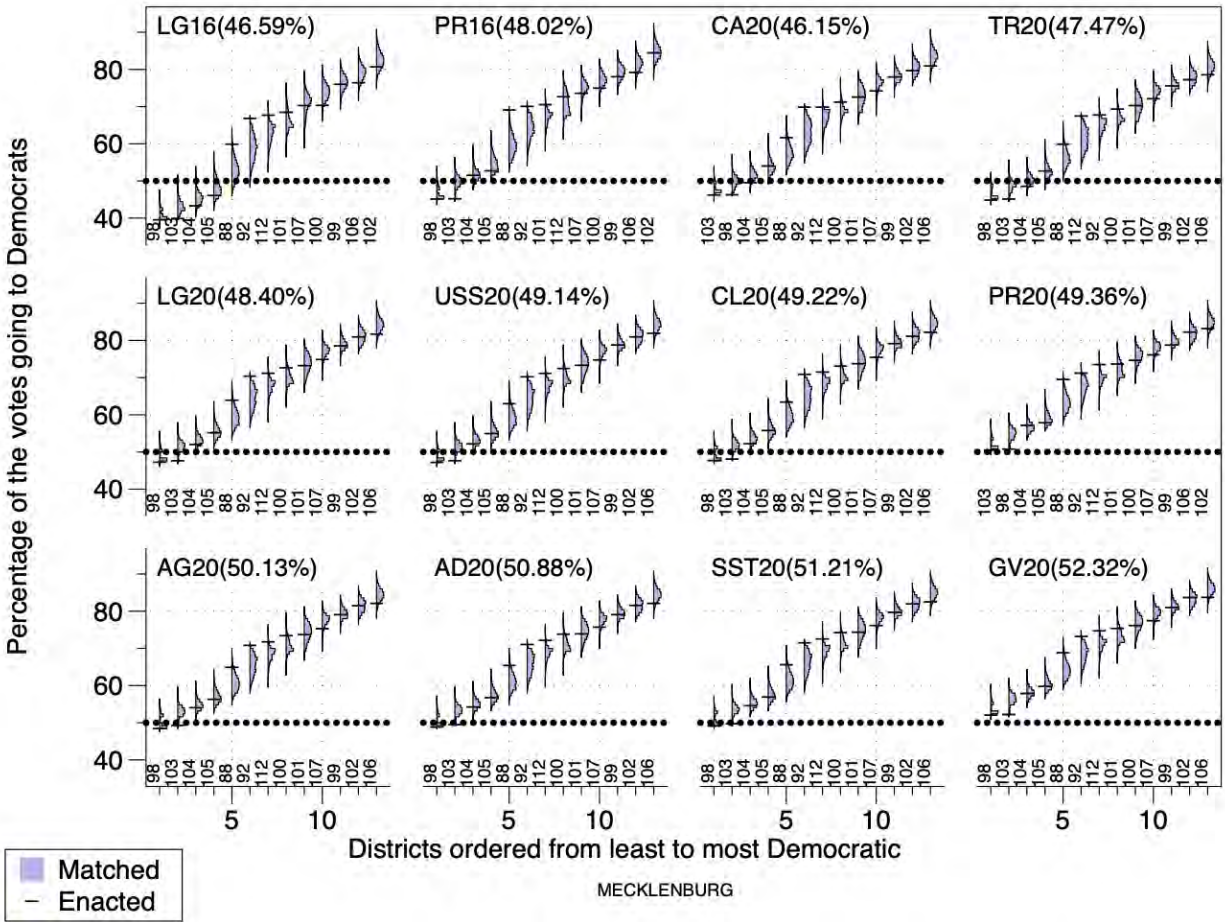
336. Mecklenburg County is the home of Charlotte as well as six other municipalities. Mecklenburg County is dominated by Democratic voters and is becoming even more so as the county continues to grow in population. PX425 at 68.

337. The district boundaries in this grouping place no Republican-leaning VTDs in House Districts 92, 99, 100, 101, 102, 106, 107, and 112, leaving every Republican-leaning VTD in House Districts 88, 103, 104, and 105. House District 98, in the north, and House District 103, in the south, are carved out of the pockets of Republican-leaning VTDs in the north and southeast portions of Mecklenburg County so as to be particularly favorable to Republican candidates. PX425 at 68.

338. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper’s analysis and independently establish that the Mecklenburg county grouping is the result of intentional, pro-Republican partisan redistricting.

339. Figure 6.1.1 shows Dr. Mattingly’s analysis of this grouping.

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PX650 (Mattingly Figure 6.1.1)

340. The Court finds that Democrats were again cracked out of the two least Democratic (i.e., most-Republican) districts in this grouping (Districts 98 and 103), and packed into heavily Democratic districts (Districts 100, 112, 92, and 88). PX629 at 29; PX650. The effect is to make those districts competitive, or to turn them into Republican seats, when in the majority of the nonpartisan plans those two seats safely elect Democrats. PX629 at 29. An example is the Attorney General 2020 election. Dr. Mattingly quantified the cracking and packing of Democrats in the Mecklenburg cluster: across every election he considered, the percentage of maps in the ensemble which have more Democrats packed into the most Democratic districts than the enacted plan is always less than 0.11%. PX629 at 29.

341. Although the County is one of the most Democratic in North Carolina, the Enacted House Map carves out at least two districts that Republicans will ordinarily win. PX201 “SL-175” B99:BA99, B104:BA105.

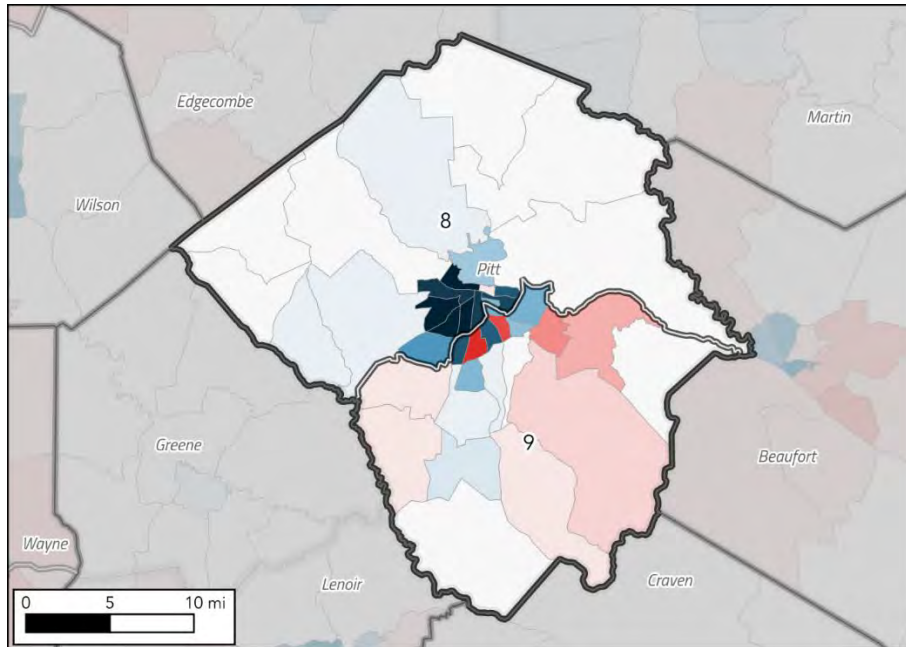
342. The Court finds, as Dr. Pegden’s findings show, that the Mecklenburg House county grouping is the result of intentional, pro-Republican partisan redistricting. In his first-level analysis, Dr. Pegden found that the enacted plan’s version of this grouping is more favorable to Republicans than 98.3% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 95.0% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 20.

343. In the Mecklenburg House county grouping, under 4 of the 11 elections that Legislative Defendants’ expert Dr. Barber considered, Republicans outperform the majority of Dr. Barber’s simulations, but Democrats never outperform a majority of the simulations. Under the 2020 Attorney General election, Democrats win 11 seats under the enacted map, even though Democrats would have won 12 seats under 91% of Dr. Barber’s simulations. LDTX107 at 168.

344. The Court finds the districts in the Mecklenburg House county grouping, HD88, HD92, HD98, HD99, HD100, HD101, HD102, HD103, HD104, HD105, HD106, HD107, HD112, to be the result of intentional, pro-Republican partisan redistricting.

d. Pitt House County Grouping

345. The Pitt House County Grouping contains House District 8 (“HD8”) and House District 9 (“HD9”). HD8 and HD9 are comprised of portions of only Pitt County. Harper Plaintiffs and NCLCV Plaintiffs challenge these House Districts as the product of unlawful partisan gerrymanders.

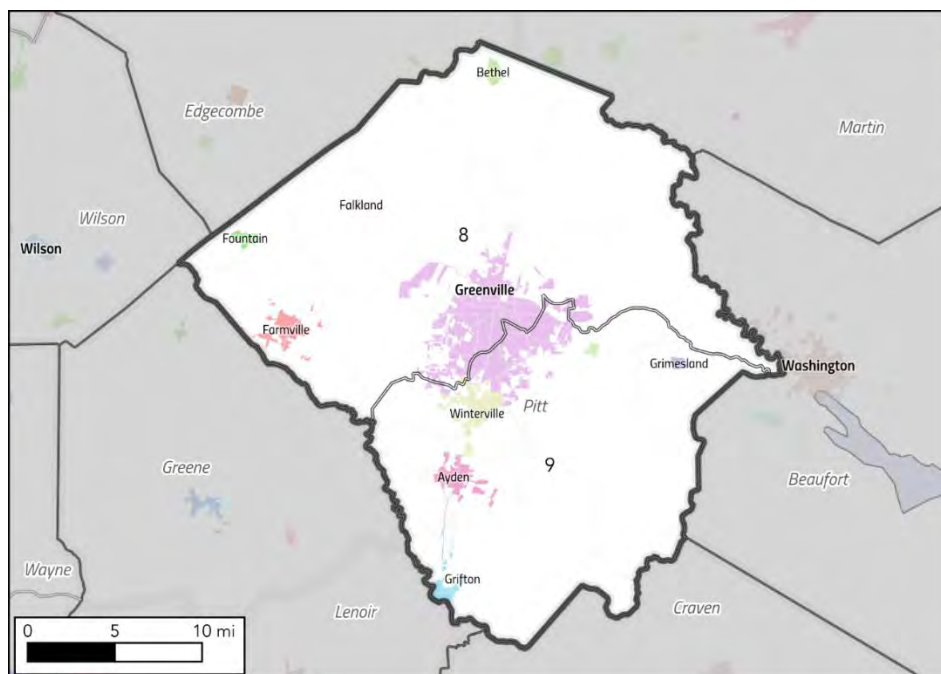


PX473 (Cooper Map 38)

346. Harper Plaintiffs challenge this House county grouping. Individual Harper Plaintiff Amy Clare Oseroff resides in HD8, and Individual Harper Plaintiff Donald Rumph resides in HD9. Organizational Plaintiff NCLCV challenges only HD9 in this county grouping.

347. The two House districts in Pitt County are both currently represented by Democrats and Pitt County gave 55% of its vote share to President Joe Biden in the 2020 election, making it the 19th most Democratic county in the state according to that metric. PX425 at 81. But by splitting Greenville “at a particularly consequential location,” the Legislative Defendants packed the most heavily Democratic VTDs together in House District 8, allowing for House District 9 to lean towards the Republican candidate. *Id.*

348. The split of Greenville, *see* PX474, cannot be explained with reference to communities of interest or natural geography. Some students at East Carolina University will take classes in House District 9, while living in residence halls that are located in House District 8. PX425 at 81.

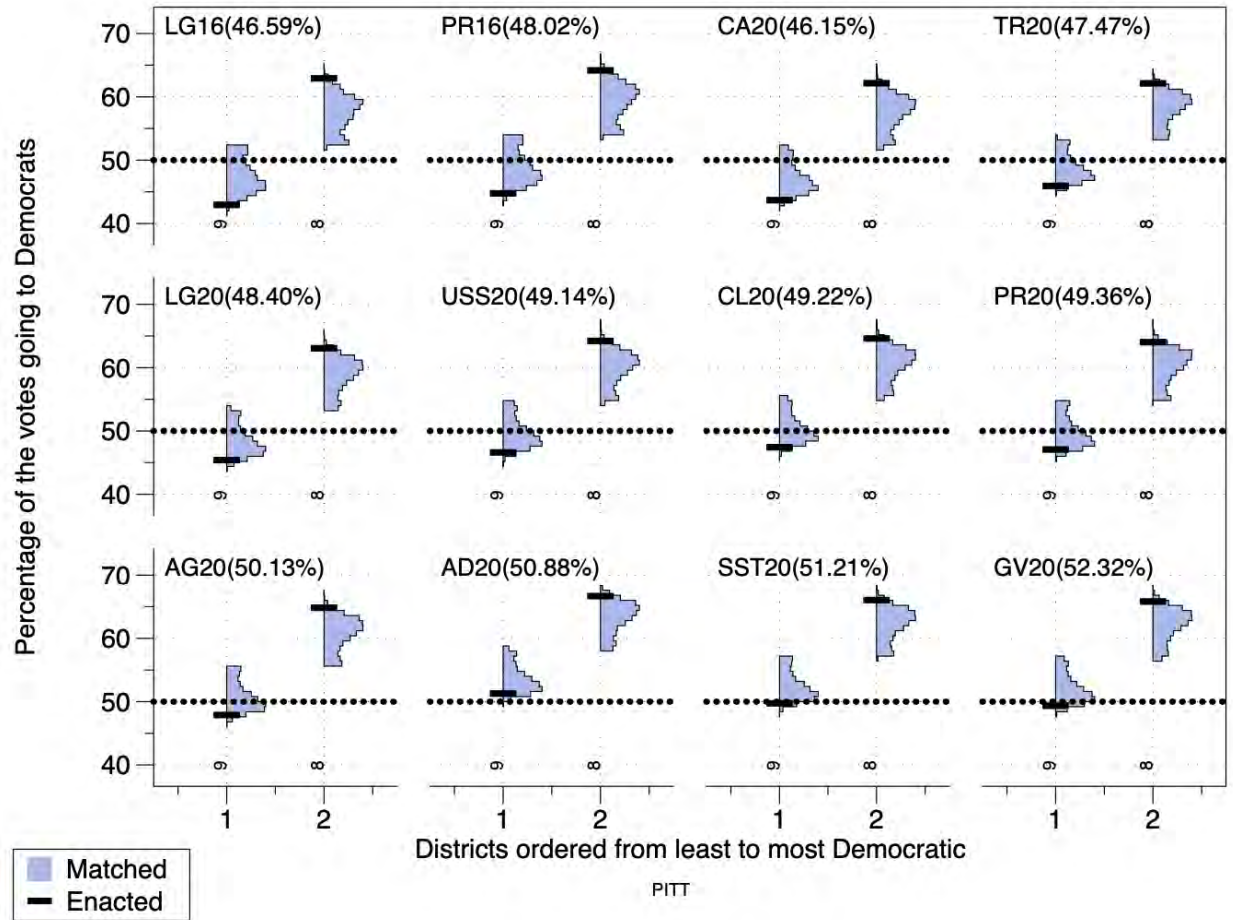


PX474 (Cooper Map 39)

349. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper’s analysis and independently establish that the Pitt county grouping is an intentional, pro-Republican partisan redistricting.

350. Figure 6.1.16 shows Dr. Mattingly’s analysis of this grouping.

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PX655 (Mattingly Figure 6.1.16)

351. The Court finds that Democrats were packed into the most Democratic district in Pitt County (District 8) and cracked out of the most Republican district (District 9). PX629 at 40; PX655. The effect is that the Republicans regularly win one of the two seats in situations where in the nonpartisan ensemble plans would not, including in the Attorney General 2020, Governor 2020, and Secretary of State 2020 elections. Dr. Mattingly quantified the cracking and packing of Democrats in Pitt County: over all of the elections considered, the percentage of plans in the non-partisan ensemble that have more Democrats in District 8 than the enacted plan fluctuates between 1.1% and 5.3%. PX629 at 40.

352. The Court finds, as Dr. Pegden’s findings show, that the Pitt House county grouping is the result of intentional, pro-Republican partisan redistricting. In his first-level

analysis, Dr. Pegden found that the enacted plan’s version of this grouping is more favorable to Republicans than 96.3% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 89.1% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 21.

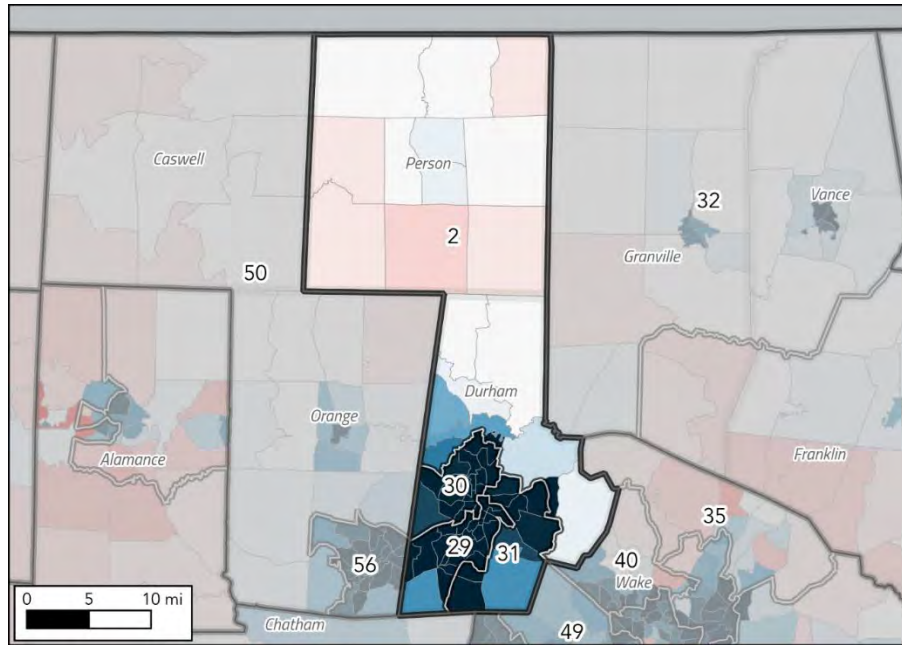
353. In Dr. Barber’s analysis, in 91% of his simulations there is one Democratic leaning district and in the remaining 9% of the simulations there are two Democratic leaning districts. Although the current seats in this county grouping are both held by Democrats, the Enacted Map aligns with the outcome of his simulations and now creates only one Democratic district. LDTX107 at 39, 43.

354. The Court finds the districts in the Pitt House county grouping, HD8 and HD9, to be the result of intentional, pro-Republican partisan redistricting.

e. Durham-Person House County Grouping

355. The Durham-Person House County Grouping contains House District 2 (“HD2”), House District 29 (“HD29”), House District 30 (“HD30”), and House District 31 (“HD31”). HD2 is comprised of Person County and portions of Durham County. HD29, HD30, and HD31 are comprised of portions of only Durham County. Harper Plaintiffs challenge these House Districts as the product of unlawful partisan gerrymanders.

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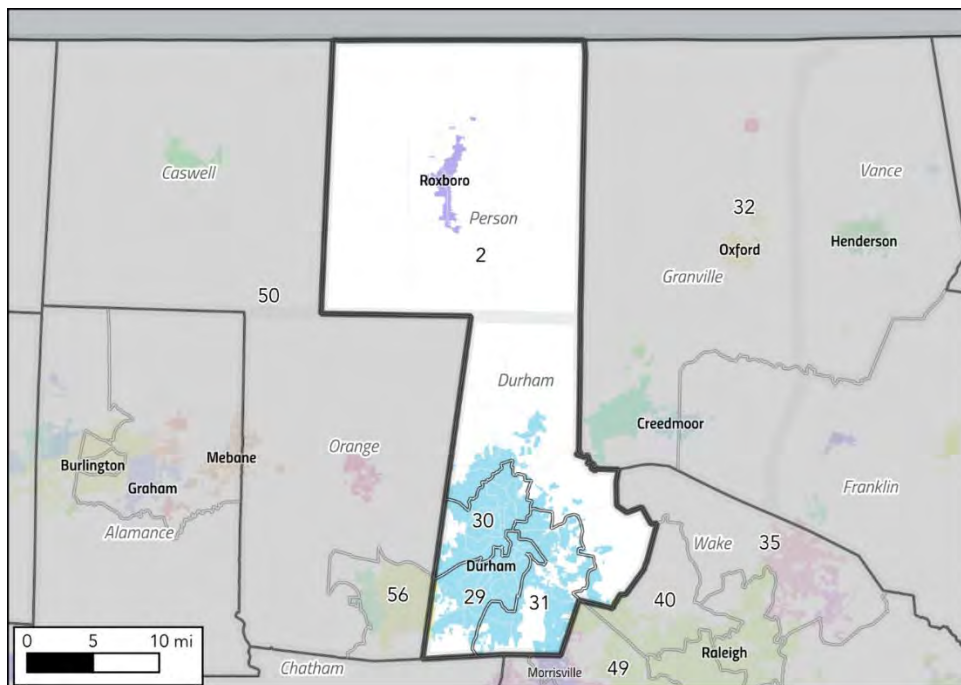


PX475 (Cooper Map 40)

356. Harper Plaintiffs challenge this House county grouping. Individual Harper Plaintiff Sondra Stein resides in HD2. No Individual Plaintiff resides in HD29, HD30, or HD31. No Organizational Plaintiff challenges the House Districts in this county grouping.

357. Durham County is the most Democratic county in North Carolina, having given 81.6% of its two-party vote share to President Biden in the 2020 election and having “voted overwhelmingly Democratic candidates in every 2020 county-wide election.” PX425 at 84. But the enacted district lines create an artificially competitive district in this cluster, HD2, by joining the more competitive VTDs in eastern and northern Durham County with Person County, to the north. *Id.*

358. Although the City of Durham is split across all four House districts in this county grouping, a comparison of Dr. Cooper’s red-blue map (PX475), and his map showing the municipal boundaries within this cluster (PX476), indicates that Legislative Defendants packed the most Democratic portions of the City of Durham into House Districts 29, 30, and 31.

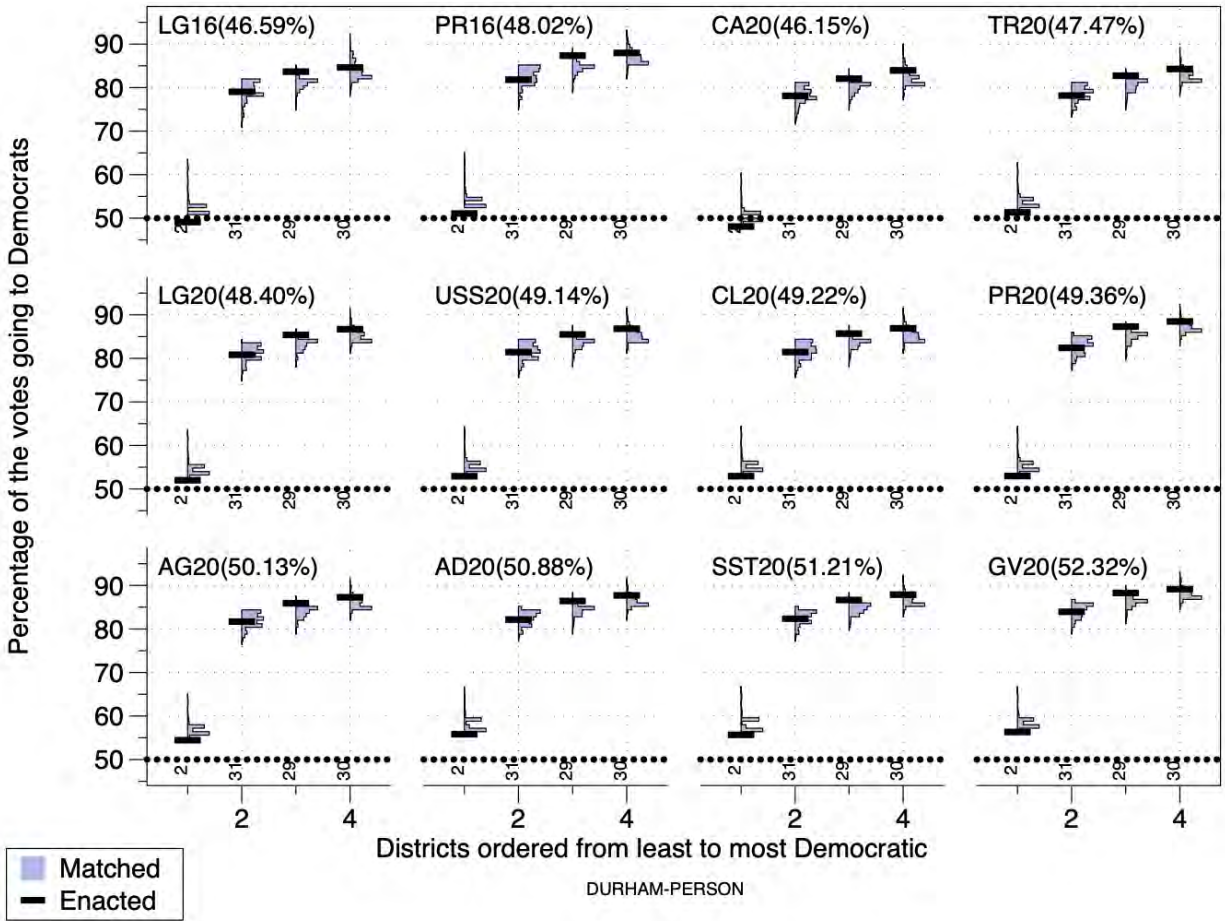


PX476 (Cooper Map 41)

359. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper’s analysis and independently establish that the Durham-Person county grouping is an intentional, pro-Republican partisan redistricting.

360. Figure 6.1.22 shows Dr. Mattingly’s analysis of this grouping.

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PX657 (Mattingly Figure 6.1.22)

361. The Court finds that Democrats were again cracked out of the most Republican district in the Durham-Person grouping. PX629 at 44; PX657. The nonpartisan ensemble shows that there are typically three highly Democratic districts and one more moderately Democratic district. *Id.* But in the enacted plan, the Democrats are cracked out of the moderately Democratic district, such that in Republican wave elections, the Republicans gain that seat even though they rarely would under the nonpartisan ensemble. In particular, in the Lieutenant Governor 2016 and Commissioner of Agriculture 2020 elections, where the Democrats only get around 46% of the statewide vote fraction, this cracking would be enough to deny a seat to the Democrats even though they would win the seat in a nonpartisan map. Not a single map in the non-partisan ensemble across any of the elections Dr. Mattingly

considered showed a smaller fraction of Democrats in the most Republican district than the enacted plan. PX629 at 44. In other words, this cluster shows more cracking of Democrats than every single plan in the nonpartisan ensemble. *Id.*

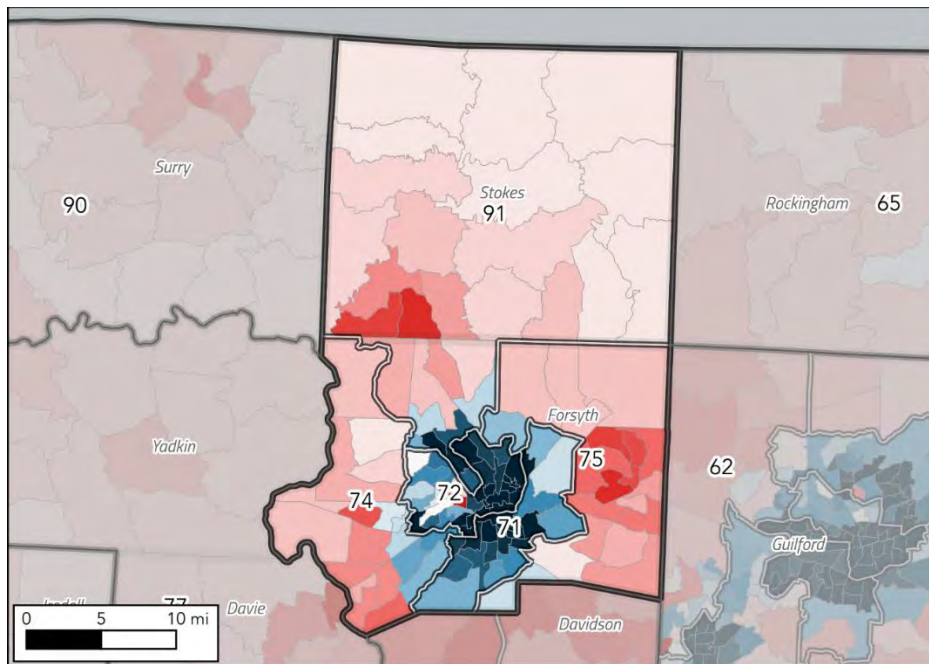
362. The Court finds, as Dr. Pegden’s findings show, that the Durham-Person House county grouping is the result of intentional, pro-Republican partisan redistricting. In his first-level analysis, Dr. Pegden found that the enacted plan’s version of this grouping is more favorable to Republicans than 99.932% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 99.79% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 25.

363. In the Durham-Person House county grouping, under each of the 11 elections that Legislative Defendants’ expert Dr. Barber considered, Democrats win four seats under 100% of Dr. Barber’s simulations, but under two of those elections (2016 Senate and 2016 Lt. Governor), Democrats win only three seats under the enacted map—an outcome never once encountered in the 37,800 simulations for this cluster generated by Dr. Barber’s algorithm. LDTX107 at 131.

364. The Court finds the districts in the Durham-Person House county grouping, HD2, HD29, HD30, and HD31, to be the result of intentional, pro-Republican partisan redistricting.

f. Forsyth-Stokes House County Grouping

365. The Forsyth-Stokes House County Grouping contains House District 71 (“HD71”), House District 72 (“HD72”), House District 74 (“HD74”), House District 75 (“HD75”), and House District 91 (“HD91”). HD71, HD72, HD74, and HD75 are comprised of portions of only Forsyth County. HD91 is comprised of Stokes County and portions of Forsyth County. Harper Plaintiffs and Plaintiff Common Cause challenge these House Districts as the product of unlawful partisan gerrymanders.

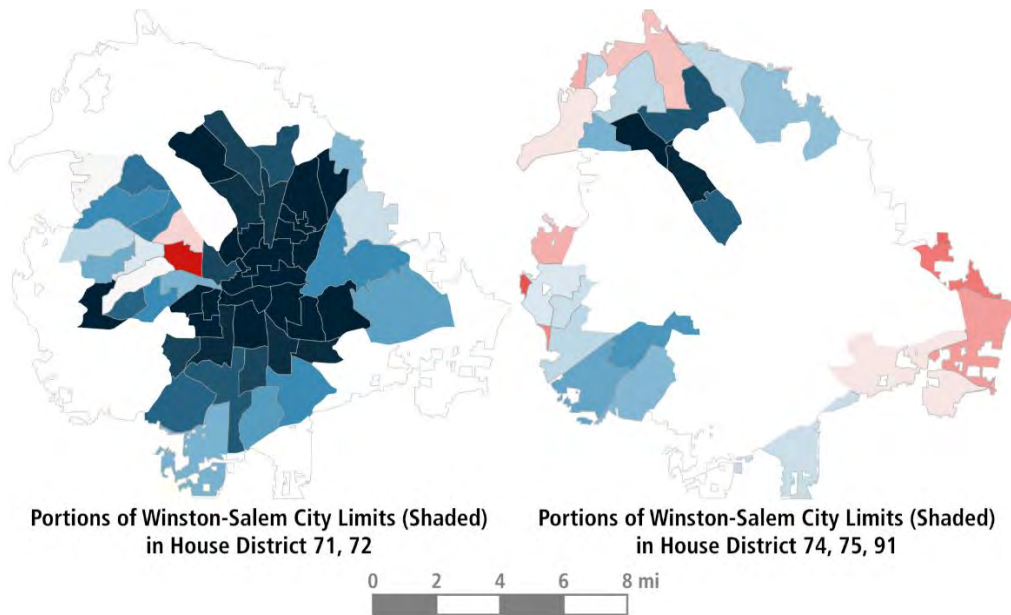


PX468 (Cooper Map 33)

366. Harper Plaintiffs challenge this House county grouping. Individual Harper Plaintiff Chenita Barber Johnson resides in HD72. No Individual Plaintiff resides in HD71, HD74, HD75, or HD91. Organizational Plaintiff Common Cause challenges the House Districts in this county grouping.

367. Legislative Defendants created Republican-leaning districts in House Districts 74, 75, and 91 by packing the Democratic voters in and around Winston-Salem into House Districts 71 and 72. PX425 at 73.

368. While the district boundaries in this grouping split Winston-Salem across all five districts, the district boundaries pack most Democratic voters in Winston-Salem into House Districts 71 and 72. *Id.*

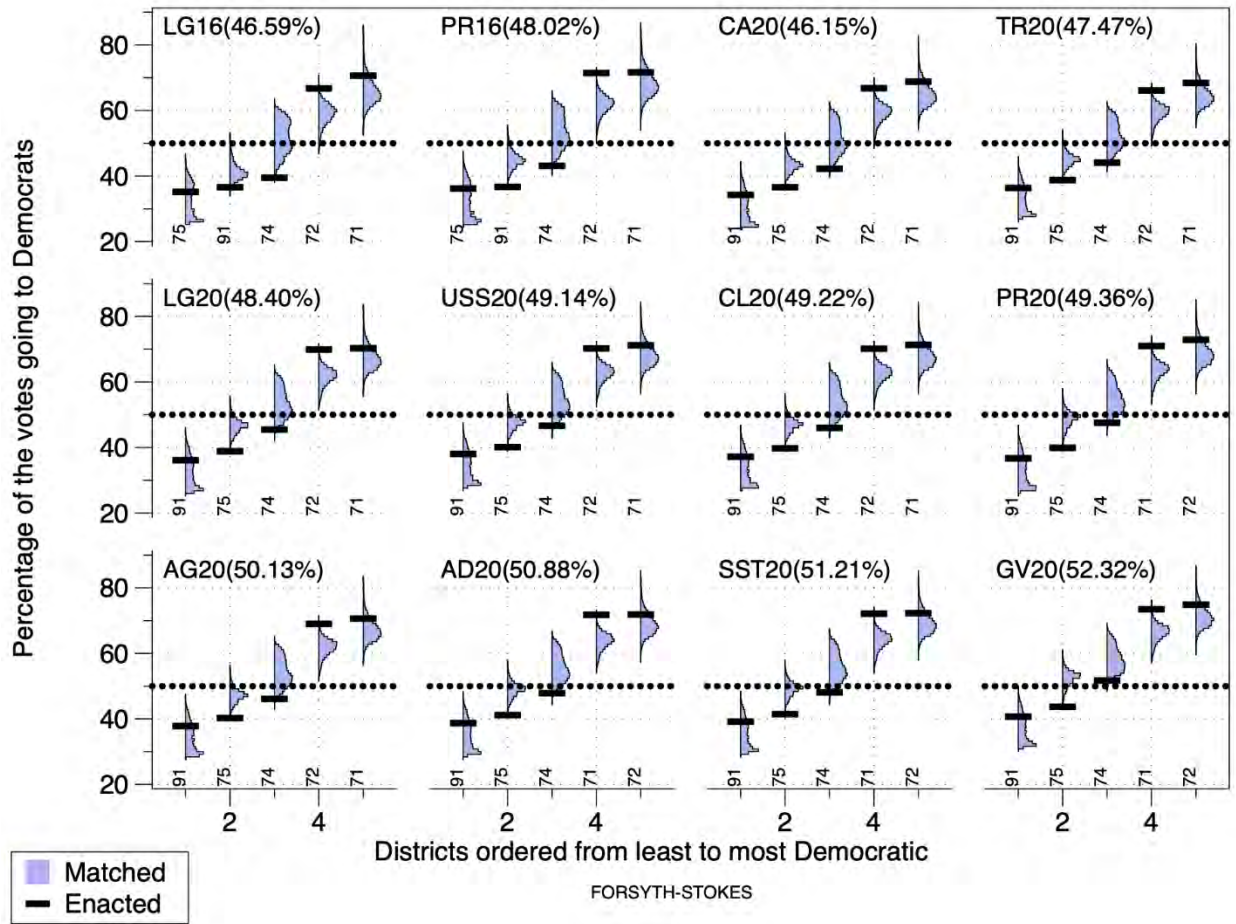


PX469 (Cooper Map 34)

369. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper’s analysis and independently establish that the Forsyth-Stokes county grouping is an intentional, pro-Republican partisan redistricting.

370. Figure 6.1.7 shows Dr. Mattingly’s analysis of this grouping.

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PX652 (Mattingly Figure 6.1.7)

371. The Court finds that Democrats were again cracked out of the three least Democratic (*i.e.*, most-Republican) districts in this grouping and packed into heavily Democratic districts (Districts 72 and 71). PX629 at 34; PX652. The effect is that the Republicans regularly win three out of five seats in this cluster even in situations where the Democrats would win three in the vast majority of plans in the nonpartisan ensemble. This is seen in the Senate 2020, President 2020, President 2016, and Attorney General 2020 races, among others. PX629 at 34. Dr. Mattingly quantified the cracking and packing of Democrats in the Forsyth-Stokes cluster: across every election he considered, less than 0.02% of the plans in the ensemble have a lower Democratic fraction in the three most Republican districts than the enacted plan, signaling extreme cracking. *Id.*

372. To preserve District 74’s Republican lean, District 91—which is heavily Republican and at no risk of electing a Democrat—cuts into Winston Salem to pick up those Democratic precincts that cannot be incorporated into Districts 71 and 72. The result is a district line that cuts to the core of Winston-Salem and preserves Republican advantage in District 74. PX201 “SL-175” B75:BA75, B80:BA80. This configuration comes at a cost of compactness; the Enacted House Plan in Forsyth and Stokes Counties has an average Polsby-Popper score of 0.33. PX150 at 16.

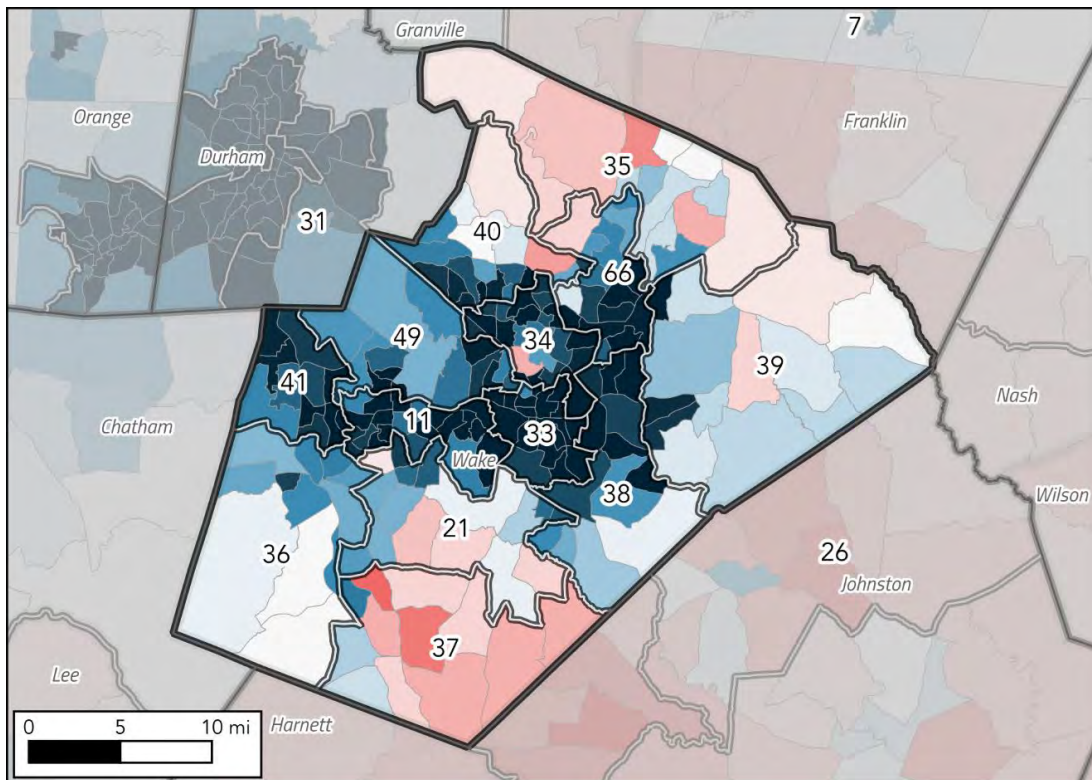
373. The Court finds, as Dr. Pegden’s findings show, that the Forsyth-Stokes House county grouping is the result of intentional, pro-Republican partisan redistricting. In his first-level analysis, Dr. Pegden found that the enacted plan’s version of this grouping is more favorable to Republicans than 99.912% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 99.73% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 18.

374. In the Forsyth-Stokes House cluster, the enacted map is a partisan outlier under three of the elections that Legislative Defendants’ expert Dr. Barber considered. Under the 2020 President election, Democrats win only two seats, even though they would have won three seats under 50% of Dr. Barber’s simulations and four seats under 35% of the simulations—a two-seat shift. Under eight of the 11 elections, the enacted map produces fewer Democratic seats than a majority of Dr. Barber’s simulations—a metric Dr. Barber himself has relied upon. LDTX107 at 142.

375. The Court finds the districts in the Forsyth-Stokes House county grouping, HD71, HD72, HD74, HD75, and HD91, to be the result of intentional, pro-Republican partisan redistricting.

g. Wake House County Grouping

376. The Wake House County Grouping contains House District 11 (“HD11”), House District 21 (“HD21”), House District 33 (“HD33”), House District 34 (“HD34”), House District 35 (“HD35”), House District 36 (“HD36”), House District 37 (“HD37”), House District 38 (“HD38”), House District 39 (“HD39”), House District 40 (“HD40”), House District 41 (“HD41”), House District 49 (“HD49”), and House District 66 (“HD66”). All thirteen House Districts are comprised of portions of only Wake County. Plaintiffs challenge these House Districts, with the exception of HD66, as the product of unlawful partisan gerrymanders.



PX466 (Cooper Map 31)

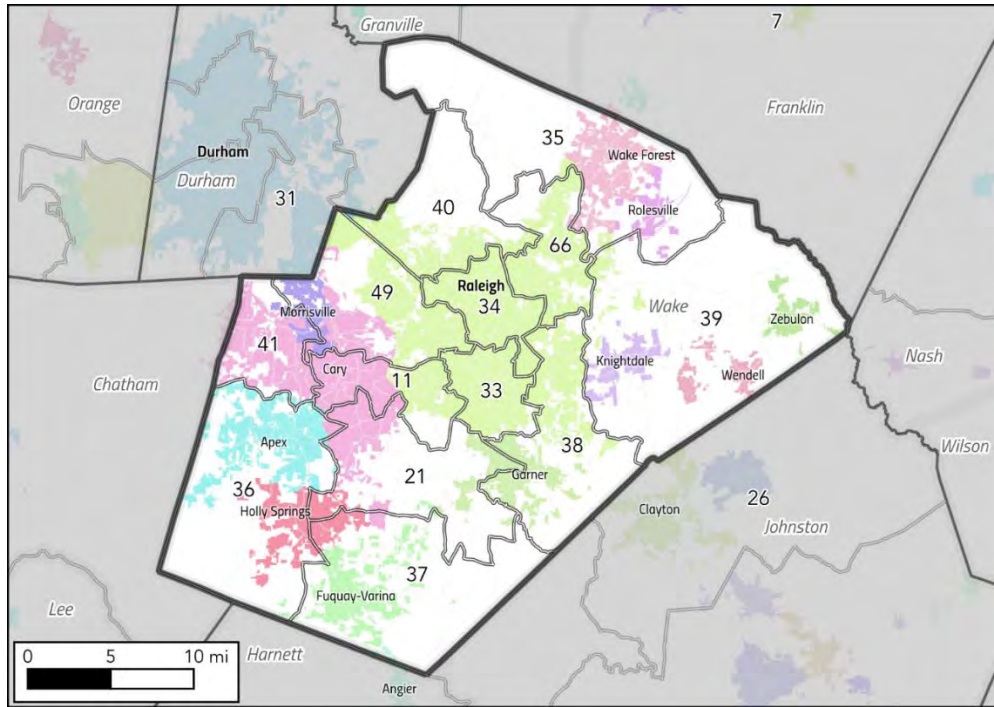
377. Harper Plaintiffs challenge this House county grouping. Individual Harper Plaintiff Rebecca Harper resides in HD21. Individual Harper Plaintiff John Anthony Balla resides in HD40. No Individual Plaintiff resides in HD11, HD33, HD34, HD35, HD36, HD37, HD38, HD39, HD41, or HD49. Organizational Plaintiff NCLCV challenges HD35, HD37, and

HD38 in this county grouping. Organizational Plaintiff Common Cause challenges HD35 in this county grouping.

378. Wake County includes Raleigh and 11 other municipalities. The county is strongly Democratic, LDTX107 at 169, and there are no Republicans on the county commission, PX425 at 70. The district boundaries in this grouping pack Democrats into as few districts as possible, leaving House Districts 11, 33, 36, 38, 41, and 49 without any Republican-leaning VTDs, House Districts 34 and 66 with only one Republican-leaning VTD, and House District 40 with only two Republican-leaning VTDs. Packing the majority of Democratic voters within these districts allows House Districts 35, to the north, and 37, to the southeast, to favor Republican candidates. *Id.*

379. House District 66 includes a “spike” that juts north to include a Democratic-leaning VTD on its boundary, effectively keeping the Democratic voters in that VTD “fenced off” from the House District 35, where they would otherwise make the election more favorable for a Democratic candidate. *Id.*

380. To the extent that Legislative Defendants argue that preserving municipal boundaries was a governing criterion, the district lines in this cluster split a number of cities, including Raleigh (split across 10 of the 12 districts), Cary, Garner, Fuquay-Varina, Apex, Holly Springs, and Morrisville. PX37.

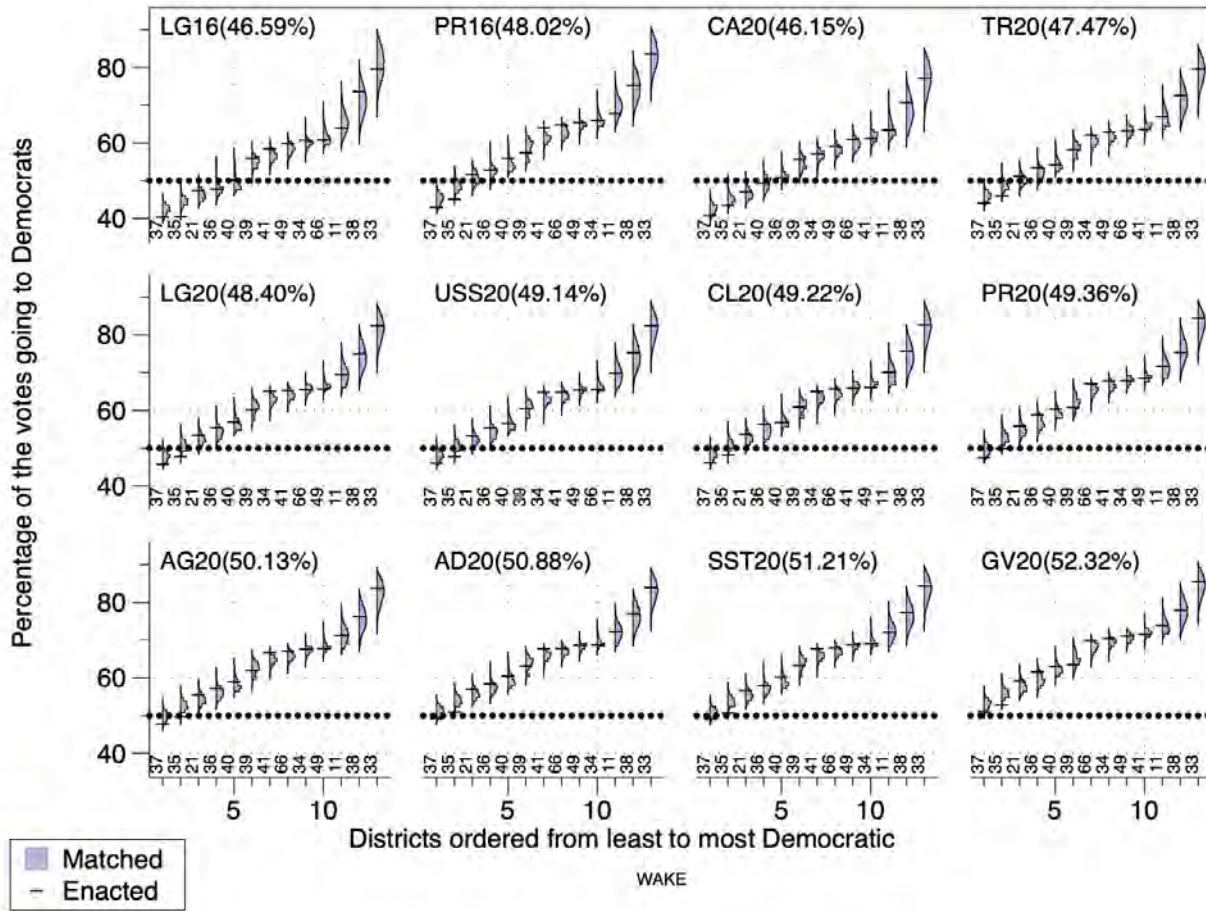


PX467 (Cooper Map 32)

381. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper’s analysis and independently establish that the Wake county grouping is the result of intentional, pro-Republican partisan redistricting.

382. Figure 6.1.4 shows Dr. Mattingly’s analysis of this grouping.

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PX651 (Mattingly Figure 6.1.4)

383. The Court finds that Democrats were cracked out of the two least Democratic (*i.e.*, most-Republican) districts in this grouping (Districts 37 and 35) and packed into heavily Democratic districts. PX629 at 32; PX651. The effect is to swing the two most Republican districts into play in elections where they would not be under the ensemble. For example, in the Attorney General 2020 election, Republicans win two districts under the enacted plan and Democrats win 11 even though Democrats would always win 12 under the ensemble and often win all 13. Dr. Mattingly quantified the cracking of Democrats out of those two most Republican districts: across every election he considered, the number of maps in the ensemble which have a lower Democratic vote fraction in the two most Republican districts than they do in the enacted plan is less than 0.42%, except for the Commissioner of Agriculture 2020

election, where it is 1.2%. That is, the enacted plan is in the most extreme 0.42% percent of plans in terms of cracking of Democrats. PX629 at 32.

384. The Court finds, as Dr. Pegden’s findings show, that the Wake House county grouping is the result of intentional, pro-Republican partisan redistricting. In his first-level analysis, Dr. Pegden found that the enacted plan’s version of this grouping is more favorable to Republicans than 99.27% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 97.8% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 22.

385. In the Wake House county grouping, the enacted map is a partisan outlier under four of the elections that Legislative Defendants’ expert Dr. Barber considered. Under three of those elections, the enacted map produces fewer Democratic districts than 90-98% of Dr. Barber’s simulations, and under the fourth election, the enacted map produces fewer Democratic districts than 85% of Dr. Barber’s simulations. LDTX107 at 173.

386. The Court finds the challenged districts in the Wake House county grouping, HD11, HD21, HD33, HD34, HD35, HD36, HD37, HD38, HD39, HD40, HD41, and HD49, to be the result of intentional, pro-Republican partisan redistricting.

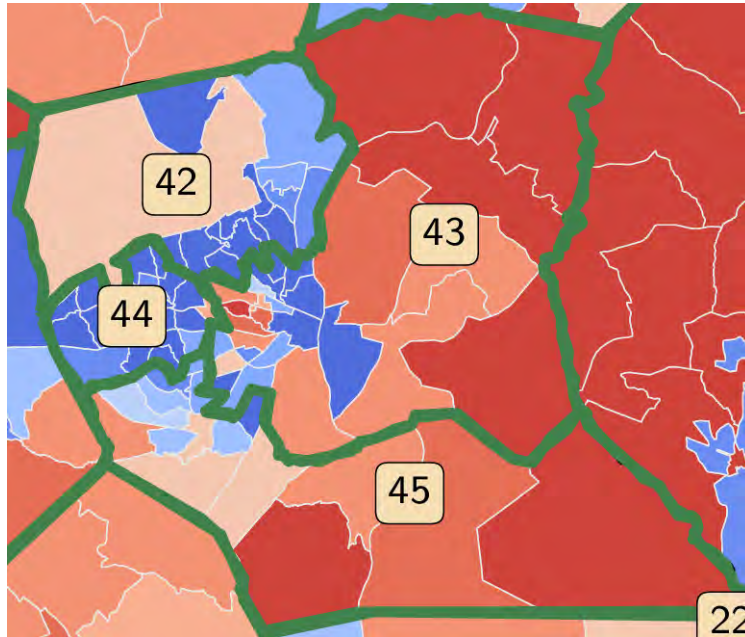
h. Cumberland House County Grouping

387. The Cumberland House County Grouping contains House District 42 (“HD42”), House District 43 (“HD43”), House District 44 (“HD44”), and House District 45 (“HD45”). Each of these four House Districts are comprised of portions of only Cumberland County. The Organizational Plaintiffs challenge these House Districts as the product of unlawful partisan gerrymanders.

388. No Individual NCLCV Plaintiff resides in any House District within this county grouping. Organizational Plaintiff Common Cause challenges every House District in

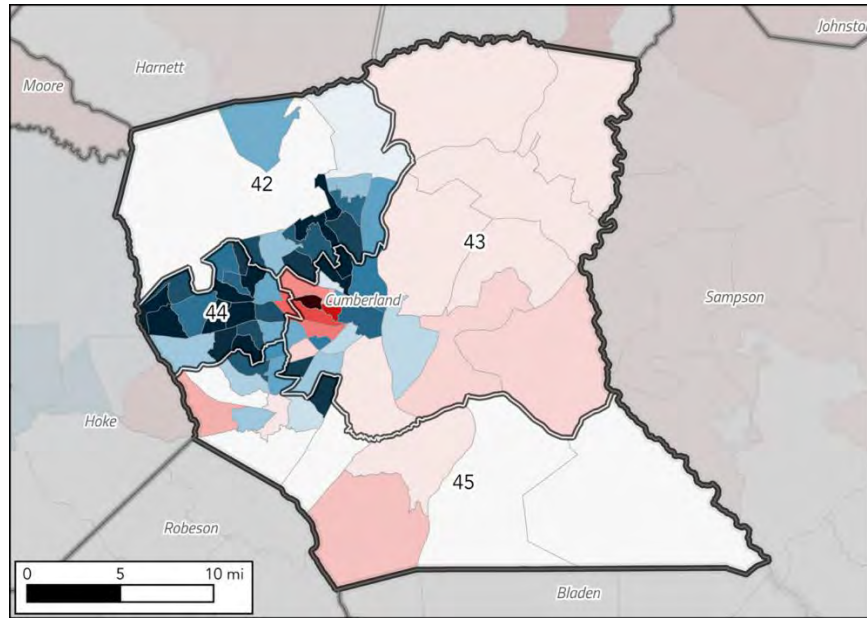
this county grouping. Organizational Plaintiff NCLCV challenges only HD43 and HD45 in this county grouping.

389. The Enacted Plan sacrifices compactness in order to maximize Republican advantage in this grouping. It does so by packing Democrats into two Districts 42 and 44. PX201 “SL-175” AO43, AO45. The result of this packing is that Districts 43 and 45 favor Republicans. 50.5% of District 43’s major-party voters voted for President Trump in the 2020 election; the same figure in District 45 was 50.8%. PX201 “SL175” AO44, AO46. This result came at the cost of lowering the average compactness score of the four districts to 0.34. PX150 at 16.



PX181 (Figure 31: Enacted House Districts 42, 43, 44 & 45)

390. Harper Plaintiffs do not challenge the districts in this county grouping; however, Harper Plaintiffs' experts, as part of their overall analysis in these consolidated cases, analyzed this county grouping as shown below.



PX478 (Cooper Map 43)

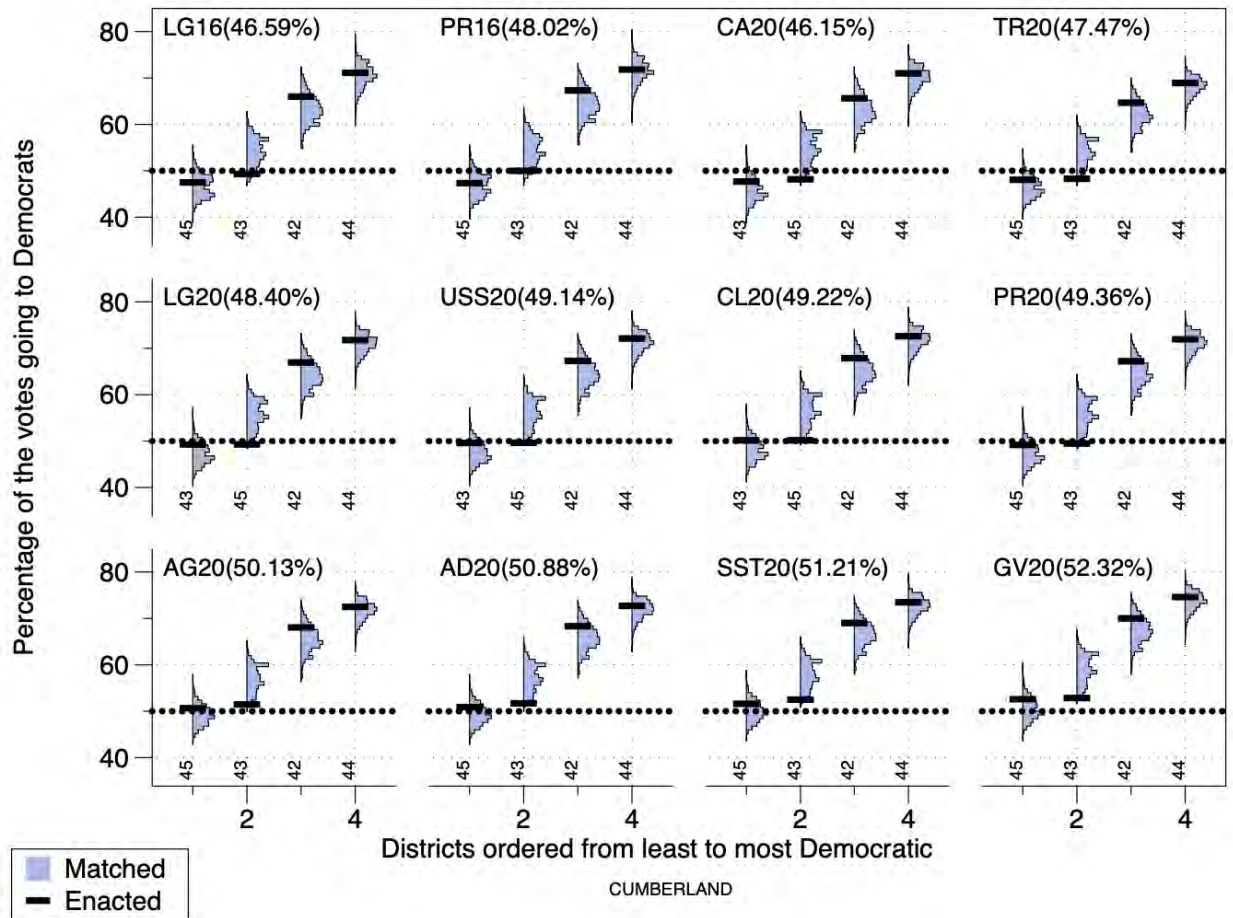
391. Cumberland County is a “heavily Democratic county” that provided 58% of its two-party vote share to Joe Biden in 2020 and that has not provided a plurality of votes to a Republican Presidential candidate since 2004. PX425 at 89.

392. Despite Cumberland County’s strong Democratic tilt, Legislative Defendants drew district lines that created two competitive districts, House District 43 in the east and House District 45 in the south, by packing the most heavily Democratic VTDs in Fayetteville into House Districts 42 and 44. *Id.*; TR 01/03/2022.

393. Fayetteville is split among all four districts in this county House District 43 includes almost all of the few Republican-leaning VTDs within Fayetteville, while House District 45 includes Republican-leaning and more competitive VTDs in the south of the city. PX425 at 89-90; TR 01/03/2022. These district lines allowed House District 43 to be more favorable than it otherwise would be for the first-term incumbent Republican candidate in that district. PX425 at 89.

394. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper’s analysis and independently establish that the Cumberland county grouping is an intentional, pro-Republican partisan redistricting.

395. Figure 6.1.28 shows Dr. Mattingly’s analysis of this grouping.



PX659 (Mattingly Figure 6.1.28)

396. The Court finds that Cumberland County is a partisan outlier. Democrats have been cracked out of the second most Republican district (District 43), which normally is comfortably Democratic, but under the enacted plan frequently produces a Republican seat. For each of the elections considered, the number of plans in the ensemble with smaller fraction of Democrats in the second most Republican district is typically around 1% with, for a few elections, the percentage reaching as high as 7% or as low as 0.4%. PX629 at 48; PX659.

397. The Court finds, as Dr. Pegden’s findings show, that the Cumberland House county grouping is the result of intentional, pro-Republican partisan redistricting. Dr. Pegden’s first-level analysis determined that the enacted plan’s version of the Cumberland county grouping is more favorable to Republicans than 83.5% of maps that his algorithm encountered by making small changes to the district boundaries. PX523 at 27. This result was not an unusual enough result to enable a statistically significant second-level analysis. *Id.* But Dr. Pegden’s “wave threshold” analysis found the Cumberland county grouping to be a partisan outlier. *Id.* at 36. As explained, the wave threshold metric captures, for a given map, the smallest uniform swing in election results that would be required to give the Democrats an additional seat. Using this alternative analysis allowed Dr. Pegden to assess whether this grouping may have been drawn to achieve “other conceivable partisan goals” besides merely maximizing Republican seat count, “such as facilitating the re-election of particular representatives in particular districts.” *Id.* at 33. Dr. Pegden concluded, and the Court finds, that the enacted plan’s version of this county grouping had a wave threshold more favorable to Republicans than 99.59% of maps that his algorithm encountered by making small changes to the district boundaries. *Id.* at 36.

398. In the Cumberland House county grouping, under six of the individual elections Legislative Defendants’ expert Dr. Barber considered, Democrats win two seats under the enacted map. While Dr. Barber notes that in these cases the enacted plans create one, or occasionally two, competitive districts that could be heavily contested, in each case Democrats would have won more than two seats in 100% of Dr. Barber’s simulations. LDTX107 at 116.

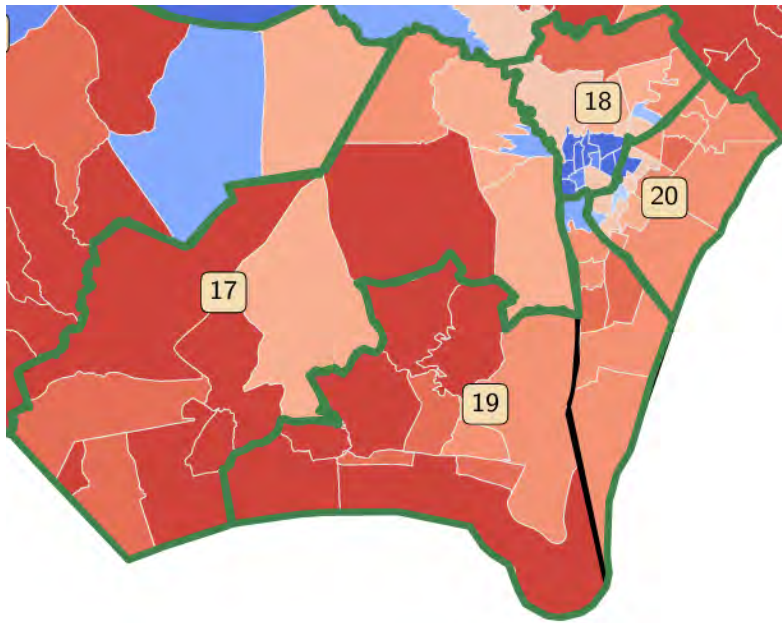
399. The Court finds the districts in the Cumberland House county grouping, HD42, HD43, HD44, and HD45, to be the result of intentional, pro-Republican partisan redistricting.

i. Brunswick-New Hanover House County Grouping

400. The Brunswick-New Hanover House County Grouping contains House District 17 (“HD17”), House District 18 (“HD18”), House District 19 (“HD19”), and House District 20 (“HD20”). HD17 is comprised of portions of only Brunswick County. HD19 is comprised of portions of Brunswick and New Hanover Counties. HD18 and HD20 are comprised of portions of only New Hanover County. NCLCV Plaintiffs challenge this county grouping as the product of an unlawful partisan gerrymander.

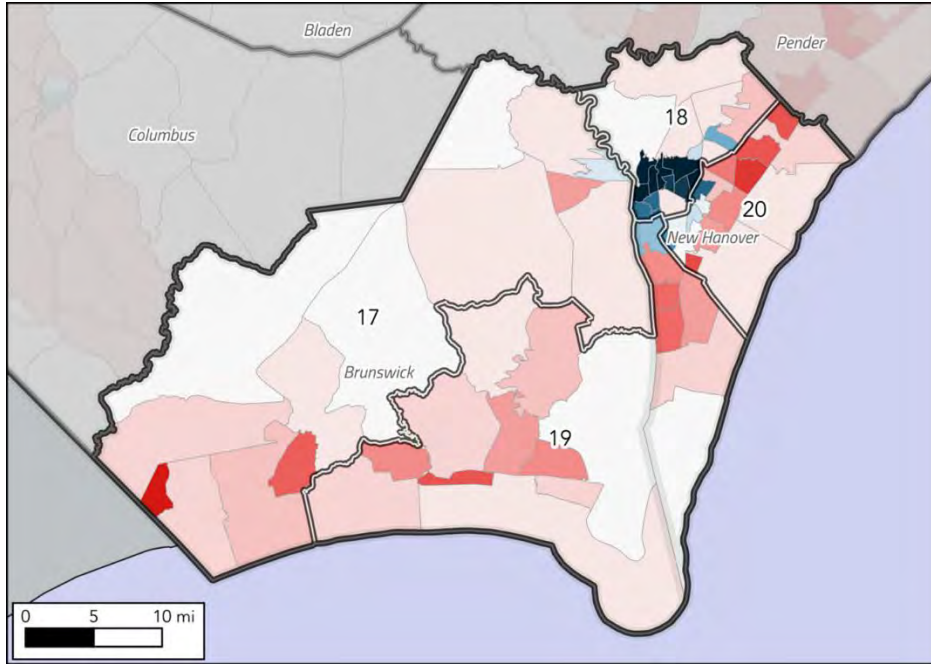
401. NCLCV Plaintiffs challenge this House county grouping. No Individual NCLCV Plaintiff resides in these House Districts. Organizational Plaintiff NCLCV challenges all House districts in this county grouping.

402. The Enacted House Plan creates three Republican districts in this cluster: House Districts 17, 19, and 20. PX425 at 96; PX201 “SL175” B18:BA21.



PX181 (Figure 26: Enacted House Districts 17, 18, 19 & 20)

403. Harper Plaintiffs do not challenge the districts in this county grouping; however, Harper Plaintiffs' experts, as part of their overall analysis in these consolidated cases, analyzed this county grouping as shown below.

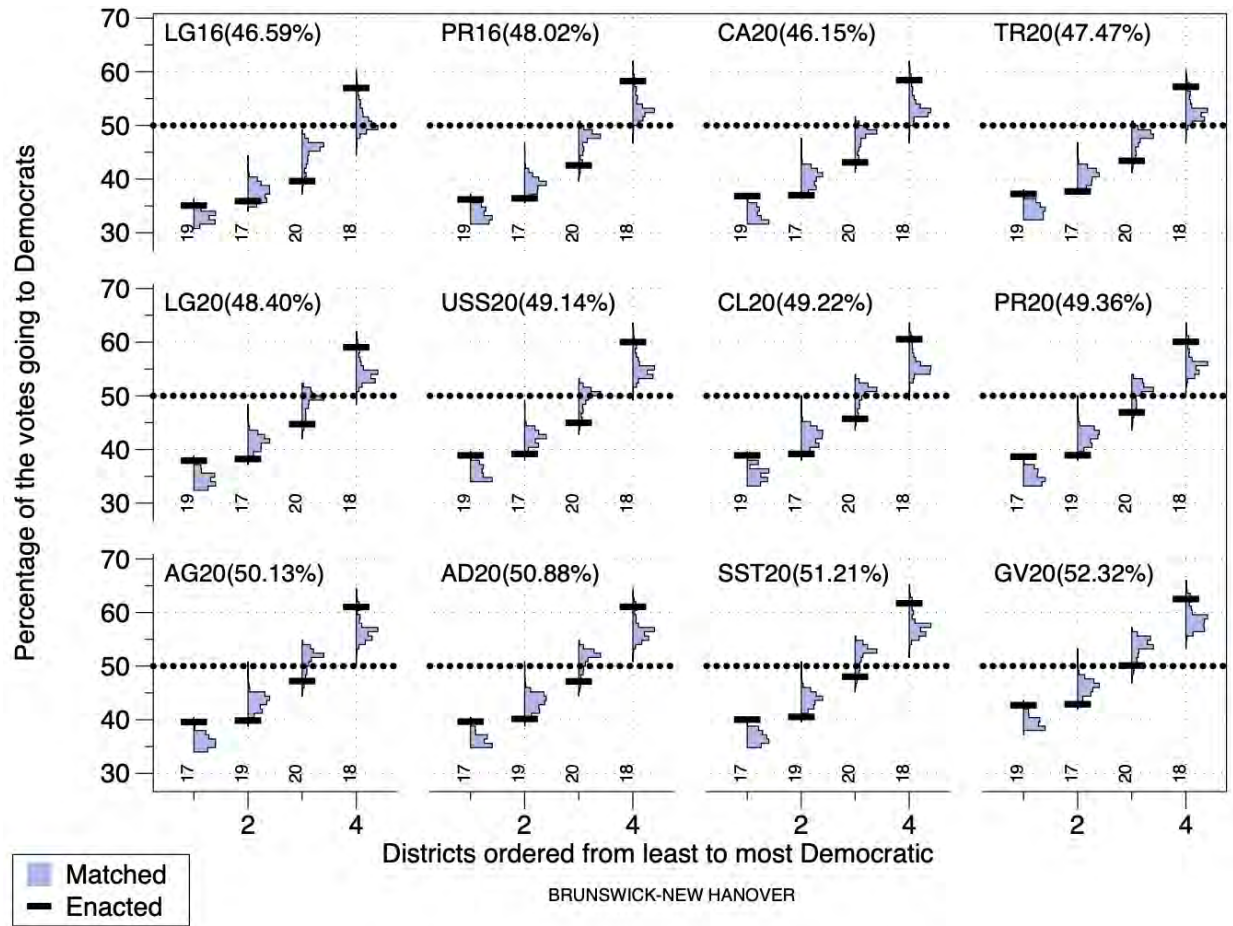


PX481 (Cooper Map 46)

404. This grouping is located in the southeastern corner of the state and includes the heavily Democratic City of Wilmington. The district lines pack Democratic voters in and around Wilmington into House District 18, allowing the other three districts, particularly House District 20, to lean more heavily towards the Republican candidate. PX425 at 95. House District 19 includes a Democratic-leaning VTD south of Wilmington, which has the effect of keeping those Democratic voters out of House District 20, keeping that district safer for the Republican candidate. PX425 at 95.

405. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper's analysis and independently establish that the Brunswick-New Hanover county grouping is an intentional, pro-Republican partisan redistricting.

406. Figure 6.1.34 shows Dr. Mattingly's analysis of this grouping.



PX661 (Mattingly Figure 6.1.34)

407. The Court finds that Democrats were again packed and cracked in the Brunswick-New Hanover cluster. PX629 at 52; PX661. In particular, they are packed into the most Democratic district (District 18) and cracked out of the middle-most Republican districts. PX661. This enables Republicans to safely win three out of four districts, even in situations where Democrats would almost always win two seats under the nonpartisan ensemble. PX629 at 42. Examples of this are in the Attorney General 2020, State Auditor 2020, and Secretary of State 2020 elections. Over each of the elections considered, the fraction of plans in the nonpartisan ensemble where there are fewer Democratic votes in the second and third most Republican districts than in the enacted plan is always less than 0.5%

and often much smaller. PX629 at 52. In other words, the enacted plan cracks more Democrats in those districts than all but 0.5% of plans in the nonpartisan ensemble.

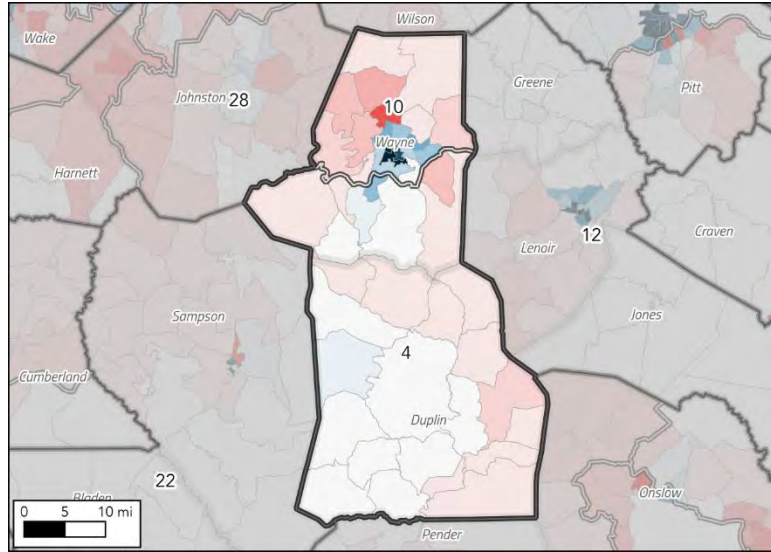
408. The Court finds, as Dr. Pegden’s findings show, that the Brunswick-New Hanover House county grouping is the result of intentional, pro-Republican partisan redistricting. Dr. Pegden’s first-level analysis determined that the enacted plan’s version of the Brunswick-New Hanover county grouping is more favorable to Republicans than 89.4% of maps that his algorithm encountered by making small changes to the district boundaries. PX523 at 24. This result was not an unusual enough result to enable a statistically significant second-level analysis. *Id.* But Dr. Pegden’s “wave threshold” analysis found this county grouping to be a partisan outlier. *Id.* at 34. Dr. Pegden concluded, and the Court finds, that the enacted plan’s version of the Brunswick-New Hanover county grouping had a wave threshold more favorable to Republicans than 99.72% of maps that his algorithm encountered by making small changes to the district boundaries. *Id.* In particular, for the enacted map, Democratic performance could increase by 10.1 percentage points in every district, yet Democrats still would capture only two of the four seats. *Id.*

409. In 100% of Legislative Defendants’ expert Dr. Barber’s simulations, there is one Democratic leaning district in this Republican leaning county cluster. Under Dr. Barber’s analysis, the enacted plans are in alignment with his simulations in creating one Democratic district. LDTX107 at 132, 136.

410. The Court finds the districts in the Brunswick-New Hanover House county grouping, HD17, HD18, HD19, and HD20, to be the result of intentional, pro-Republican partisan redistricting.

j. Duplin-Wayne House County Grouping

411. The Duplin-Wayne House County Grouping contains House District 4 (“HD4”) and House District 10 (“HD10”). HD4 is comprised of Duplin County and portions of Wayne County. HD10 is comprised of portions of only Wayne County. Plaintiffs challenge these House Districts as the product of unlawful partisan gerrymanders.

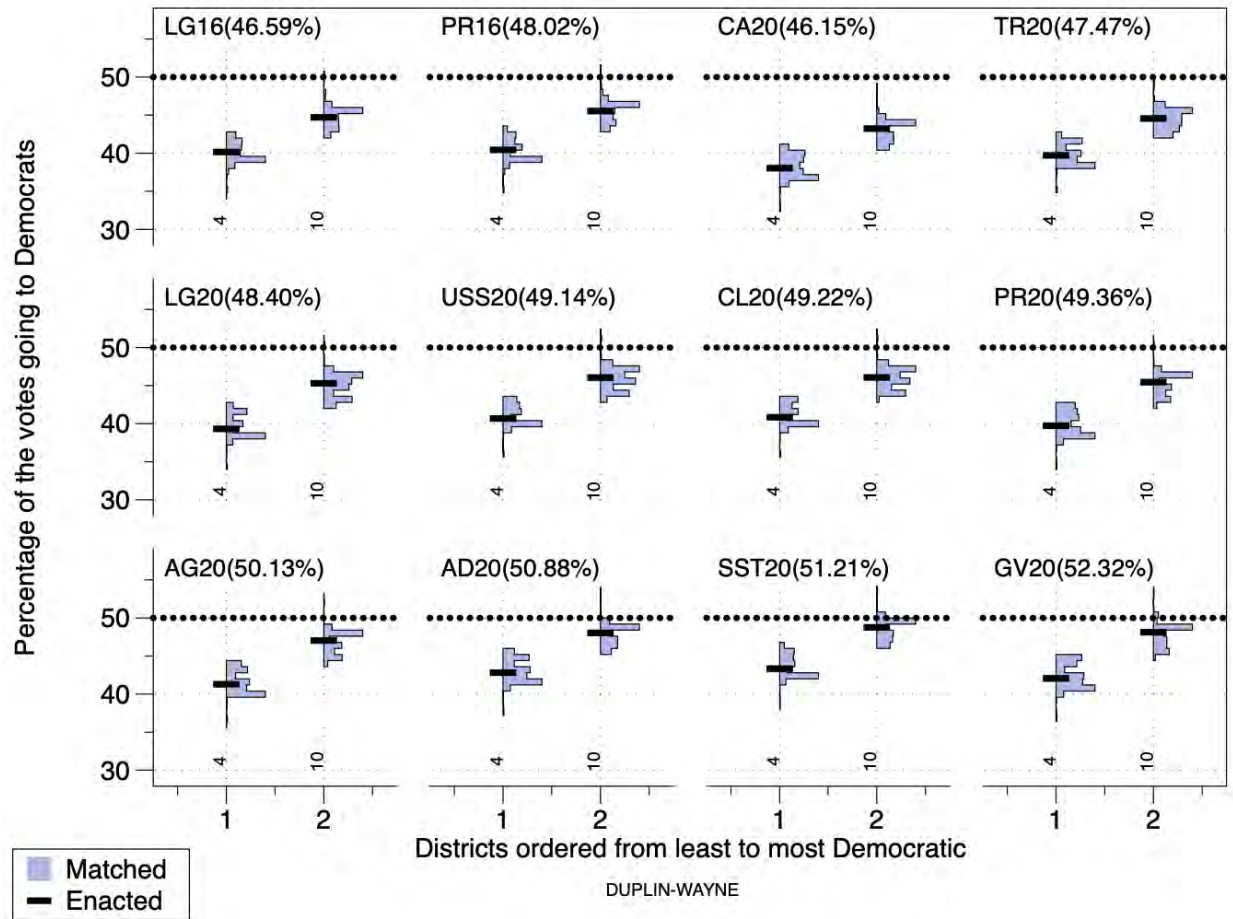


PX477 (Cooper Map 42)

412. Harper Plaintiffs and NCLCV Plaintiffs challenge this House county grouping. Individual Harper Plaintiffs Bobby Jones and Kristiann Herring reside in HD10. No Individual Plaintiff resides in HD4. Organizational Plaintiff NCLCV challenges both House districts in this county grouping.

413. The district boundary that runs through Wayne County ensures that this cluster will contain two safely-Republican districts. PX425 at 87.

414. Figure 6.1.19 shows Dr. Mattingly’s analysis of this grouping.



PX656 (Mattingly Figure 6.1.19)

415. Dr. Mattingly’s analysis did not find that Duplin-Wayne was an outlier, because the black bars representing the enacted plan fall within the middle of the blue histograms representing the nonpartisan ensemble. PX629 at 42.

416. Dr. Pegden was unable to generate any comparison districtings of this House county grouping due to his conservative methodology. PX523 at 17; *see id.* at 11. The fact that his algorithm cannot generate comparison maps does not say one way or the other whether the enacted map of this grouping is the result of intentional, pro-Republican partisan redistricting. *Id.* at 11.

417. Under Legislative Defendants’ expert Dr. Barber’s analysis, this county grouping is moderately Republican and, after discarding simulations for containing more

county traversals or being less compact, zero simulated maps remained for Dr. Barber to analyze. After retaining 2,704 of his simulated maps that have the highest compactness score, the enacted maps match his simulated maps in producing no Democratic leaning districts in this county grouping for all 11 elections. LDTX107 at 58, 63.

418. The Court finds the districts in the Duplin-Wayne House county grouping, HD4 and HD10, to not be the result of intentional, pro-Republican partisan redistricting.

k. Onslow-Pender House County Grouping

419. The Onslow-Pender House County Grouping contains House District 14 (“HD14”), House District 15 (“HD15”), and House District 16 (“HD16”). HD14 and HD15 are each comprised of portions of only Onslow County. HD16 is comprised of Pender County and portions of Onslow County. NCLCV Plaintiffs challenge this county grouping as the product of an unlawful partisan gerrymander.

420. No Individual Plaintiff resides in these House Districts. Organizational Plaintiff NCLCV challenges HD14 and HD15 in this county grouping.

421. Although one of the districts in this cluster—District 15—could have centered around Jacksonville, Legislative Defendants instead split the Jacksonville area’s Democrats between two districts—House Districts 14 and 15—in order to create three heavily Republican districts that prevent Onslow County’s Democratic voters from having any meaningful say in elections. PX201 “SL-175” B15:BA16. This, again, came at the cost of compactness: the average compactness score for Districts 14, 15, and 16 is 0.30. PX150 at 16.

422. The Court finds the districts in the Onslow-Pender House county grouping, HD4 and HD10, to not be the result of intentional, pro-Republican partisan redistricting.

3. North Carolina Congressional Districts

423. The analysis and conclusions of Plaintiffs’ experts establishes that the 2021 Congressional Plan is a partisan outlier intentionally and carefully designed to maximize Republican advantage in North Carolina’s Congressional delegation. Plaintiffs’ experts employed computer simulations to generate alternative Congressional plans to serve as a baseline for comparison to the enacted Congressional plan. Even though these experts employed different methodologies, each expert found that the enacted plan is an outlier that could only have resulted from an intentional effort to secure Republican advantage. Plaintiffs’ expert Dr. Christopher Cooper explained how this intentional, pro-Republican partisan redistricting was carried out in each of the 14 congressional districts and has led to a substantial disconnect between the ideology and policy preferences of North Carolina’s citizenry and their representatives in the General Assembly. The Court agrees with the findings of each of these experts and finds that the 2021 Congressional Plan is an intentional, and effective, pro-Republican partisan redistricting.

424. Legislative Defendants offered no defense of the 2021 Congressional Plan. No expert witness opined that it was not the product of an intentional partisan redistricting.

a. Harper Plaintiffs’ Expert Dr. Chen’s Analysis of the Congressional Plans

(i) *Analysis of the Congressional Plan’s Adherence to the Adopted Criteria*

425. In his simulation set, Dr. Chen programmed his algorithm to follow the traditional districting principles mandated by the General Assembly’s Adopted Criteria. PX482 at 5 ¶8; PX34. This is the same method Dr. Chen employed in *Common Cause v. Lewis*, 2019 WL 4569584, and *Harper v. Lewis*, No. 19 CVS 012667 (N.C. Super. 2019). PX482 at 5 ¶8.

426. Specifically, Dr. Chen programmed the computer algorithm to create 1,000 independent simulated plans adhering to the following seven districting criteria mandated by the 2021 Adopted Criteria: (1) population equality (2) contiguity, (3) minimizing county splits and (4) minimizing VTD splits and prioritizing the other traditional redistricting principles set forth in the Adopted Criteria of (5) compactness, (6) avoiding incumbent pairings, and (7) avoiding splitting municipalities. PX482 at 6-9 ¶11; PX34.

427. The Court finds that Dr. Chen’s computer algorithm properly adhered to the Adopted Criteria, as well as traditional redistricting principles. The Court further finds that Dr. Chen’s interpretation and application of the Adopted Criteria is fully consistent with General Assembly’s requirements and guidance. The Court further finds that Dr. Chen’s application of these criteria is consistent with generally accepted redistricting principles and practice.

428. First, Dr. Chen compared the number of counties that the simulated and enacted congressional plans split. The enacted congressional plan splits 14 counties. PX482 at 11-12 ¶17; PX484. Dr. Chen concluded this was one more split than necessary. *Id.* at 12-13 ¶17-18. From this, Dr. Chen concluded that the enacted congressional plan does not comply with the Adopted Criteria’s rule against unnecessary division of counties. *Id.* at 13 ¶18. Dr. Chen also found that counties were only split multiple times in 1.8% of his simulations, and that within that small percentage Mecklenburg, Wake, and Guilford were not all split multiple times. *Id.* at 19; PX485.

429. The Court finds that the enacted congressional plan fails to follow and subordinates the Adopted Criteria’s requirement that counties be split only for reasons of population equality or for the protection of incumbents. The Court finds that the enacted congressional plan splits more counties than is necessary. The Court also finds that the

enacted congressional plan unnecessarily splits three heavily Democratic counties—Mecklenburg, Wake, and Guilford Counties—into three districts each.

430. Dr. Chen also compared the number of VTDs split in the enacted congressional plan to his 1,000 simulations. Dr. Chen found that, in comparison to his simulations, the enacted congressional plan contains 25 VTD splits, almost double the number of VTDs that are necessary to split to maintain population equality. PX482 at 15 ¶¶21-22. From this, Dr. Chen concluded that the enacted congressional plan violates the Adopted Criteria’s requirement that VTDs “should be split only when necessary.” *Id.* at 15 ¶¶23; PX486.

431. The Court finds that the enacted congressional plan fails to follow, and subordinates, the Adopted Criteria’s requirement of avoiding the unnecessary splitting of VTDs. The Court finds that the enacted congressional plan splits more VTDs than is necessary.

432. Dr. Chen found that the enacted congressional plan is also less compact than almost all of his 1,000 simulations. Dr. Chen employed the measures of compactness set forth in the Adopted Criteria, known as Reock and Polsby-Popper scores. PX482 at 17 ¶¶24. PX34. For both measures, a higher score indicates that a plan’s districts are more compact. PX482 at 17-18 ¶¶26-27.

433. Dr. Chen found that, as measured by Polsby-Popper scores, the enacted congressional plan is far less compact than all 1,000 simulated congressional plans. PX482 at 17 ¶¶26. He further found, as measured by Reock scores, the enacted congressional plan is far less compact than almost all 1,000 simulated congressional plans. *Id.* at 18 ¶¶27. From this, Dr. Chen concluded that the enacted congressional plan is significantly less compact than would have been expected from a districting process adhering to the Adopted Criteria. *Id.* at 17-18 ¶¶26-27; PX487.

434. The Court finds that the enacted congressional plan fails to follow, and subordinates, the Adopted Criteria’s requirement to draw compact districts. The Court finds that the enacted congressional districts are less compact than they would be under a map-drawing process that adhered to the Adopted Criteria and prioritized the traditional districting criteria of compactness.

(ii) *Analysis of Whether the Congressional Plan is a Statistical Partisan Outlier*

435. To compare the partisanship of his simulated plans to the enacted congressional plan, Dr. Chen used census block-level election results from recent statewide elections in North Carolina. PX482 at 21 ¶¶31-32. For his analysis, Dr. Chen used the following ten elections: 2016 US President, 2016 US Senator, 2016 Governor, 2016 Lieutenant Governor, 2016 Attorney General, 2020 US President, 2020 US Senator, 2020 Governor, 2020 Lieutenant Governor, and 2020 Attorney General. *Id.* at 21 ¶31. Dr. Chen aggregated the results of these elections into a single composite, referred to as the “Statewide Election Composite.” *Id.* at 22 ¶33.

436. Dr. Chen analyzed these elections because they are the same state and federal offices whose election results were used by the General Assembly during its 2017 legislative redistricting process, and the 2017 redistricting process was the most recent one in which the leadership of the General Assembly’s redistricting committees publicly announced how the General Assembly would evaluate the partisanship of its own districting plans. PX482 at 21 ¶31. Additionally, past voting history in federal and statewide elections is a strong predictor of future voting. *Id.* at 20 ¶28.

437. By overlaying these past election results onto the enacted congressional plan, Dr. Chen calculated the Republican share of the votes cast from within each district in the enacted congressional plan and in each simulated plan. PX482 at 20 ¶28. Based on these

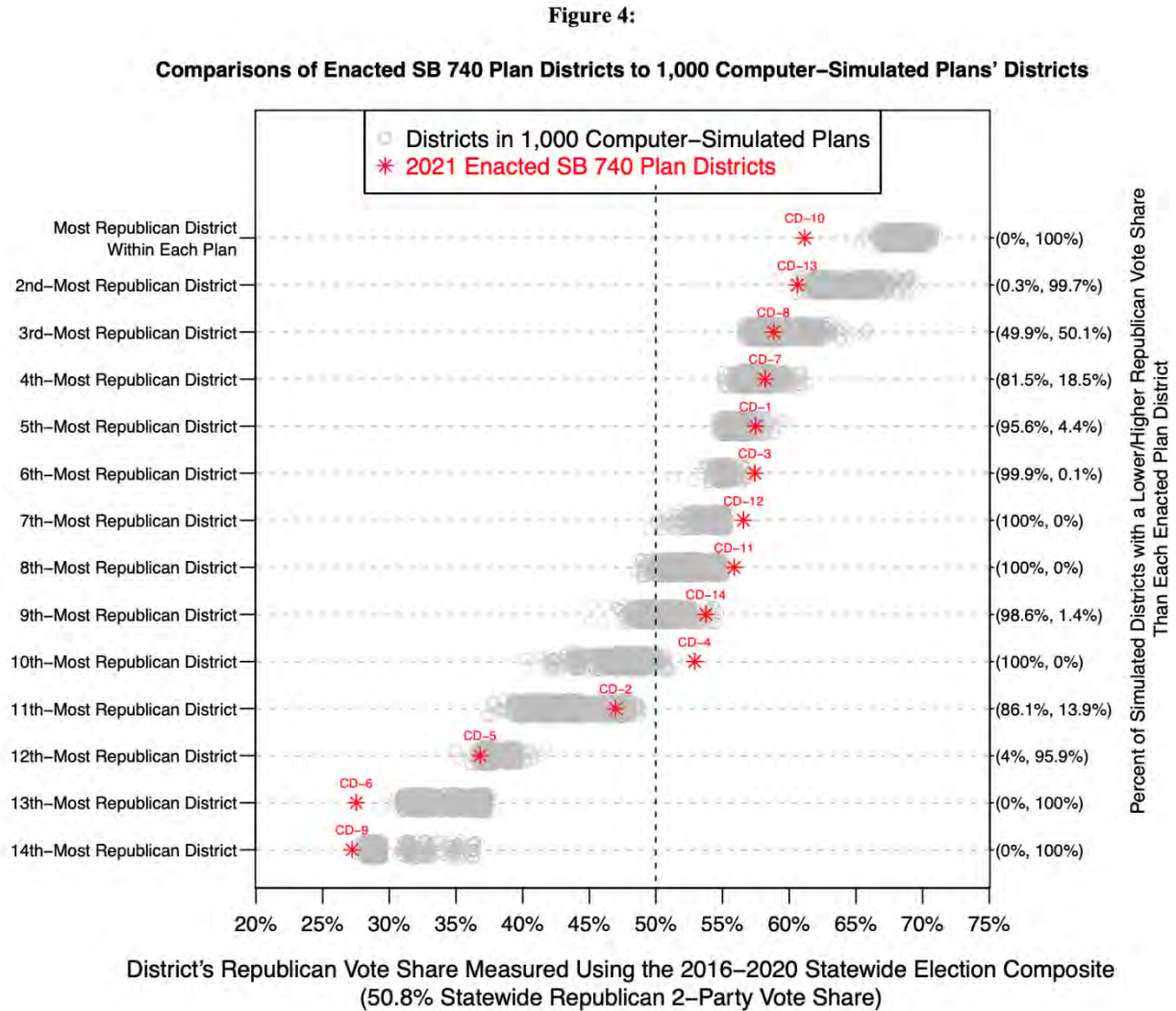
calculations, Dr. Chen directly compared the partisanship of the enacted congressional plan and the simulated plans. *Id.* Dr. Chen used these comparisons to determine whether the partisanship of individual enacted districts and the partisan distribution of seats in the enacted congressional plan could reasonably have arisen from a districting process adhering to the Adopted Criteria and its explicit prohibition on partisan considerations. *Id.*

438. The Court finds that the use of statewide elections by Plaintiffs’ experts to measure the partisanship of simulated and enacted districts to be a reliable methodology.

439. To measure the partisanship of his simulated districts and the enacted districts, Dr. Chen obtained precinct-level results for the elections in the ten elections in the Statewide Election Composite and aggregated the census block-level results to the district level. PX482 at 21 ¶32. In other words, using the census blocks that would comprise a particular district in a given simulation and the actual election results from those census blocks, Dr. Chen calculated the percentage total two-party votes in that simulated district for Republican candidates in the 2016-2020 statewide election contests. *Id.* at 21-22 ¶32-33.

440. Figure 4 in Dr. Chen’s report compares the partisan distribution of districts in the enacted congressional plan to the partisan distribution of districts in the 1,000 computer-simulated plans:

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PX488 (Chen Figure 4)

PX482 at 22 ¶33; *id.* at 23 ¶35.

441. In Figure 4, the enacted congressional plan's districts are ordered from the most to the least-Republican district, as measured by Republican vote share using the Statewide Election Composite. PX482 at 23 ¶35; PX488. The red stars mark enacted districts and are labeled with district numbers, while the gray dots represent the corresponding 1,000 simulated districts. In other words, each row compares one district from the enacted congressional plan to 1,000 computer-simulated districts based on Republican vote share. *Id.* at 23-24 ¶35. The two percentages in parentheses in the right margin of this

Figure report the percentage of these 1,000 simulated districts that are less Republican than, and more Republican than, the enacted congressional plan’s district. *Id.* at 26 ¶36.

442. The Court finds, as the bottom row of Figure 4 illustrates, the most-Democratic district in the enacted congressional plan (CD-9) is more heavily Democratic than 100% of the most-Democratic districts in each of the 1,000 computer-simulated plans. PX482 at 26 ¶37; PX488. Every single one of the computer-simulated counterpart districts would have been more politically moderate than CD-9 in terms of partisanship: CD-9 exhibits a Republican vote share of 27.2%, while all 1,000 of the most-Democratic districts in the computer-simulated plans would have exhibited a higher Republican vote share and would therefore have been more politically moderate. *Id.* at 26 ¶36. Based on this, Dr. Chen concluded, and the Court so finds, that CD-9 packs together Democratic voters to a greater extent than the most-Democratic district in 100% of the computer-simulated plans. *Id.* Dr. Chen therefore concluded that CD-9 is an extreme partisan outlier when compared to its 1,000 computer-simulated counterparts, using a standard threshold test of 95% for statistical significance. *Id.* Dr. Chen uses the standard threshold test of 95% for statistical significance throughout his analysis.

443. The Court finds that the same pattern observed for CD-9, exists for CD-6. PX482 at 26-27 ¶38; PX488. Again, CD-6 is more heavily Democratic than 100% of the corresponding second-most-Democratic districts in each of the 1,000 computer-simulated plans. *Id.* Again, every single one of its computer-simulated counterpart districts would have been more politically moderate than CD-6 in terms of partisanship: CD-6 exhibits a Republican vote share of 27.5%, while 100% of the second-most-Democratic districts in the computer-simulated plans would have exhibited a higher Republican vote share and would therefore have been more politically moderate. *Chen Id.* The Court finds, like CD-9, CD-6 packs together Democratic voters to a greater extent than the second-most-Democratic

district in 100% of the computer-simulated plans. *Id.* at 27 ¶38. From these results, Dr. Chen identified CD-6 as an extreme partisan outlier when compared to its 1,000 computer-simulated counterparts, using a standard threshold test of 95% for statistical significance. *Id.*

444. The Court finds that CD-5, the next most Democratic district in the enacted congressional plan, similarly contains more Democratic voters than over 95% of its counterpart simulated plans. PX488.

445. The Court finds that the same partisan skew exists for the two most-Republican districts in the enacted congressional plan. As the top row of Figure 4 illustrates, and the Court so finds, the most-Republican district in the enacted congressional plan (CD-10) is less heavily Republican and more heavily Democratic than 100% of the most-Republican districts in each of the 1,000 computer-simulated plans. PX482 at 27 ¶39; PX488.

446. The Court finds that a similar pattern appears in the second-to-top row of Figure 4, which illustrates that the second most-Republican district in the enacted congressional plan (CD-13) is less heavily Republican and more heavily Democratic than 99.7% of the second-most-Republican districts in each of the 1,000 computer-simulated plans. *Id.*

447. The Court finds that the two most Republican districts (CD-10 and CD-13) and the three most Democratic districts (CD-9, CD-6, and CD-5), which include more Democratic voters than virtually all of their counterpart districts in the 1,000 computer-simulated plans, draw Democratic voters out of the more moderate districts in the enacted congressional plan. PX482 at 27 ¶40. Having fewer Democratic voters in these more moderate districts enhances Republican candidate performance in these districts. *Id.*

448. The Court finds that the middle six rows in Figure 4 confirm this effect. These rows compare the partisanship of districts in the fifth, sixth, seventh, eighth, ninth, and

tenth-most Republican districts (CD-1, 3, 4, 11, 12, and 14) within the enacted congressional plan and the 1,000 computer-simulated plans. For all six districts, the enacted congressional plan district is a partisan outlier; the enacted congressional plan's district is more heavily Republican than over 95% of its counterpart districts in the 1,000 computer-simulated plans, with three being more heavily Republican than 100% of their counterpart districts. PX482 at 28 ¶41; PX488

449. These six enacted congressional plan districts, CD-1, 3, 4, 11, 12, and 14, are more heavily Republican than nearly all of their counterpart computer-simulated plan districts because the five most partisan-extreme districts in the enacted congressional plan, CD-5, 6, 9, 10, and 13, are more heavily Democratic than nearly all of their counterpart districts in the computer-simulated plans. *Id.*

450. Based on these findings, Dr. Chen identified the enacted congressional plan's six most moderate districts, CD-1, 3, 4, 11, 12, and 14 as partisan statistical outliers. PX482 at 28-29 ¶¶42-43. Each of these six districts has a Republican vote share that is higher than over 95% of the computer-simulated districts. *Id.* He also concluded that the four most extreme districts in the enacted congressional plan in terms of partisanship, CD-6, 9, 10, and 13, are partisan statistical outliers. *Id.* Each of these four districts has a Republican vote share that is lower than at least 99.7% of the computer-simulated districts. *Id.* CD-5 likewise is a partisan statistical outlier, containing more Democratic voters than 95.9% of the computer-simulated districts. PX482 at Figure 4. Dr. Chen thus concluded that overall, eleven individual districts in the enacted congressional plan are extreme statistical outliers, exhibiting partisan characteristics that are rarely or never observed in the computer-simulated plan districts. *Id.* at 23 ¶34; *id.* at 29 ¶44.

451. The Court finds that the enacted congressional plan contains 11 districts, CD-1, 3, 4, 5, 6, 9, 10, 11, 12, 13, and 14, that are partisan outliers, which cannot be explained by

adherence to the Adopted Criteria. The Court finds that these enacted congressional districts have partisan compositions that would not have arisen under a map-drawing process that adhered to the Adopted Criteria. The Court finds this to be evidence that the enacted congressional plan was intentionally designed to give Republicans a partisan advantage.

452. The enacted congressional plan’s ten most-Republican districts exhibit a significantly narrower range of partisanship than is exhibited by the ten most-Republican districts in each of the computer-simulated plans. PX482 at 30 ¶46. Specifically, the enacted congressional plan’s ten most-Republican districts all have Republican vote shares within the narrow range of 52.9% to 61.2%. *Id.* at 29 ¶45. Dr. Chen refers to these districts as “Mid-Range Republican Districts,” meaning they favor Republican candidates within this narrow range. *Id.*

453. The creation of ten Mid-Range Republican Districts is an outcome that never occurs in the computer-simulated plans and is therefore an extreme statistical outlier. PX482 at 30 ¶46. Instead, virtually all of the simulated plans contain from two to six Mid-Range Republican Districts, with the most common outcome among the simulations being four such districts. *Id.* Based on this, Dr. Chen concluded that the enacted congressional plan is an extreme partisan outlier in terms of maximizing the number of Mid-Range Republican Districts, and that the enacted congressional plan did so to an extreme degree far beyond any of the 1,000 simulated plans created using a partisan-blind computer algorithm that follows the Adopted Criteria. *Id.*; see PX489.

454. The enacted congressional plan’s maximization of Mid-Range Republican Districts necessarily results in fewer competitive districts. PX482 at 30 ¶47. The enacted congressional plan contains zero districts in which the Republican vote share is within 5% of the Democratic vote share. *Id.* Dr. Chen labels districts within this range as “Competitive Districts.” The enacted congressional plan contains no Competitive Districts as measured

using the Statewide Election Composite. *Id.* at 30 ¶48. Only about 5% of the 1,000 simulated plans fail to have a single Competitive District, and the vast majority of the computer-simulated plans contain two or more such districts. *Id.*; *see* PX490.

455. Dr. Chen’s analysis of Mid-Range Republican and Competitive Districts is evidence of the intent and effects of Legislative Defendants’ pro-Republican partisan redistricting. Dr. Chen’s analysis of Mid-Range Republican and Competitive Districts is evidence that the enacted congressional plan was designed specifically to ensure that Republicans can efficiently and consistently win at least ten congressional seats and that Democrats are packed into the remaining districts. The frequency of Mid-Range Republican and Competitive Districts in the enacted congressional plan would not have occurred under a map-drawing process that adhered to the Adopted Criteria, and the Court finds this to be evidence that the enacted congressional plan was intentionally designed to give Republicans a partisan advantage.

456. Dr. Chen also analyzed the number of total Republican-favoring districts in the enacted congressional plan, which are defined as a district having greater than 50% Republican vote share as measured using the Statewide Election Composite. PX482 at 32 ¶50; Figure 7. While the enacted congressional plan has 10 Republican districts, only 3% of the computer-simulated plans create 10 Republican-favoring districts, and no computer-simulated plan ever creates more than 10 Republican districts. *Id.*

457. Based on these results, in terms of the total number of Republican-favoring districts created by the plan, the enacted congressional plan is a statistical outlier when compared to the 1,000 computer-simulated plans. *Id.* at 32 ¶51. The enacted congressional plan creates the maximum number of Republican districts that ever occurs in any computer-simulated plan, and more Republican districts than 97% of the computer-simulated plans,

which were drawn using a non-partisan districting process adhering to the Adopted Criteria. *Id.*; see PX491.

458. Dr. Chen also measured the number of Republican districts that would exist under his simulated plans and the enacted congressional plan under a variety of electoral environments. PX482 at 34 ¶54; *id.* at 86-95; PX513-522 (Figures B1-B10). The ten individual elections in the Statewide Election Composite showed a range of different electoral outcomes, ranging from a Republican vote share of 47.7% to 53.3%. *Id.* at 86-95, PX513-522. Across this range of electoral environments, the enacted congressional plan always creates a 10-4 distribution of seats in favor of Republican candidates. *Id.* at 34 ¶54. Based on this, the enacted congressional plan's 10-4 distribution is durable across a range of electoral conditions. *Id.*

459. Dr. Chen's analysis of the enacted congressional plan under various electoral outcomes is evidence that the enacted congressional plan was designed specifically to ensure that Democrats cannot win more than four congressional seats under any reasonably foreseeable electoral environment. The number of Republican-leaning districts in the enacted congressional plan would be lower under a map-drawing process that adhered to the Adopted Criteria. The Court finds this to be evidence that the enacted congressional plan was intentionally designed to give Republicans a partisan advantage.

460. Dr. Chen also examined the enacted congressional plan as compared to the simulated plans under a variety of methods redistricting scholars commonly use to compare the relative partisan bias of different districting plans.

461. First, Dr. Chen examined the enacted congressional plan's mean-median difference and compared it to the simulated plans. PX482 at 36 ¶59. A plan's mean-median difference is calculated as the mean district-level Republican vote share, minus the median district-level Republican vote share. *Id.* at 35 ¶57.

462. The mean-median difference analysis confirms that the enacted congressional plan creates an extreme partisan outcome that cannot be explained by North Carolina’s political geography or by adherence to Adopted Criteria. PX482 at 37 ¶60; PX492.

463. Second, Dr. Chen analyzed another commonly used measure of a districting plan’s partisan bias called the efficiency gap. PX482 at 39 ¶62. The efficiency gap provides a measure of the degree to which more Democratic or Republican votes are wasted across an entire districting plan. *Id.* at 40 ¶63. The efficiency gap is calculated using the total sum of surplus votes in districts a party won and lost votes in districts where that party lost. *Id.* at 39-40 ¶62. Dr. Chen found that the enacted congressional plan exhibits an efficiency gap of 19.5%, indicating that the plan results in far more wasted Democratic votes than wasted Republican votes. PX482 at 40-41 ¶66; PX493.

464. The efficiency gap analysis confirms that the enacted congressional plan creates an extreme partisan outcome that cannot be explained by North Carolina’s political geography or the Adopted Criteria. *Id.*

465. Third, Dr. Chen analyzed another commonly used measure of a districting plan’s partisan bias called the lopsided margins test. PX482 at 43 ¶67. The basic premise of the lopsided margins measure is that a partisan-motivated map-drawer may attempt to pack the opposing party’s voters into a small number of extreme districts that are won by a lopsided margin. *Id.* Dr. Chen compared the enacted congressional plan’s lopsided margins measure with the computer simulated plans and found that the simulated plans all have a smaller lopsided margins measure than the enacted congressional plan. PX482 at 44 ¶70; PX494.

466. The enacted congressional plan is an extreme outlier compared to the simulated plans on the lopsided margins measure, and the enacted congressional plan’s

packing of Democrats into Democratic-favoring districts was not simply the result of North Carolina’s political geography, combined with adherence to the Adopted Criteria. *Id.* at ¶71.

467. Fourth, Dr. Chen analyzed another common measure of partisan bias in a districting plan based on the concept of partisan symmetry. PX482 at 46 ¶72. This analysis, which Dr. Chen calls “partisan symmetry based on uniform swing,” examines what share of seats a party would win under the enacted congressional plan in a hypothetical tied election. *Id.*

468. Based on the results of this analysis, the enacted congressional plan creates a durable Republican majority for North Carolina’s congressional delegation, such that even when Democrats win 50% of the statewide vote, Republicans will still be favored in 10 out of 14 (71.4%) of the congressional districts, while Democrats will only be favored in 4 out of the 14 (28.6%) districts. *Id.* at 47 ¶76; PX495.

469. Based on Dr. Chen’s overall statewide conclusions based on his computer simulations, the Court adopts these conclusions and finds that the enacted congressional plan subordinates the Adopted Criteria and traditional redistricting criteria for partisan advantage.

(iii) Analysis of Whether the Congressional Plan is a Statistical Partisan Outlier at the Regional Level

470. In addition to the above statewide analyses, Dr. Chen also examined the extent to which partisan bias affected the map-drawing process within specific cities and regions of the state. PX482 at 50 ¶79. Dr. Chen found, and the Court so finds, that the enacted congressional plan’s districts in each region examined exhibit political bias when compared to the computer-simulated districts in the same regions. *Id.*

471. Dr. Chen first examined the Piedmont Triad area. The enacted congressional plan splits Guilford County into three different districts: CD-7, 10, and 11. PX482 at 50 ¶80.

These three fragments of Guilford County voted solidly Democratic in recent statewide elections but were each combined with more Republican areas in surrounding counties across the Piedmont Triad area. *Id.* This splitting results in CD-7, 10, and 11 being safely Republican, each with a Republican vote share between 55.9% and 61.2%. *Id.*

472. The enacted congressional plan cracked Democratic voters in the region to a greater extent than virtually all of the computer-simulated plans. PX482 at 50 ¶81 - 54 ¶81. The enacted congressional plan achieved this result by creating districts that are significantly less compact than virtually all of the Guilford County districts in the computer-simulated plans. *Id.*; see PX496. The vast majority (75.6%) of simulated plans did not split Guilford County a single time, and if the County was split, it was usually split only once. PX497.

473. The Court finds that the three-way splitting of Guilford County and resulting creation of three safe Republican districts in the Piedmont Triad area could not have resulted naturally from the region’s political geography or the districting principles required by the Adopted Criteria.

474. Dr. Chen next conducted similar analyses of the districts in the Research Triangle. PX482 at 56 ¶ 88; PX498. In this area of the state, the enacted congressional plan’s Raleigh-based district (CD-5) and Durham-based district (CD-6) are more heavily packed with Democrats than almost 100% of the simulated districts containing Raleigh and Durham. *Id.* CD-5 and CD-6 are also less geographically compact than nearly 100% of the computer-simulated districts containing Raleigh and Durham. PX482 at 56 ¶ 89; PX499.

475. Because the enacted congressional plan packs Democratic voters into CD-5 and CD-6, the surrounding districts are more safely Republican than they would have been in the absence of such packing. PX482 at 56 ¶ 90; PX499. CD-7 is a partisan outlier that was enabled by the packing of Democratic voters in CD-5 (Raleigh) and CD-6 (Durham). *Id.*

476. The Court finds that the enacted congressional plan packs Democrats in its Raleigh-based and Durham-based districts by subordinating geographic compactness in the drawing of CD-5 and CD-6, and this could not have resulted naturally from the region’s political geography or the districting principles required by the Adopted Criteria.

477. Finally, Dr. Chen examined Mecklenburg County. PX482 at 60 ¶91; PX500. The enacted congressional plan’s CD-9 is more heavily Democratic than 100% of the simulated plans’ districts containing the most of Charlotte. *Id.* As a result, the surrounding suburban districts in the enacted congressional plan, including CD-13 in Northern Mecklenburg County and CD-8 in Eastern Mecklenburg County, are more safely Republican than their geographic counterparts in all of the computer-simulated plans. PX482 at 60 ¶92-93.

478. Based on this data, the enacted congressional plan packed Democrats in Mecklenburg County to an extent greater than what naturally occurs as a result of the area’s political geography. PX482 at 60 ¶94.

479. The Court finds that the enacted congressional plans created a Charlotte district that is more heavily Democratic than what could be expected from a partisan-blind map-drawing process, and this could not have resulted naturally from the region’s political geography or the districting principles required by the Adopted Criteria.

480. The Court finds that the packing and cracking of Democrats in the Piedmont Triad Area, the Research Triangle Area, and Mecklenburg County could not have resulted naturally from the region’s political geography or the districting principles required by the Adopted Criteria. The enacted congressional map was therefore designed in order to accomplish the legislature’s predominant partisan goals.

(iv) Effect of Political Geography

481. Political geography can create a natural advantage for Republicans in Republican vote share in suburban and rural districts, where for example, Democratic voters are clustered in urban areas because of the common districting principle of drawing geographically compact districts. *Id.* at 63 ¶95. But Dr. Chen programmed a computer algorithm that drew simulated plans using North Carolina’s unique political geography. *Id.* 63, ¶96. As Dr. Chen, explained “the entire premise of conducting districting simulations is to fully account for North Carolina’s unique political geography, its political subdivision boundaries, and its districting criteria, as mandated by the Adopted Criteria.” *Id.* Thus, the simulation analysis allowed Dr. Chen to identify how much of the electoral bias in the enacted congressional plan is caused by North Carolina’s political geography and how much is caused by the map-drawer’s intentional efforts to favor one political party over the other. *Id.* at 63-64 ¶97.

482. The Court finds that the enacted congressional plan’s partisan bias goes beyond any “natural” level of electoral bias caused by North Carolina’s political geography or the political composition of the state’s voters, *Id.* at 64 ¶98, and this additional level of partisan bias in the enacted congressional plan can be directly attributed to the map-drawer’s intentional efforts to favor the Republican Party, *Id.* at 64 ¶100.

483. Additional, district-specific findings in addition to those made above are as follows:

b. Individual Congressional Districts

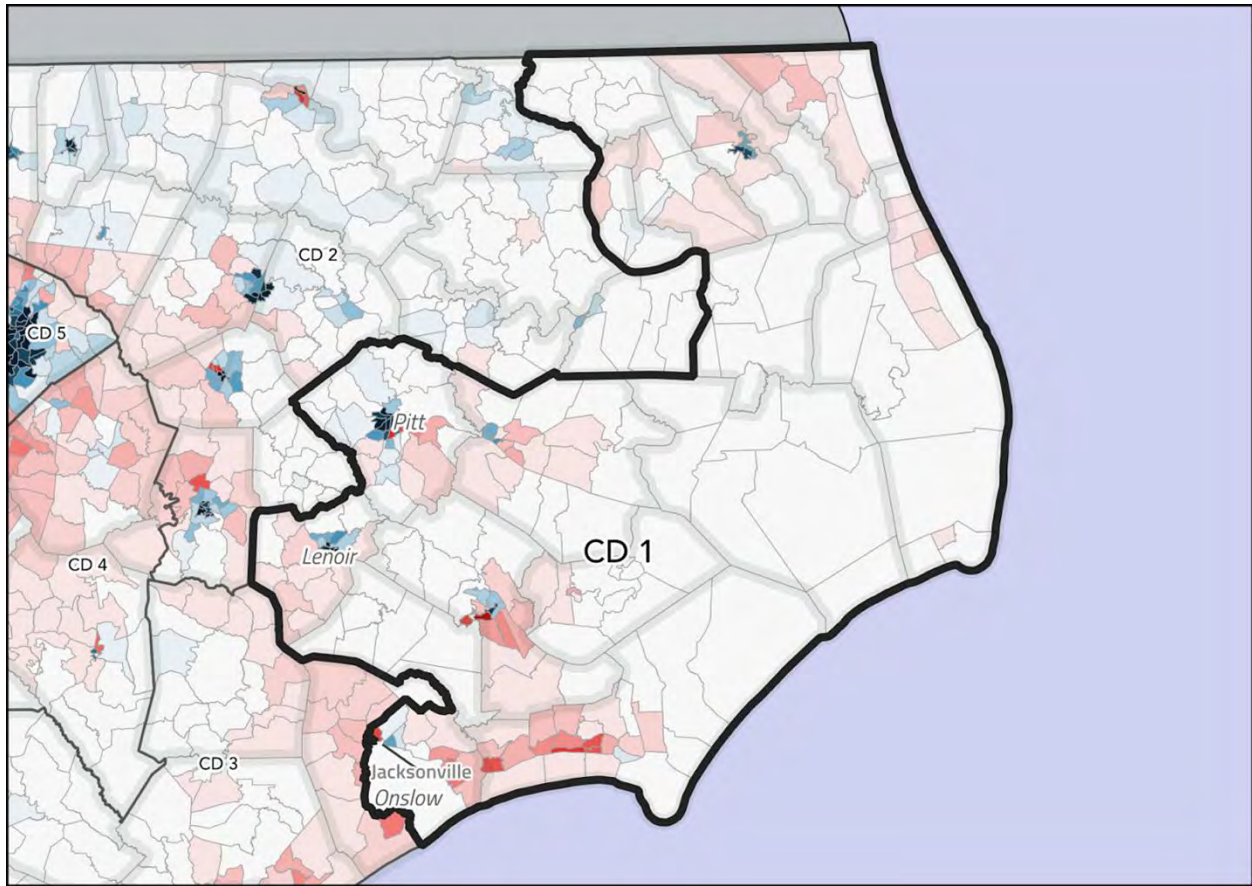
(i) Congressional District No. 1 (“CD1”)

484. CD1 is comprised of Beaufort County, Camden County, Carteret County, Chowan County, Craven County, Currituck County, Dare County, Gates County, Hyde County, Jones County, Lenoir County, Pamlico County, Pasquotank County, Perquimans County, Tyrrell County, portions of Onslow County, and portions of Pitt County. Harper Plaintiffs challenge this congressional district as the product of unlawful partisan gerrymanders.

485. Individual Harper Plaintiffs Amy Clare Oseroff and Donald Rumph reside in and challenge CD1.

486. CD1 is in the northeastern corner of the state and includes part of the former CD1 and CD3. PX425 at 21. As Dr. Cooper’s reported and his map illustrates, Legislative Defendants included the Democratic-leaning areas of Pitt County within CD1, allowing for a greater Republican advantage in bordering CD2, to the west. *Id.*

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PX440 (Cooper Map 5)

487. CD1 is likely to elect a Republican candidate based on a calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within CD1, as well as other measures. PX425 at 21.

488. The Court finds this congressional district, CD1, to be the result of intentional, pro-Republican partisan redistricting.

(ii) Congressional District No. 2 (“CD2”)

489. CD2 is comprised of Bertie County, Caswell County, Edgecombe County, Franklin County, Granville County, Greene County, Halifax County, Hertford County, Martin County, Nash County, Northampton County, Person County, Vance County, Warren County, Washington County, Wilson County, portions of Pitt County, and portions of Wayne

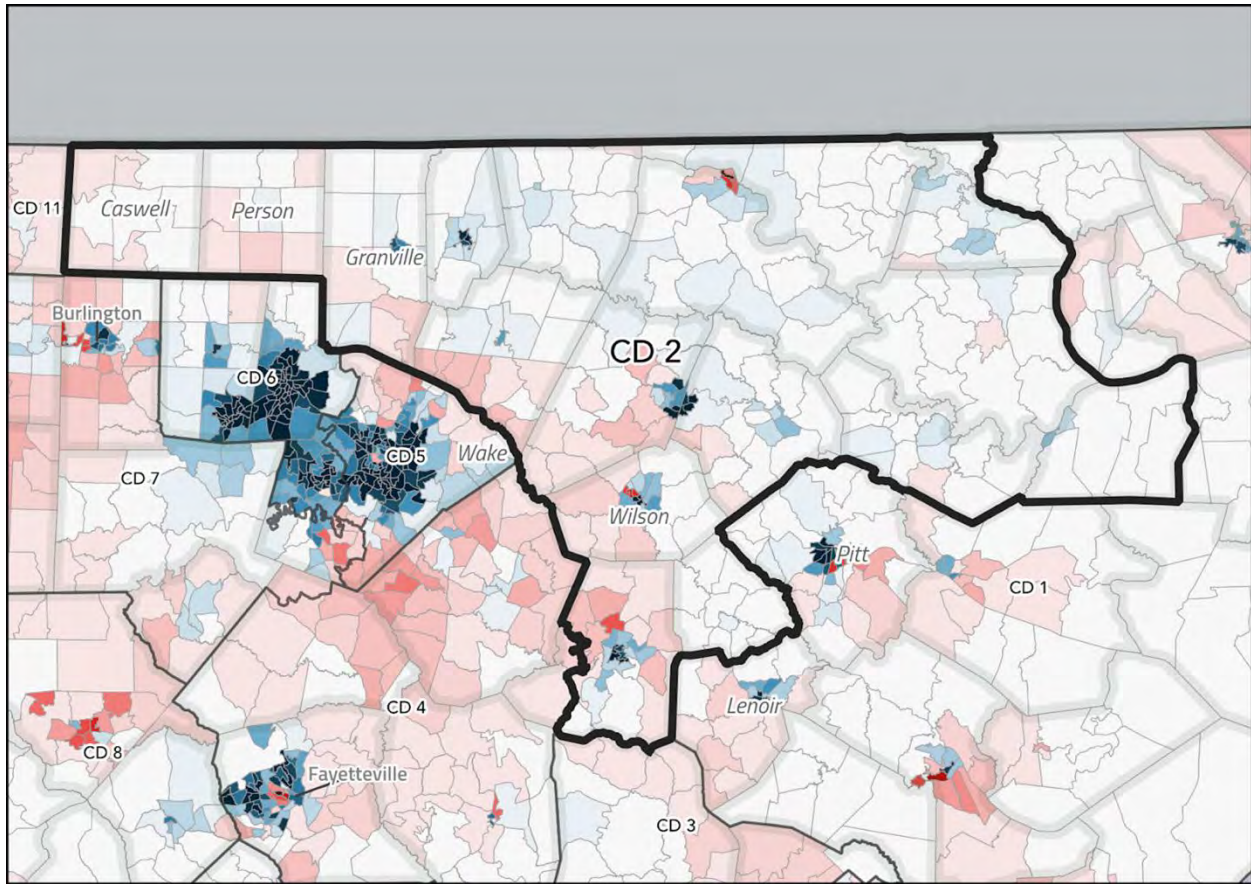
County. Plaintiffs challenge this congressional district as the product of unlawful partisan gerrymanders.

490. Individual Harper Plaintiffs Laureen Flood, Bobby Jones, and Kristiann Herring reside in and challenge CD2. Organizational Plaintiff Common Cause challenges CD2 as well.

491. CD2 stretches from Albemarle Sound, in the east, to the Raleigh-Durham-Chapel Hill metropolitan area and includes Caswell County, northeast of Greensboro, to the west. Washington County and Caswell County have never been paired together in a congressional map in North Carolina’s history, no matter which political party was in charge. PX425 at 23; Trial Tr. 01/03/2022.

492. CD2 includes the “core” of former CD1, as well as portions of the former CD4 and CD13. While the former CD1 previously included Pitt County, home to East Carolina University in Greenville, CD2 does not include Pitt County. PX425 at 21-23.

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PX441 (Cooper Map 6)

493. CD2 is now a “competitive” district based on a calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within CD2, as well as other measures. PX425 at 23. CD2 is “the lone competitive district in the state of North Carolina under the Enacted Maps.” Trial Tr. 01/03/2022.

494. Most of the area that comprises CD2 is represented by Democrat G.K. Butterfield in a Democratic-leaning district. Representative Butterfield, who is the longest serving member of North Carolina’s congressional delegation, announced that he will not seek re-election after the 2021 Congressional Plan was enacted. PX425 at 23.

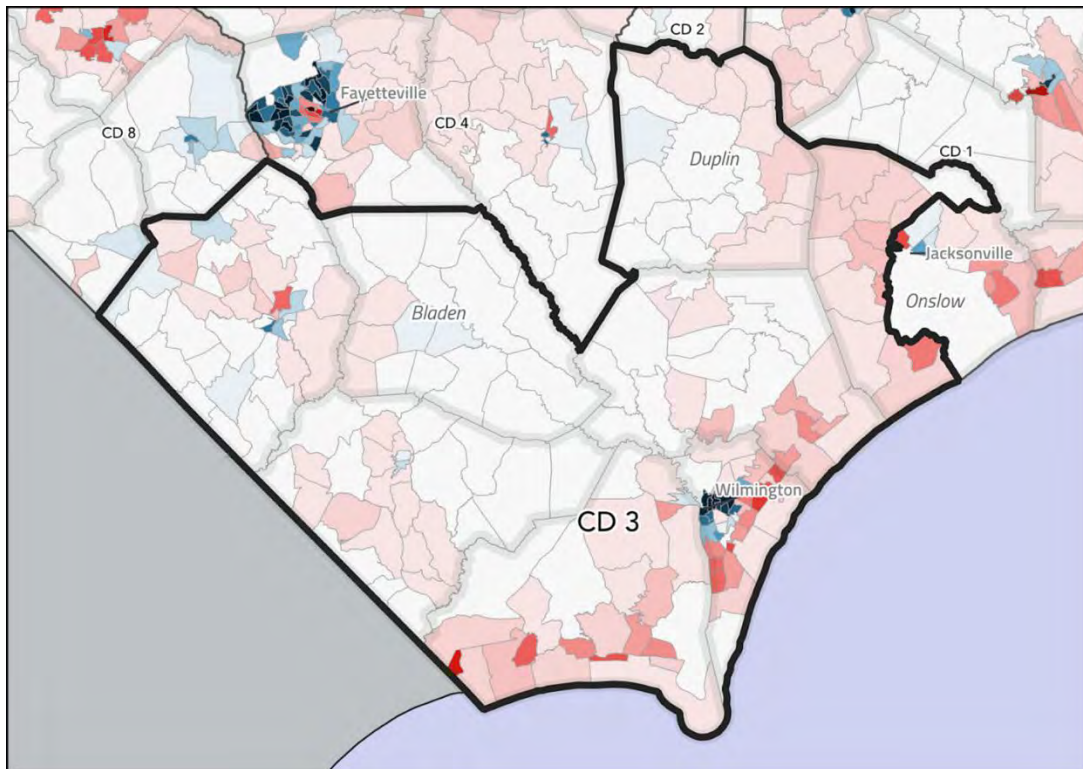
495. The Court finds this congressional district, CD2, to be the result of intentional, pro-Republican partisan redistricting.

(iii) Congressional District No. 3 (“CD3”)

496. CD3 is comprised of Bladen County, Brunswick County, Columbus County, Duplin County, New Hanover County, Pender County, portions of Onslow County, and portions of Robeson County. Plaintiffs challenge this congressional district as the product of unlawful partisan gerrymanders.

497. Individual Harper Plaintiff Eileen Stephens resides in and challenges CD3. Organizational Plaintiff NCLCV challenges CD3 as well.

498. CD3 combines portions of the Sandhills, on its western boundary, with the coastal enclave in and around Wilmington and a piece of Onslow County, in the east. CD3 includes portions of three former districts: CD3, CD7, and CD9. PX425 at 25.



PX442 (Cooper Map 7)

499. CD3 is likely to elect a Republican candidate based on a calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within CD3, as well as other measures. PX425 at 25.

500. The Court finds this congressional district, CD3, to be the result of intentional, pro-Republican partisan redistricting.

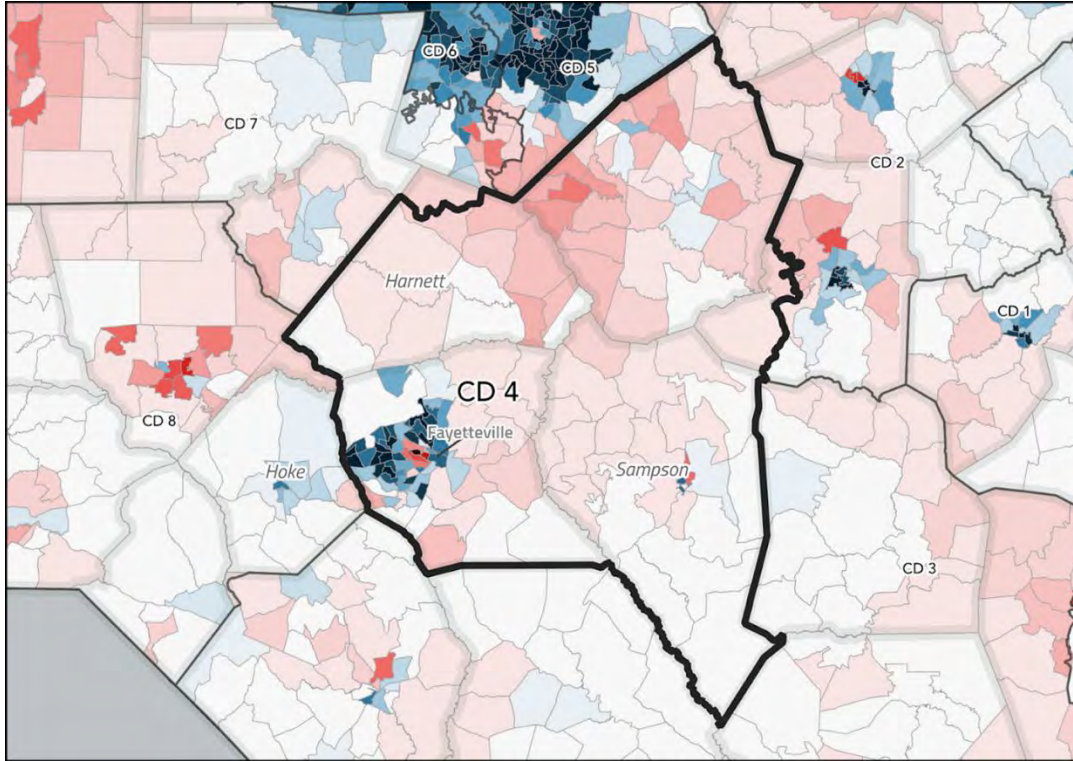
(iv) Congressional District No. 4 (“CD4”)

501. CD4 is comprised of Cumberland County, Johnston County, Sampson County, portions of Harnett County, and portions of Wayne County. Plaintiffs challenge this congressional district as the product of unlawful partisan gerrymanders.

502. Individual NCLCV Plaintiff Reverend Reginald Wells and Individual Harper Plaintiffs Gettys Cohen, Jr. and Sarah Taber reside in and challenge CD4. Organizational Plaintiff NCLCV and Organizational Plaintiff Common Cause challenge CD4 as well.

503. CD4 contains portions of the Sandhills, including Cumberland and Johnston counties along with parts of Harnett and Wayne counties. CD4’s boundaries thereby combine the Democratic-leaning areas in Fayetteville with Republican-leaning areas that were in the former CD7 and CD8. PX425 at 27.

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PX443 (Cooper Map 8)

504. CD4 does not contain the residence of an incumbent congressional representative. CD4 is likely to elect a Republican candidate based on a calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within CD4, as well as other measures. PX425 at 27.

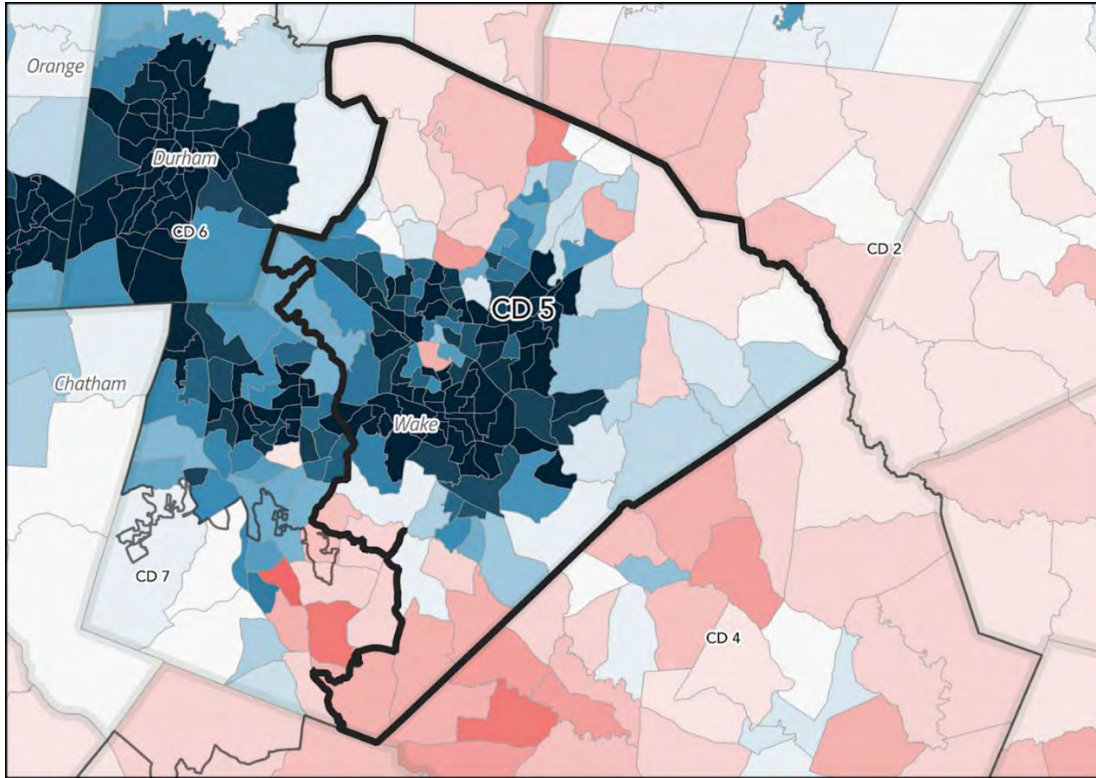
505. The Court finds this congressional district, CD4, to be the result of intentional, pro-Republican partisan redistricting.

(v) Congressional District No. 5 (“CD5”)

506. CD5 is comprised of portions of only Wake County. Plaintiffs challenge this congressional district as the product of unlawful partisan gerrymanders.

507. Individual Harper Plaintiff John Anthony Balla resides in and challenge CD5. Organizational Plaintiff NCLCV and Organizational Plaintiff Common Cause challenge CD5 as well.

508. CD5 sits entirely within Wake County and is one of the three districts that includes a part of that county. Trial Tr. 01/03/2022. It is made up of portions of former CD2 and CD4 and packs the Democratic voters in these heavily-Democratic areas into one district, increasing the probability that Republican candidates will win in the adjacent districts. PX425 at 29.



PX444 (Cooper Map 9)

509. CD5 is likely to elect a Democratic candidate based on a calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within CD5, as well as other measures. PX425 at 29.

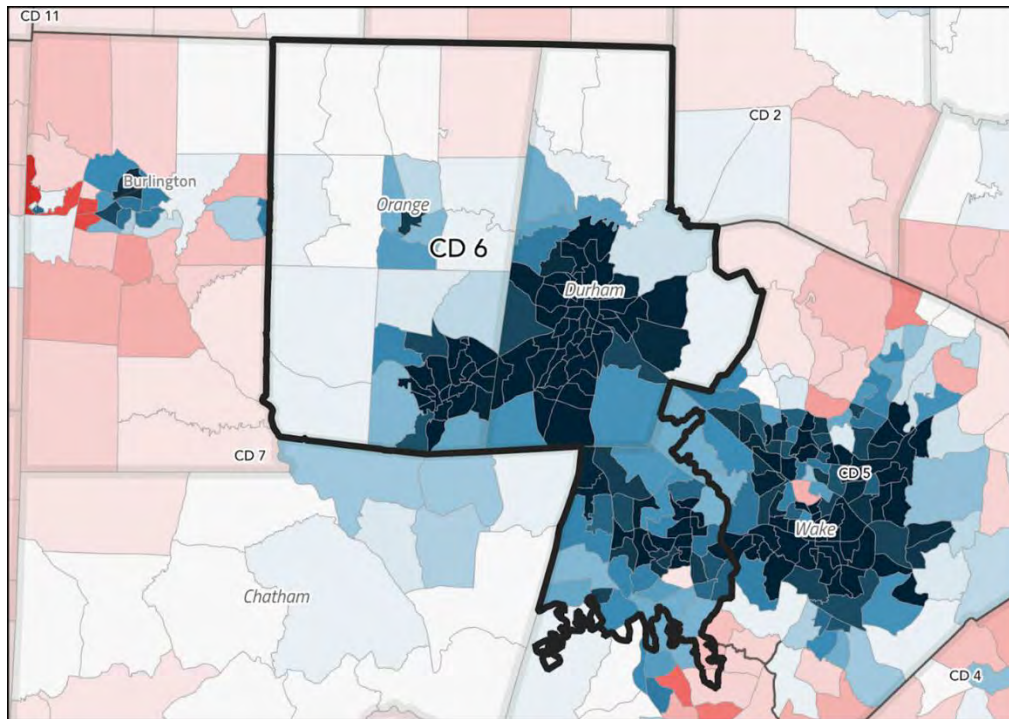
510. The Court finds this congressional district, CD5, to be the result of intentional, pro-Republican partisan redistricting.

(vi) Congressional District No. 6 (“CD6”)

511. CD6 is comprised of Durham County, Orange County, and portions of Wake County. Plaintiffs challenge this congressional district as the product of unlawful partisan gerrymanders.

512. Individual NCLCV Plaintiffs Henry M. Michaux, Jr. and Katherine Newhall and Individual Harper Plaintiffs Rebecca Harper and Sondra Stein reside in and challenge CD6. Organizational Plaintiff NCLCV and Organizational Plaintiff Common Cause challenge CD6 as well.

513. CD6 is another district including parts of Wake County and combines portions of the former CD4 and CD2.



PX445 (Cooper Map 10)

514. CD6 is a really good example of packing Democratic voters across multiple counties and adds a greater proportion of Democratic voters into a single district than any district from the former congressional plan, increasing the probability that Republicans can

win in the adjacent districts. There are only four marginally Republican-leaning VTDs in CD6. PX425 at 31; Trial Tr. 01/03/2022.

515. CD6 is likely to elect a Democratic candidate based on his calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within CD6, as well as other measures. PX425 at 31.

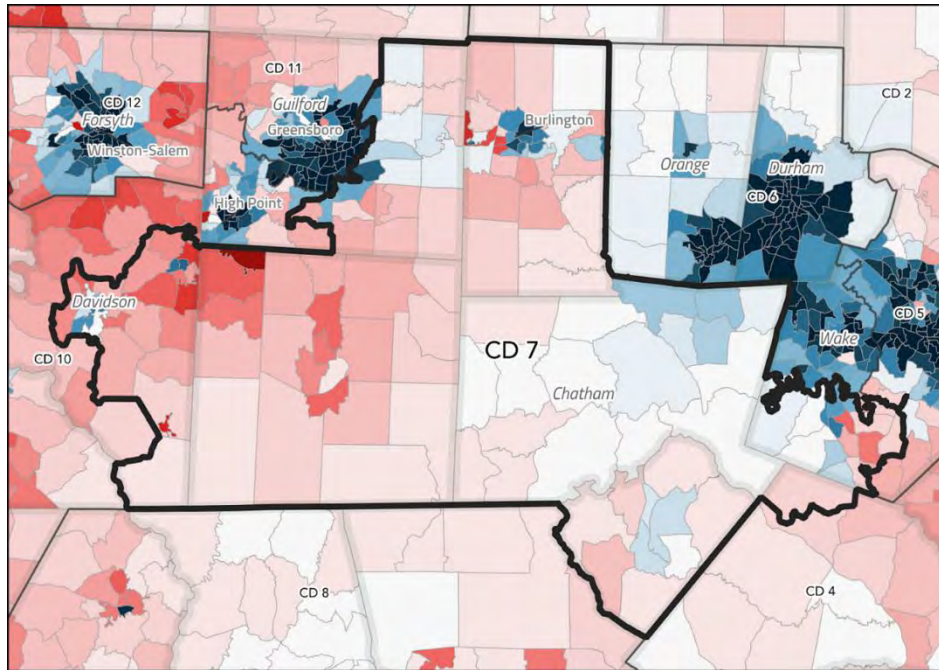
516. The Court finds this congressional district, CD6, to be the result of intentional, pro-Republican partisan redistricting.

(vii) Congressional District No. 7 (“CD7”)

517. CD7 is comprised of Alamance County, Chatham County, portions of Davidson County, portions of Guilford County, portions of Harnett County, Lee County, Randolph County, and portions of Wake County. Plaintiffs challenge this congressional district as the product of unlawful partisan gerrymanders.

518. Individual Harper Plaintiffs Lily Nicole Quick and Ron Osborne reside in and challenge CD7. Organizational Plaintiff NCLCV and Organizational Plaintiff Common Cause challenge CD7 as well.

519. CD7, one of three districts to include parts of Guilford county. is made up of portions of former CD2, CD4, CD6, and CD13. The boundaries of CD7 split Guilford and Wake counties but do not include the most Democratic-leaning VTDs in those counties within the district. PX425 at 33.



PX446 (Cooper Map 11)

520. CD7 leans heavily towards the Republican Party and is going to be a Republican district as a result of how this district is drawn alongside CD6. Trial Tr. 01/03/2022. CD7 is likely to elect a Republican candidate based on a calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within CD7, as well as other measures. PX425 at 33.

521. Because District 7 is drawn to include several heavily Republican counties while carefully avoiding concentrations of Democratic voters, the result is a district that will reliably elect Republicans to office; in Dr. Duchin’s analysis of 52 elections, District 7 never once elects a Democrat. PX201 “SL-174” A8:BA8.

522. As a result of packing in Congressional District 6, and cracking in Guilford County, District 7 is less compact. District 7 has a Polsby-Popper compactness score of only 0.20 (on a scale of 0 to 1, where 1 is the most compact). PX150 at 14. It was not necessary to trisect Wake County in this manner.

523. The Court finds this congressional district, CD7, to be the result of intentional, pro-Republican partisan redistricting.

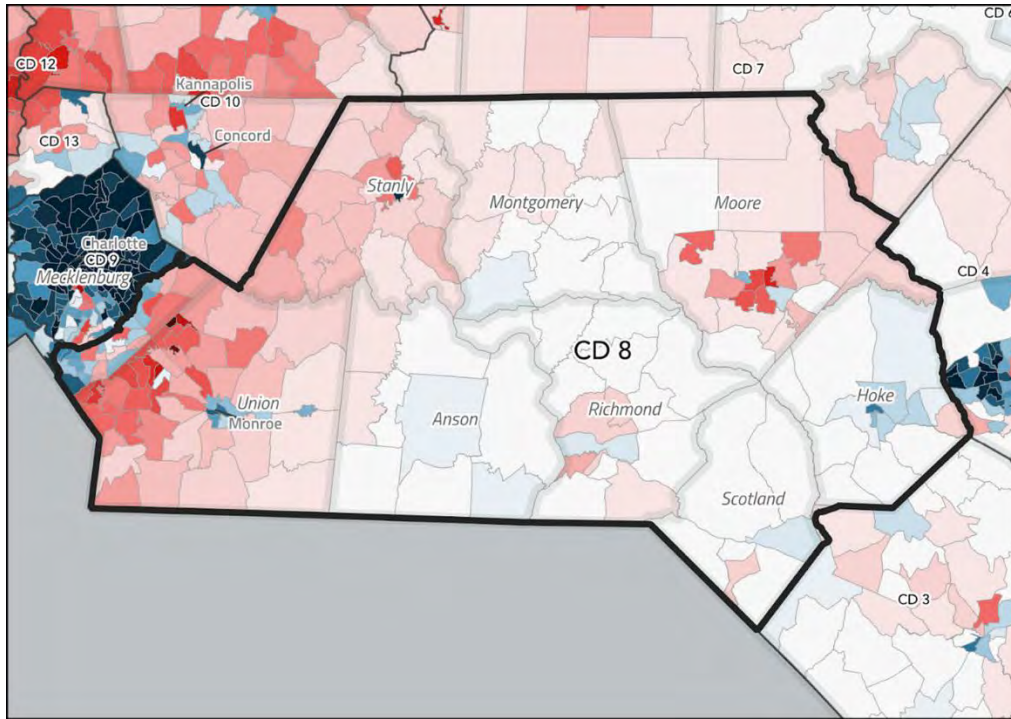
(viii) Congressional District No. 8 (“CD8”)

524. CD8 is comprised of Anson County, Hoke County, portions of Mecklenburg County, Montgomery County, Moore County, Richmond County, portions of Robeson County, Scotland County, Stanly County, and Union County. Plaintiffs challenge this congressional district as the product of unlawful partisan gerrymanders.

525. Individual Harper Plaintiff Barbara Proffitt resides in and challenges CD8. Organizational Plaintiff NCLCV and Organizational Plaintiff Common Cause challenge CD8 as well.

526. CD8 includes portions of the Sandhills, stretching from the eastern side of Mecklenburg County, in the west, to include Hoke and Scotland counties, in the east. It is one of three districts to contain portions of Mecklenburg County and is made up of portions of former CD8, CD9, and CD12. CD8’s western boundary splits Mecklenburg County in such a way that the most Democratic-leaning VTDs within that county fall outside of CD8. PX425 at 35.

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PX447 (Cooper Map 12)

527. CD8 is likely to elect a Republican candidate based on his calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within CD8, as well as other measures. PX425 at 35.

528. The Court finds this congressional district, CD8, to be the result of intentional, pro-Republican partisan redistricting.

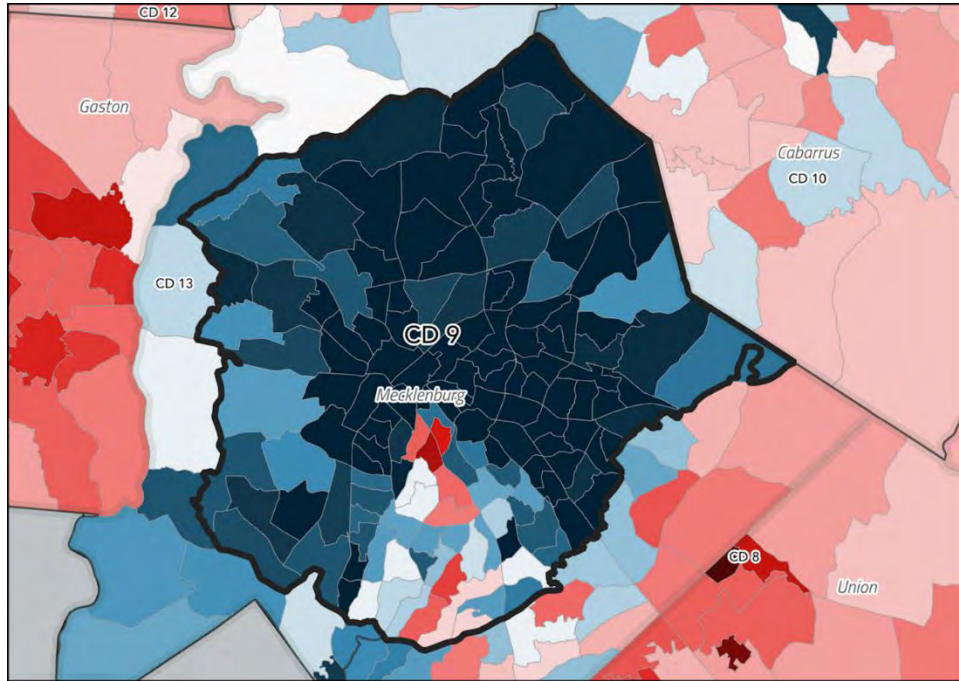
(ix) Congressional District No. 9 (“CD9”)

529. CD9 is comprised of portions of only Mecklenburg County. Plaintiffs challenge this congressional district as the product of unlawful partisan gerrymanders.

530. Individual Harper Plaintiff Virginia Walters Brien resides in and challenges CD9. Organizational Plaintiff NCLCV and Organizational Plaintiff Common Cause challenge CD9 as well.

531. CD9, one of three districts to contain portions of Mecklenburg County, sits wholly within Mecklenburg County and includes portions of the former CD9 and CD12. CD9

packs the most-Democratic VTDs in Mecklenburg County within one district, while most Republican-leaning and competitive VTDs are placed outside its boundaries, in CD13 to the west and CD8 to the east, allowing those districts to be more favorable to Republican candidates. PX425 at 37.



PX448 (Cooper Map 13)

532. CD9 is likely to elect a Democratic candidate based on his calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within CD9, as well as other measures. PX425 at 37. Mecklenburg County need not have been fractured three times, and District 9 need not have been “packed.”

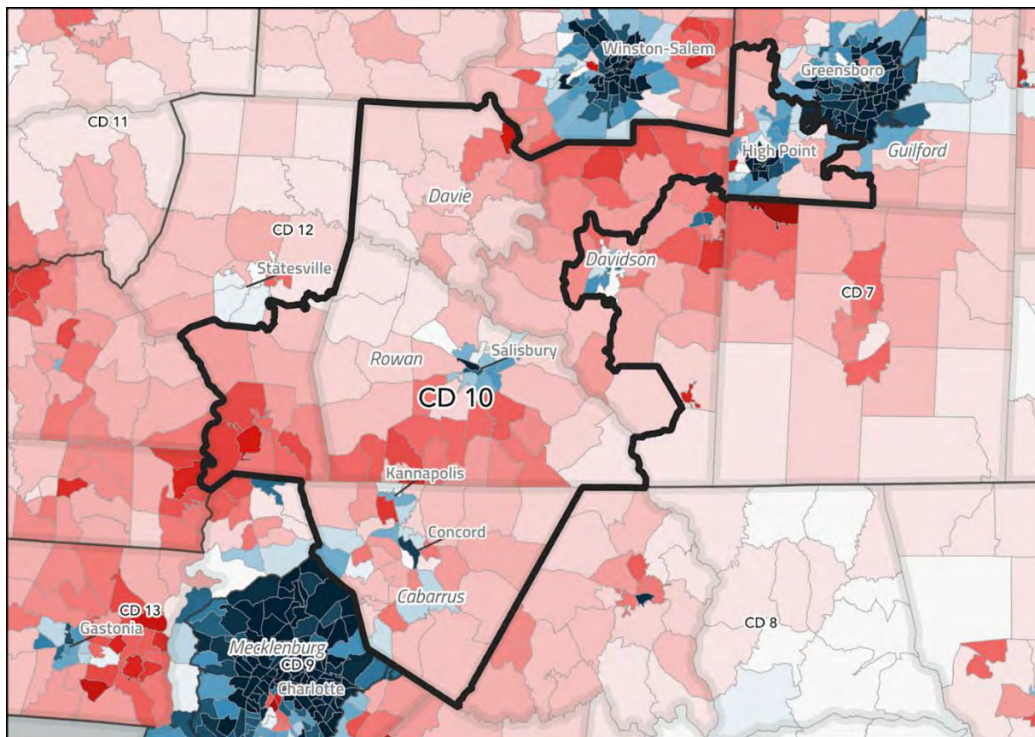
533. The Court finds this congressional district, CD9, to be the result of intentional, pro-Republican partisan redistricting.

(x) Congressional District No. 10 (“CD10”)

534. CD10 is comprised of Cabarrus County, portions of Davidson County, Davie County, portions of Guilford County, portions of Iredell County, and Rowan County. Plaintiffs challenge this congressional district as the product of unlawful partisan gerrymanders.

535. Individual Harper Plaintiffs Shawn Rush, Joshua Perry Brown, and Donald M. MacKinnon reside in and challenge CD10. Organizational Plaintiff NCLCV and Organizational Plaintiff Common Cause challenge CD10 as well.

536. CD10, one of three districts to contain portions of Guilford County, combines portions of former CD6, CD9, CD10, and CD13. PX425 at 39. CD10 includes heavily-Democratic VTDs in High Point, within Guilford County, as well as Democratic-leaning VTDs in Salisbury, Kannapolis, and Concord, in Rowan and Cabarrus counties. *Id.* at 40. But CD10 separates the Democratic voters in those areas from other pockets of Democratic voters just across CD10’s boundaries in Guilford, Forsyth, and Mecklenburg counties. *Id.*



PX449 (Cooper Map 14)

537. While North Carolina’s Piedmont Triad (High Point, Winston-Salem, and Greensboro) was previously kept together in one district (former CD6), the Piedmont Triad—and the Democratic voters there—are split across three districts, CD10, CD11, and CD12. PX425 at 39.

538. Because District 10 cuts west to avoid Democratic populations in central Davidson County and then turns 90 degrees to the south, bringing within its bounds Republican voters as distant as the suburbs of Charlotte, District 10 has a Polsby-Popper score of just 0.20. PX150 at 14.

539. The former CD6 is represented by Democrat Kathy Manning, who is now “double-bunked” with Republican Virginia Foxx in CD11, a Republican leaning district. PX425 at 4.

540. CD10 is likely to elect a Republican candidate based on a calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within CD10, as well as other measures. PX425 at 39.

541. Because of the way in which the Enacted Plan divides the county’s Democratic voters, Districts 7, 10, and 11 do not elect a Democrat in a single one of the 52 elections Dr. Duchin studied. PX201 “SL-174” A8:BA9, A11:BA11. Just as with Mecklenburg and Wake Counties, there was no need to trisect Guilford County into CD7, CD10, and CD11 in this manner.

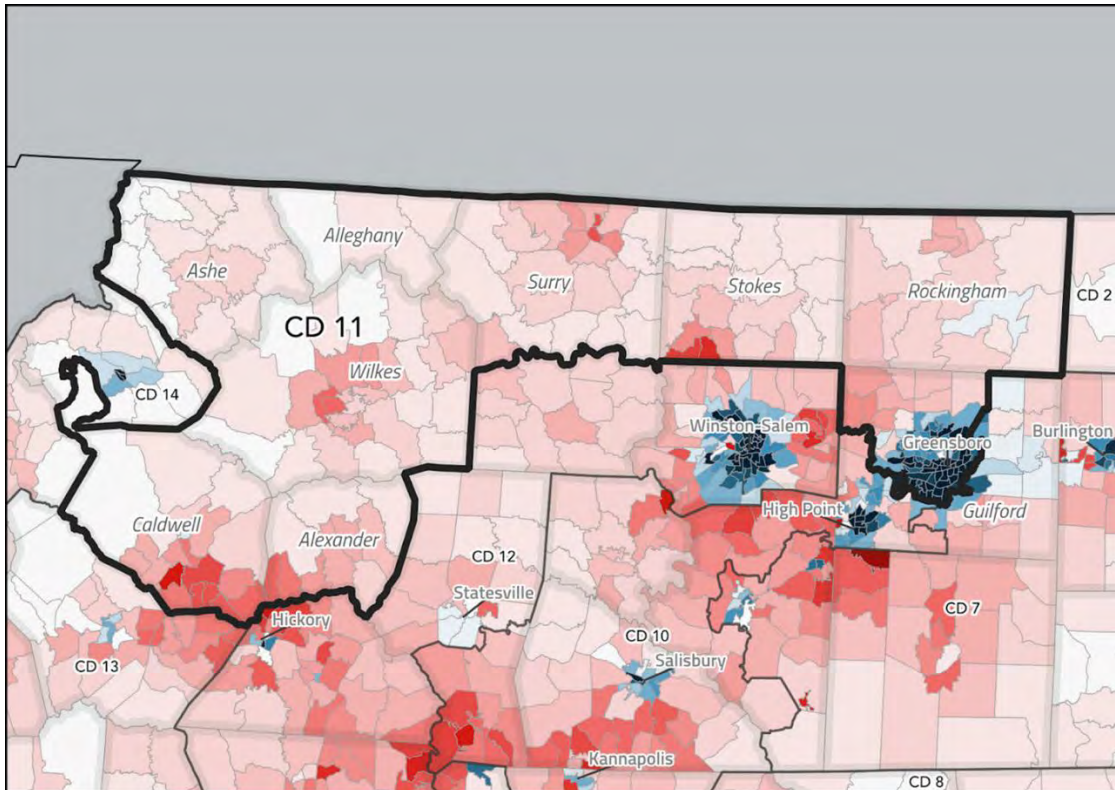
542. The Court finds this congressional district, CD10, to be the result of intentional, pro-Republican partisan redistricting.

(xi) Congressional District No. 11 (“CD11”)

543. CD11 is comprised of Alexander County, Alleghany County, Ashe County, Caldwell County, portions of Guilford County, Rockingham County, Stokes County, Surry County, portions of Watauga County, and Wilkes County. Plaintiffs challenge this congressional district as the product of unlawful partisan gerrymanders.

544. Individual NCLCV Plaintiffs Dandrielle Lewis and Talia Fernos and Individual Harper Plaintiff David Dwight Brown reside in and challenge CD11. Organizational Plaintiff NCLCV and Organizational Plaintiff Common Cause challenge CD11 as well.

545. CD11, one of three districts to contain portions of Guilford County, is made up of portions of the former CD5, CD6, and CD10. PX425 at 41.



PX450 (Cooper Map 15)

546. Caldwell County, in the west, and Rockingham, in the east, have never shared a congressional representative in the history of North Carolina. Some of the locations in CD11—particularly the “high country” areas in Watauga and Ashe counties and Greensboro, in the Piedmont—sit in different media markets, with different area codes. PX425 at 41; Trial Tr. 01/03/2022.

547. CD11 includes the Democratic-leaning VTDs in Greensboro in the same district as heavily-Republican VTDs to the north and the west in an “overwhelmingly Republican district,” thereby ensuring that Greensboro voters will not be represented by a Democrat. PX425 at 41.

548. District 11’s boundaries, by bending to avoid Forsyth County and stretching far west through Republican-majority counties all the way to the Tennessee border, result in a Polsby-Popper score of just 0.21. PX150 at 14.

549. The portion of CD11 that includes the residence of Republican incumbent Virginia Fox is a tiny sliver of Watauga County that is connected to Caldwell County by a narrow passage of land that is roughly three miles wide and requires a traverse of the Daniel Boone Scout Trail. PX425 at 41-42. This inclusion leads to a double bunking with a Republican and incumbent Democrat in another current district together in a new district that leans heavily towards the Republican Party. Trial Tr. 01/03/2022.

550. CD11 is likely to elect a Republican candidate based on a calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within CD11, as well as other measures. PX425 at 41.

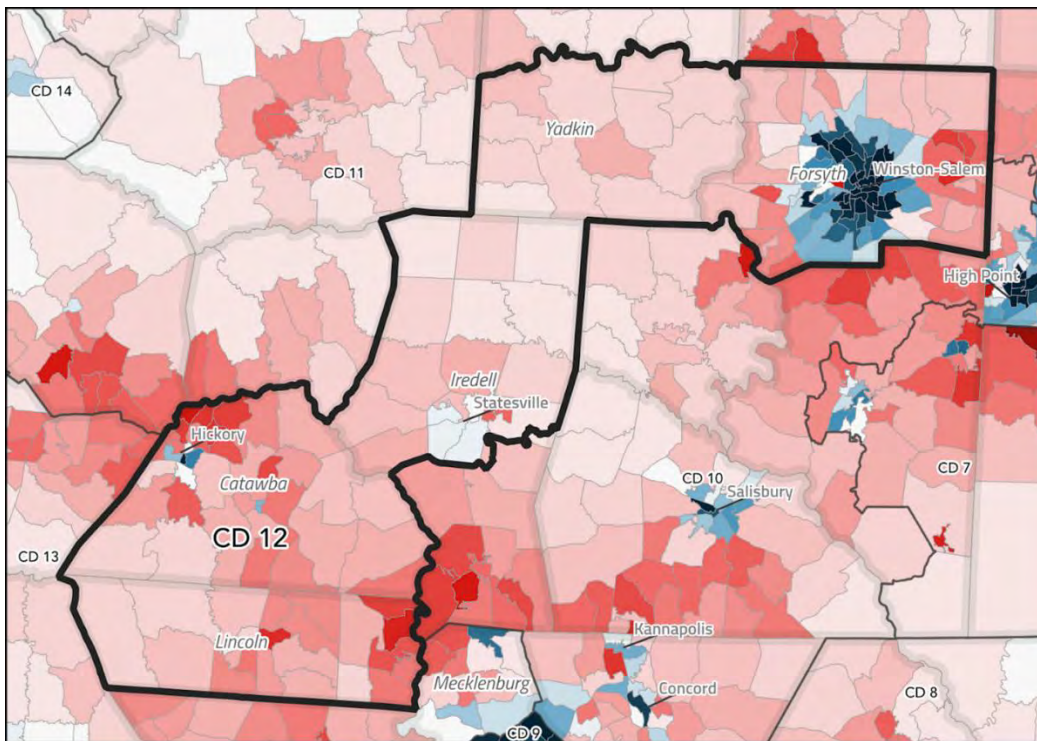
551. The Court finds this congressional district, CD11, to be the result of intentional, pro-Republican partisan redistricting.

(xii) Congressional District No. 12 (“CD12”)

552. CD12 is comprised of Catawba County, Forsyth County, portions of Iredell County, Lincoln County, and Yadkin County. Plaintiffs challenge this congressional district as the product of unlawful partisan gerrymanders.

553. Individual Harper Plaintiff Chenita Barber Johnson resides in and challenges CD12. Organizational Plaintiff NCLCV challenges CD12 as well.

554. CD12 stretches from Lincoln County, in the southwest, through Catawba, Iredell, Yadkin, and Forsyth counties, in the northeast. PX425 at 43. CD12’s boundaries separate the Democratic-leaning VTDs in Winston-Salem and the Democratic-leaning VTDs in High Point (in CD10), combining Winston-Salem with Republican-leaning VTDs further south. PX425 at 44. Republican incumbent Patrick McHenry currently resides in the southeast corner of CD12, on the other end of the district from Winston-Salem. PX425 at 43.



PX451 (Cooper Map 16)

555. CD12 is likely to elect a Republican candidate based on a calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within CD12, as well as other measures. PX425 at 43.

556. The Court finds this congressional district, CD12, to be the result of intentional, pro-Republican partisan redistricting.

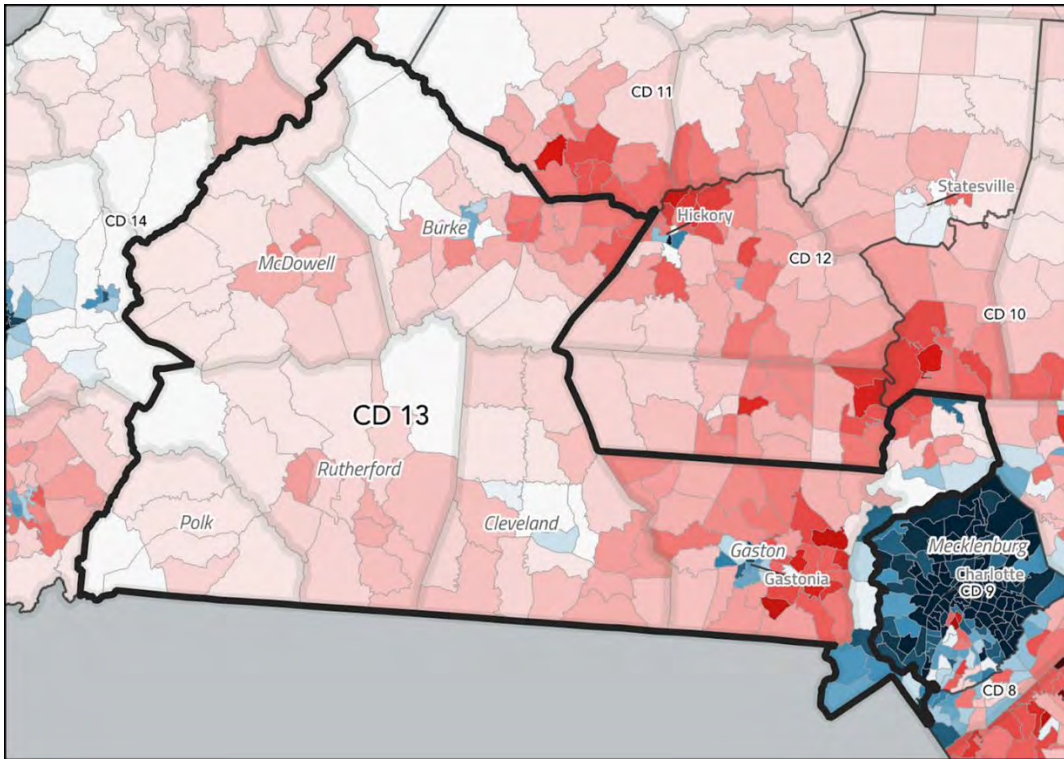
(xiii) Congressional District No. 13 (“CD13”)

557. CD13 is comprised of Burke County, Cleveland County, Gaston County, McDowell County, portions of Mecklenburg County, Polk County, and Rutherford County. Plaintiffs challenge this congressional district as the product of unlawful partisan gerrymanders.

558. Individual NCLCV Plaintiff Timothy Chartier and Individual Harper Plaintiff Mary Elizabeth Voss reside in and challenge CD13. Organizational Plaintiff NCLCV and Organizational Plaintiff Common Cause challenge CD13 as well.

559. CD13, one of three districts to include portions of Mecklenburg County, is made up of portions of former CD5, CD10, CD11, and CD12. *Id.* Until the 2021 Congressional Plan, Polk County and Mecklenburg County have never been included in the same congressional district. PX425 at 45.

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PX452 (Cooper Map 17)

560. CD13 is likely to elect a Republican candidate based on a calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within CD13, as well as other measures. PX425 at 45.

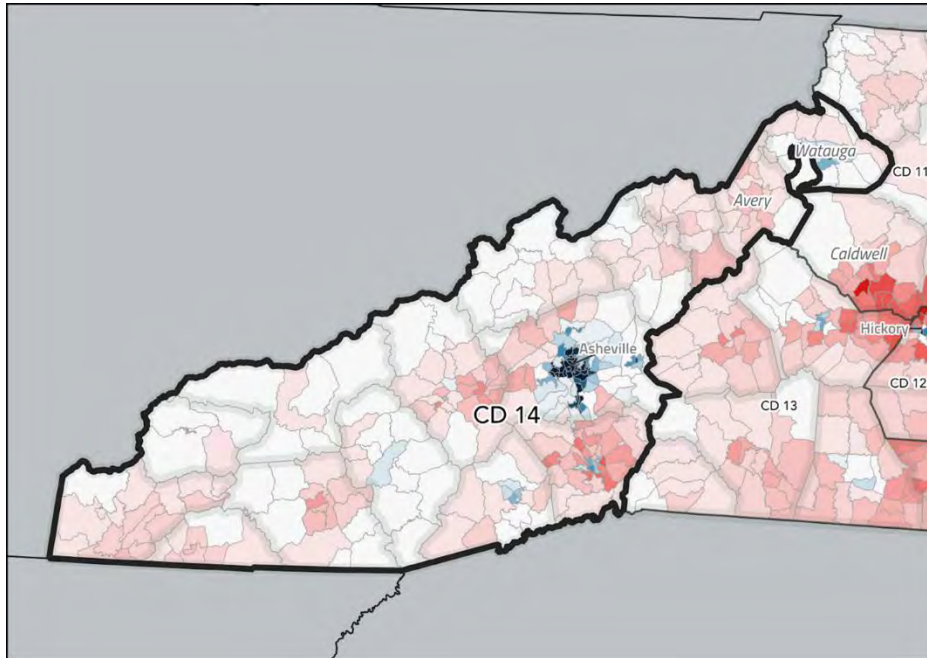
561. The Court finds this congressional district, CD13, to be the result of intentional, pro-Republican partisan redistricting.

(xiv) Congressional District No. 14 (“CD14”)

562. CD14 is comprised of Avery County, Buncombe County, Cherokee County, Clay County, Graham County, Haywood County, Henderson County, Jackson County, Macon County, Madison County, Mitchell County, Swain County, Transylvania County, portions of Watauga County, and Yancey County. Harper Plaintiffs challenge this congressional district as the product of unlawful partisan gerrymanders.

563. Individual Harper Plaintiffs Richard R. Crews, Mark S. Peters, Kathleen Barnes, and Ann Butzner reside in and challenge CD14. Organizational Plaintiff NCLCV challenges CD14 as well.

564. CD14 sits in the southwestern corner of the state and includes most of the former CD11, as well as part of Watauga County, to the northeast. PX425 at 47. The former CD11 also included “Republican strongholds” of Polk and McDowell counties, as well as part of Rutherford County, which are now placed in CD13. *Id.* Watauga County has not been in the same congressional district with the southwestern end of the state since 1871, before Graham and Swain counties were in existence. *Id.*



PX453 (Cooper Map 18)

565. CD14 is likely to elect a Republican candidate based on a calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within CD14, as well as other measures. PX425 at 47.

566. The Court finds this congressional district, CD14, to be the result of intentional, pro-Republican partisan redistricting.

C. Elections are Decided by any Number of Factors

567. All of Plaintiff’s statistical experts, except Dr. Pegden, used as a baseline or point of comparison nonpartisan maps to determine whether the Enacted Maps are partisan “outliers.” Even Plaintiffs would have to concede that under *Stephenson*, the General Assembly is at least, to some degree, allowed to draw districts for partisan advantage. The experts’ analysis does not inform the Court of how far the Enacted Maps are from what is permissible partisan advantage. Accordingly, these analyses do not inform the Court of how much of an outlier the Enacted Maps are from what is actually permissible.

568. Many of the opinions of the experts at trial were informed by either the vote share of a party on a single or aggregated statewide race or races. These statewide races include presidential and gubernatorial races as well as Attorney General, Judicial and Council of State races. These statewide races have one thing in common, that is, the elected positions have very little in common with the legislative and congressional races except that they all occur in North Carolina. The function and responsibilities of our legislature and our members of congress differ from these statewide and national offices. Also, these races do not take into account the individual needs and issues that are important to each of the 170 legislative districts and 14 congressional districts at issue. They also treat the candidates as inanimate objects in that they do not consider the personality or qualifications of each candidate, any political baggage each candidate may carry, as well as a host of other considerations that voters use to select a candidate. Moreover, these opinions assume that voters will vote along party lines. Testimony of the experts that by considering many statewide races across a significant period of time somehow washes these considerations out is not persuasive. In effect, they believe the computer can take the human element out of the human. That is a process we doubt they can do and hope will never happen.

569. Notwithstanding these doubts, we conclude based upon a careful review of all of the evidence that the Enacted Maps are a result of intentional, pro-Republican partisan redistricting.

IV. Intentional Racial Discrimination and Racial Vote Dilution Claims

A. Intentional Racial Discrimination

1. Direct Evidence

570. There is no express language showing discriminatory intent within the text of the session laws establishing the Enacted Plans.

571. The Adopted Criteria expressly proscribed the use of data identifying the race of individuals or voters in the construction or consideration of districts in the Enacted Plans while also requiring each redistricting committee to draw districts that comply with the Voting Rights Act.

572. There also is no evidence that the Enacted Plans were evaluated based on racial considerations after the respective congressional, Senate, and House plans were selected and prior to enactment. Defendants Expert Dr. Lewis stated that he was only asked to do the RPV study after he was retained on November 12, 2021. Trial Tr. 01/05/2022.

2. Circumstantial Evidence

a. Recent Race-Based Redistricting Litigation

573. The General Assembly’s intentional racial gerrymandering has been subject to judicial review in multiple cases over the past decade.

574. First, in *Dickson v. Rucho*, 367 N.C. 542 (2014), the plaintiffs challenged North Carolina’s redistricting plans for the North Carolina Senate, House of Representatives, and Congressional delegation as unconstitutional racial gerrymanders. 367 N.C. at 548.

575. The three-judge panel that heard the challenges concluded that 26 of the challenged districts were predominately motivated by race, and thus were subject to strict

scrutiny and determined that these districts were intended by the General Assembly to be “VRA districts” that necessarily required the drafters to classify residents by race. *Id.* at 551. The Supreme Court of North Carolina determined that the consideration of race to the degree necessary to comply with Section 2 of the VRA does not rise to the level of a “predominate motive,” though this was not fatal to the order, *Id.* at 522, because of the three-judge panel’s determination that compliance with Section 2 and Section 5 of the VRA are compelling state interests. *Id.* at 562-563.

576. The Supreme Court of the United States reviewed this decision, vacated the judgment, and remanded the case for further consideration in light of *Alabama Legislative Black Caucus v. Alabama*, 135 S. Ct. 1257 (2015). See *Dickson v. Rucho*, 368 N.C. 481, 484 (2015). The Supreme Court of North Carolina, again, affirmed the ruling of the three-judge panel, determining that the trial court did the appropriate district-by-district analysis without giving improper weight to population equalization. 368 N.C. at 485.

577. Second, in *Covington v. North Carolina*, 316 F.R.D. 176 (M.D.N.C. 2016), the plaintiffs challenged North Carolina state legislative redistricting plans as unconstitutional racial gerrymanders. The court determined that race was the predominate factor motivating the drawing of all the challenged districts, based on the redistricting committee’s criteria of creating “VRA districts” that reach a 50%-plus-one BVAP threshold first, *Id.* at 130-31, and that the defendants had not shown that their use of race was reasonably necessary to remedy a violation of Section 2 of the VRA because they had not demonstrated that any of the districts challenged were based on evidence that the majority votes sufficiently as a bloc, pursuant to *Thornburg v. Gingles*, 478 U.S. 30, 51 (1986). 316 F.R.D. at 124. The court ordered new maps be drawn. *Id.*

b. Plaintiff Common Cause’s Expert James Leloudis, II

578. Dr. James Leloudis, a professor of history at the University of North Carolina at Chapel Hill, submitted an expert report and was accepted as an expert during trial for Plaintiff Common Cause in the areas of North Carolina history, politics, race relations, and government policy. Trial Tr. 01/04/2022.

579. Dr. Leloudis received his B.A. and Ph.D. from the University of North Carolina at Chapel Hill, and M.A. from Northwestern University. PX1486 (Leloudis Report) p. 4.

580. Dr. Leloudis’ primary expertise is in the history of the United States, with specialization in the history of race, politics, labor, and reform in the 19th and 20th century American South. *Id.* Dr. Leloudis conducted qualitative research on the history of race, voting rights, voter suppression, and redistricting in North Carolina, from the end of the Civil War to the present. He examined the historical context for recent attempts to limit minority citizens’ voting rights and ability to elect candidates of their choice. PX1486 (Leloudis Report) p. 5.

581. North Carolina has had a long and cyclical history of suppressing minority political participation. Over the last century and a half, there have been numerous instances where white conservatives have employed a variety of measures to limit the rights of racial and ethnic minorities. PX1486 (Leloudis Report) p. 77.

582. Dr. Leloudis found that although Republicans may claim that the redistricting process was conducted race-blind, accepting this contention “asks us to believe that history has ended and that in a society deeply scarred by slavery and Jim Crow, race no longer matters; and that politicians vying for public office in the racially polarized America of the 21st century lack an intimate knowledge of where people live and how they vote.” PX1486 (Leloudis Report) p. 77.

B. Racial Vote Dilution

583. As noted above, the process in creating the Enacted Plans deviated from past procedure in not following *Stephenson* by drawing VRA districts first.

1. The Parties’ Experts

a. NCLCV Plaintiffs’ Expert Dr. Duchin

584. Dr. Moon Duchin, as noted above, submitted an expert report on behalf of NCLCV Plaintiffs. PX150. During trial, Dr. Duchin was accepted as an expert witness.

585. Dr. Duchin used well-recognized ecological inference statistical tools to assess racial voting trends in North Carolina and to determine if racial vote polarization persists today. *Id.* at 11. She designated 8 elections (4 generals and 4 primaries)—by prioritizing more recent elections that had a Black candidate on the ballot, that was polarized, and close enough to produce variation at the district level—to determine the opportunity to elect Blacks’ candidates of choice. *Id.* at 11.

586. Dr. Duchin found that there is a consistent pattern of polarization in statewide general elections. More specifically, the Enacted Congressional districts had two effective districts for Black voters while the NCLCV map had four effective districts. The Enacted Senate map had eight effective districts while the NCLCV map had 12 effective districts. The Enacted House districts were effective for Black voters in 24 districts, while the NCLCV map had 36 effective districts. *Id.* at 12.

587. During trial, however, Dr. Duchin was asked about conducting a *Gingles* analysis, to which Dr. Duchin stated she did do *Gingles* two and three, by doing an RPV analysis, but didn’t do *Gingles* one. Trial Tr. 01/04/2022. When asked whether a district-by-district analysis was conducted, Dr. Duchin stated that the EI is run on the statewide basis, but it makes inferences about every precinct’s preferences. Trial Tr. 01/04/2022.

b. Plaintiff Common Cause’s Expert Jonathan Mattingly

588. In his addendum report, Dr. Mattingly examined the correlation between the fraction of the black voting age population and the partisan makeup of (i) the North Eastern cluster choices in the North Carolina State Senate, and (ii) the districts within the Duplin-Wayne county cluster in the North Carolina State House. PX1485 (Mattingly Addendum) at 1.

589. The enacted plan splits the Black voters roughly in half between the two districts, whereas the other potential clustering would have concentrated Black voters into one of the two districts. PX1485 (Mattingly Addendum) at 2. Additionally, the enacted plan leads to two stable Republican districts when measured across a range of historic voting patterns. *Id.* In contract, the alternate clustering would have allowed the district with the larger BVAP (42.33% BVAP) to reliably elect a Democratic candidate. *Id.* Thus, the chosen cluster is the choice that favors the Republican Party and significantly fractures Black voters in that area. *Id.*

590. In examining the Duplin-Wayne cluster, Dr. Mattingly used the 2020 Governor race and plotted the relationship between the BVAP and the vote fraction in the ensemble maps he created and the exacted plan. PX1485 (Mattingly Addendum) at 2. Using this analysis, it is possible to draw districts with significantly higher BVAPs and raising the BVAP would likely raise the Democratic vote fraction. *Id.* Trial Tr. 01/04/2022.

c. Defendants’ Expert Jeffrey Lewis

591. Dr. Jeffery B. Lewis, a Professor of Political Science at UCLA, received a B.A. in Political Science and Economics from Wesleyan University. He received a Ph.D. in Political Science from the Massachusetts Institute of Technology. LDTX109 at 1-2 (Lewis Rep.).

592. Dr. Lewis specializes in quantitative political methodology with a focus on making inferences about preferences and behavior from the analysis of voting patterns in the

mass public and in legislatures. *Id.* at 2. He submitted an expert report and was accepted as an expert witness on behalf of Legislative Defendants in the areas of political methodology and racial bloc voting analysis. Trial Tr. 01/05/2022.

593. Dr. Lewis presented summaries of the results of North Carolina general and Democratic primary election contests held in 2014, 2016, 2018, and 2020. He considered how each contest would have turned out if only the votes of those residing in each current and in each enacted State House, State Senate, and Congressional district had been counted. This allowed for the consideration of the voting strength of Black voters in each existing and proposed legislative district. *Id.* at 2.

594. For each of the reconstituted elections in each district, Dr. Lewis used weighted ecological regression (ER) to estimate the degree of Black voter cohesion and non-Black voter crossover. He omitted contest-district combinations where the number of voting precincts available for the analysis or Black share of voters was too small. *Id.* at 3. He evaluated 420 individual contests including over 190 that included a Black candidate. *Id.* at 5-6. He then used and relaxed, without endorsing, Dr. Duchin’s definition of effective Black districts (greater than 75% Black preferred win rate in races with minority candidates combined with greater than 25% BVAP). *Id.* at 6.

595. Using Dr. Duchin’s definition of effective Black districts against Dr. Lewis’s data set and comparing it with more relaxed requirements of this definition, the Court finds that in no district, enacted or in 2020, does it appear that a majority of BVAP is needed for that district to regularly generate majority support for minority-preferred candidates in the reconstituted elections. *Id.* at 7.

2. A District-by-District Analysis of Racial Vote Dilution Is Not Necessary

596. Plaintiffs failed to set forth racial polarization data supporting a district-by-district analysis and relied solely on an argument as to the process as a whole.

597. Race was not the predominant, overriding factor in drawing the districts in the Enacted Plans.

598. The General Assembly did not subordinate traditional race-neutral districting principles, including compactness, contiguity, and respect for political subdivisions to *racial* considerations.

V. Whole-County Provision Claim

599. The Senate Districts in which counties were divided in their formation are as follows: 7, 8, 9, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 25, 26, 27, 28, 29, 31, 32, 34, 35, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 49, and 50. S.L. 2021-173.

600. Across all fifty Senate Districts, eighty-five (85) counties were kept whole and fifteen (15) counties were divided in the formation of a Senate District. S.L. 2021-173.

601. In the Senate District County Groupings, there are a total of 97 county boundary traversals (*i.e.*, the number of times a district crosses between adjacent counties within a grouping). PX150 at 17.

602. The House Districts in which counties were divided in their formation comprise 107 total House Districts, with the following House Districts being the only districts comprised solely of whole counties: 5, 12, 22, 23, 27, 48, 65, 67, 86, 97, 118, 119, and 120. S.L. 2021-175.

603. Across all 120 House Districts, sixty-three (63) counties were kept whole and thirty-seven (37) counties were divided in the formation of a House District. S.L. 2021-175.

604. In the House District County Groupings, there are a total of 69 county boundary traversals. PX150 at 17.

605. The number of persons in each state legislative district must be within plus or minus 5% of the ideal district population and, as determined under the most recent federal decennial census, this is a population of 86,995 in the House and 208,788 in the Senate. PX150 at 12; LDTX107 at 22.

606. NCLCV Plaintiffs present the sole challenge under the Whole County Provisions of the North Carolina Constitution, N.C. Const. art. II, §§ 3(3) and 5(3), and challenge Senate Districts 1, 2, 43, 44, 47, 50, 46, 49, and 48, and House Districts 1 and 79 as impermissibly traversing county lines in violation of the respective Whole County Provisions.

607. The North Carolina Constitution requires that State House and Senate districts comply with a series of requirements adopted to implement the Constitution’s Whole County Provisions, including establishing districts within county groupings.

608. In several regions, multiple county groupings were possible under our Supreme Court’s interpretation of the Whole County Provisions. In such instances, groupings were chosen from the range of legally possible groupings, as identified in the Duke Academic Paper.

609. NCLCV Plaintiffs do not bring a VRA claim, and there is on the record before the Court no evidence that majority-minority districts under Section 2 of the VRA are required anywhere in North Carolina, such that a deviation from these chosen county groupings is necessary to comply with the VRA.

610. The face of S.L. 2021-173 shows, and NCLCV Plaintiffs do not offer evidence to the contrary, that SD1, SD2, and SD 48 do not traverse county lines and are, therefore, each comprised of only whole counties.

611. Within each remaining county grouping containing a district challenged under the Whole County Provisions, the district line’s traversal of a county line occurs because of the need to comply with the equal-population rule required by law and memorialized in the Adopted Criteria.

VI. Individual and Organizational Plaintiffs’ Standing

A. Individual NCLCV Plaintiffs

612. Individual NCLCV Plaintiffs reside in North Carolina Congressional Districts 2, 4, 6, 11, and 13. PX206-211. As shown by the Individual NCLCV Plaintiffs residing in these Congressional Districts, these districts are the result of partisan packing or cracking, and there is a plausible alternative that would not create the same partisan composition of the districts that are the result of partisan packing or cracking.

613. Individual NCLCV Plaintiffs reside in North Carolina Senate Districts 2, 12, 20, 27, and 37. PX206-211. As shown by the Individual NCLCV Plaintiffs residing in these Senate Districts, these districts are the result of partisan packing or cracking, and there is a plausible alternative that would not create the same partisan composition of the districts that are the result of partisan packing or cracking. Furthermore, some are located in counties that have been divided in the formation of the Senate Districts and which further contribute to the resulting partisan packing and cracking.

614. Individual NCLCV Plaintiffs reside in North Carolina House of Representatives Districts 6, 27, 29, 58 and 98. PX206-211. As shown by the Individual NCLCV Plaintiffs residing in these House Districts, these districts are the result of partisan packing or cracking, and there is a plausible alternative that would not create the same partisan composition of the districts that are the result of partisan packing or cracking. Furthermore, some are located in counties that have been divided in the formation of the House Districts and which further contribute to the resulting partisan packing and cracking.

B. Individual Harper Plaintiffs

615. Individual Harper Plaintiffs reside in all North Carolina Congressional Districts. PX400-424. As shown by the Individual Harper Plaintiffs residing in these Congressional Districts, these districts are the result of partisan packing or cracking, and there is a plausible alternative that would not create the same partisan composition of the districts that are the result of partisan packing or cracking:

616. Individual Harper Plaintiffs reside in North Carolina Senate Districts 1, 18, 19, 27, 32, 40, 41, 46, and 49. PX400, 405, 407, 408, 410, 412, 413, 414, 415, 416, and 418. As shown by the Individual Harper Plaintiffs residing in these Senate Districts, these districts are the result of partisan packing or cracking, and there is a plausible alternative that would not create the same partisan composition of the districts that are the result of partisan packing or cracking.

617. Individual Harper Plaintiffs reside in North Carolina House Districts 2, 8, 9, 10, 21, 40, 58, 59, 60, 62, 72, 101, 102, 103, and 115. PX400, 402, 405, 407, 408, 410, 411, 412, 414, 416, 418, 419, 420, 421, 422, 423, and 424. As shown by the Individual Harper Plaintiffs residing in these House Districts, these districts are the result of partisan packing or cracking, and there is a plausible alternative that would not create the same partisan composition of the districts that are the result of partisan packing or cracking.

C. North Carolina League of Conservation Voters

618. Organizational Plaintiff NCLCV is a “nonpartisan nonprofit advocacy organization whose mission is to protect the health and quality of life for all North Carolinians, by fighting to build a better world with clean air, clean water, clean energy, and a safe climate, all protected by a just and equitable democracy.” NCLCV Compl. ¶ 11; PX203 ¶ 3. NCLCV attempts to complete this mission by helping to “elect legislators and statewide

candidates who share it’s values,” and working “to hold elected official accountable for their votes and actions.” *Id.*

619. Plaintiff NCLCV has members who reside in every challenged North Carolina Congressional, North Carolina Senate, and North Carolina House of Representatives district. PX203 ¶ 5.

620. Plaintiff NCLCV’s interests it seeks to protect in this litigation are its ability to effectively advocate for candidates who will protect the environment, its ability to build a pro-environment majority, and its ability to hold legislators accountable, which is frustrated by the predetermining of elections they allege will occur under the Enacted Plans. NCLCV Compl. ¶ 12; PX203 ¶ 6.

621. The partisan composition of the North Carolina Congressional, North Carolina Senate, and North Carolina House of Representatives Districts significantly affect NCLCV’s ability to fulfill its mission and purpose because pro-environment candidates will often be unable to win individual elections and will certainly not be able to win individual elections. Additionally, when incumbent legislators know their seats and their majorities are safe regardless of their votes on legislation, NCLCV cannot fulfil its mission of “[i]nstill[ing] fear into NC’s elected leaders of the consequences of taking anti-environment actions.” PX203 ¶ 6. Additionally, when potential pro-environment candidates do not believe they can win, they are less likely to run for office. *Id.* at ¶ 7. Lastly, it will diminish the effectiveness of NCLCV’s limited funds and resources and so will require the expenditure of more resources while at the same time making fundraising more difficult. *Id.* at 8-9.

622. Plaintiff NCLCV’s interests it seeks to protect in this litigation on behalf of its members are the ability of its members’ efforts to address environmental harms. NCLCV Compl. ¶ 13; PX203 ¶ 12.

623. Neither the claims asserted, nor the relief requested, by Plaintiff NCLCV requires the participation of individual members in the lawsuit.

D. Common Cause

624. Organizational Plaintiff-Intervenor Common Cause is “a non-profit nonpartisan democracy organization with over 1.5 million members and local organizations in 30 states, including North Carolina.” Common Cause Compl. ¶ 17; PX1480 ¶ 2. Common Cause is “dedicated to fair elections and making government at all levels more representative, open, and responsive to the interests of ordinary people.” *Id.*; PX1480 ¶ 5. The organization attempts to meet this goal by assisting voters in navigating the elections process, providing resources for voters to determine their districts and their polling locations, and mobilizing voters to engage in political advocacy. Common Cause also advocates for redistricting reform. *Id.*; PX1480 ¶¶ 5-6.

625. Plaintiff-Intervenor Common Cause has members who reside in every challenged North Carolina Congressional, North Carolina Senate, and North Carolina House of Representatives district. PX1480 ¶ 9.

626. Plaintiff-Intervenor Common Cause’s interests it seeks to protect in this litigation are its ability to engage with voters because Common Cause alleges the Enacted Plans will diminish the voices of these voters, its ability to direct its resources effectively, and it will be forced to divert these resources toward “combatting the ill effects of unlawful redistricting,” and its ability to increase voter engagement and holding government officials accountable, which is allegedly frustrated by “preordained election results.” Common Cause Compl. ¶ 17; PX1480 ¶ 7. Common Cause also seeks to protect its interest in advocating for redistricting reform measures. Common Cause Compl. ¶ 17.

627. The partisan composition of the North Carolina Congressional, North Carolina Senate, and North Carolina House of Representatives Districts significantly affect Common

Cause’s ability to fulfill its mission and purpose because it frustrates Common Cause’s organizational mission of increasing democratic engagement and voter participation by insulating elected officials from the democratic process and, in turn, voters are much less likely to contact their representatives, vote in elections, or engage in the democratic process. PX1480 ¶ 7.

628. Plaintiff-Intervenor Common Cause’s interests it seeks to protect in this litigation on behalf of its members are the members’, registered as Democrats, right to have representation in the State Legislature in compliance with the North Carolina Constitution, right to be free from unequal treatment, and right to free association.

629. Neither the claims asserted, nor the relief requested, by Plaintiff Common Cause requires the participation of individual members in the lawsuit.

E. Standing to Assert Intentional Racial Discrimination and Racial Vote Dilution Claims

630. Individual NCLCV Plaintiffs have shown that they are Black registered voters. PX206, 207, 208, 209, and 211. Organizational Plaintiffs NCLCV and Common Cause have shown that some of its members are Black registered voters. PX203 ¶ 14, PX205; PX1480 ¶ 10.

631. However, none of these plaintiffs have shown that the redistricting plan that affects their Congressional, State Senate, or State House district was the product of intentional racial discrimination.

632. Additionally, the NCLCV plaintiffs have not shown that the Congressional, State Senate, and State House redistricting plans provide one racial group with less opportunity than other members of the electorate to nominate and elect members of their choice.

CONCLUSIONS OF LAW

I. Standing

A. General Principles

1. The North Carolina Constitution provides: “All courts shall be open; every person, for an injury done him in this lands, goods, person, or reputations shall have remedy by due course of law; and right and justice shall be administered without favor, denial, or delay.” N.C. CONST. art. I, § 18. This provision should be read to guarantee standing where a legal right arising under the North Carolina Constitution has been infringed. *Comm. to Elect Forest v. Employees PAC*, 2021-NCSC-6, ¶ 81, 376 N.C. 558 (“*Elect Forest*”).

2. “[B]ecause North Carolina courts are not constrained by the ‘case or controversy’ requirement of Article III of the United States Constitution, our State’s standing jurisprudence is broader than federal law.” *Davis v. New Zion Baptist Church*, 811 S.E.2d 725, 727 (N.C. Ct. App. 2018) (quotation marks omitted); accord *Goldston v. State*, 361 N.C. 26, 35, 637 S.E.2d 876, 882 (2006) (“While federal standing doctrine can be instructive as to general principles. . . and for comparative analysis, the nuts and bolts of North Carolina standing doctrine are not coincident with federal standing doctrine.”).

3. The “gist of the question of standing” is whether the party seeking relief has “alleged such a personal stake in the outcome of the controversy as to assure that concrete adverseness which sharpens the presentation of issues upon which the court so largely depends for illumination of difficult constitutional questions.” *Goldston*, 361 N.C. at 30, 637 S.E.2d at 879 (quoting *Stanley v. Dep’t of Conservation & Dev.*, 284 N.C. 15, 28, 199 S.E.2d 641, 650 (1973)). “[T]he ‘concrete adverseness’ rationale undergirding our standing doctrine is grounded on prudential principles of self-restraint in exercise of [the courts’] power of judicial review for constitutionality[.]” *Elect Forest*, 2021-NCSC-6, ¶ 65 (internal citations omitted).

4. An action, such as the case at bar, arising under the Declaratory Judgment Act does require that the plaintiff make a showing of direct injury. *Id.* at ¶ 61. This is because “only one with a genuine grievance, one personally injured by a statute, can be trusted to battle the issue.” *Id.* at ¶ 64 (quoting *Stanley*, 284 N.C. at 28). “The ‘direct injury’ required in this context could be, but is not necessarily limited to, ‘deprivation of a constitutionally guaranteed personal right or an invasion of his property rights.’” *Id.* at ¶ 82 (quoting *State ex rel. Summerell v. Carolina-Virginia Racing Ass’n*, 239 N.C. 591, 594, 80 S.E.2d 638, 640 (1954)); see also *Piedmont Canteen Services, Inc. v. Johnson*, 256 N.C. 155, 166, 123 S.E.2d 582, 589 (1962) (holding only persons “who have been injuriously affected . . . in their persons, property or constitutional rights” may challenge the constitutionality of a statute).

5. “An association may have standing to in its own right to seek judicial relief from injury to itself and to vindicate whatever rights and immunities the association itself may enjoy.” *River Birch Assoc. v. Raleigh*, 326 N.C. 100, 129, 388 S.E.2d 538, 555 (1990) (quoting *Warth v. Seldin*, 422 U.S. 490, 511, 95 S. Ct. 2197, 2211 (1975)).

6. A plaintiff association may also assert that it has standing to sue on behalf of its members. See *River Birch Assocs. v. City of Raleigh*, 326 N.C. 100, 130, 388 S.E.2d 538, 555 (1990); *Shearon Farms Townhome Owners Ass’n v. Shearon Farms Dev., LLC*, 847 S.E.2d 229, 235 (N.C. Ct. App. 2020). Under North Carolina law, an organization has standing to bring suit on behalf of its members if: “(a) its members would otherwise have standing to sue in their own right; (b) the interests it seeks to protect are germane to the organization’s purpose; and (c) neither the claim asserted nor the relief requested requires the participation of individual members in the lawsuit.” *River Birch Assocs.*, 326 N.C. at 129-30, 3388 S.E.2d at 555. An associational plaintiff need not show that *all* of its members would have standing to sue in their own right when seeking declaratory or injunctive relief; rather, it is sufficient

if any “one” member would have individual standing. *Id.*; see also *State Employees Ass’n of N.C., Inc. v. State*, 357 N.C. 239, 580 S.E.2d 693 (2003) (reversing lower court decision that had required every member of association or organization to have standing).

B. Plaintiffs’ Standing

7. As recognized by the Supreme Court of the United States, the right to vote is individual and unique to each person. Any “interest in the composition of ‘the legislature as a whole’” is “not an individual legal interest. See *Gill v. Whitford*, 138 S. Ct. 1916, 1932 (2018). As such, in federal court, a voter is only injured by specific concerns with that voter’s districts and has standing to challenge the districts in which the voter lives. *Id.* The “hope of achieving a Democratic [or Republican] majority in the legislature” is not a particularized harm. *Id.* at 1932. Additionally, a district’s partisan composition cannot constitute a cognizable injury if a similar composition would result “under any plausible circumstance.” *Id.* at 1924.

8. The Supreme Court of the United States has previously held that individual voters have standing under the federal Constitution to challenge only their own districts on gerrymandering grounds, *Gill*, 138 S. Ct. at 1930-31; however, in light of the different, prudential standing principles in our State, see *Comm. to Elect Forest*, 376 N.C. at 563, and because the unique manner in North Carolina in which one state legislative district is drawn in a county grouping necessarily is tied to the drawing of some, and possibly all, of the other districts within that same grouping, a challenge to the entire county grouping by an individual plaintiff constitutes the necessary “personal stake in the outcome of the controversy” for a plaintiff to have standing to challenge all districts within a county grouping. *Goldston*, 361 N.C. at 30, 637 S.E.2d at 879; see *Erfer v. Commonwealth*, 794 A.2d 325, 330 (Pa. 2002) (recognizing that a “reapportionment plan acts as an interlocking jigsaw puzzle, each piece reliant upon its neighbors to establish a picture of the whole” and that an “allegation that a litigant’s district was improperly gerrymandered necessarily involves a

critique of the plan beyond the borders of his district”), *abrogated on other grounds by League of Women Voters of Pa. v. Commonwealth*, 178 A.3d 737 (Pa. 2018).

9. Individual private citizens and voters of a county have standing to sue to seek redress from an alleged violation of N.C. Const. art II, §§ 3 and 5. *See Pender County v. Bartlett*, 361 N.C. 491, 497 (2007); *see also Pender County v. Bartlett*, 04-CVS-0696, slip op. at 139-171 (N.C. Sup. Ct. Dec. 2, 2005).

10. The individual Plaintiffs in these consolidated cases challenging a district as the product of impermissible extreme partisan gerrymandering reside either in the district challenged or, in the case of the state legislative districts, the county grouping containing a challenged district.

11. For those reasons, the Individual NCLCV Plaintiffs challenging a district based upon the Whole County Provision have standing.

12. The organizational Plaintiffs each seek to vindicate rights enjoyed by the organization under the North Carolina Constitution.

13. Similarly, the organizational Plaintiffs each have members who would otherwise have standing to sue in their own right, the interests each seeks to protect are germane to the organization’s purpose, and neither the claim asserted nor the relief requested requires the participation of individual members in the lawsuit.

14. However, as discussed below, Plaintiffs have not stated any cognizable claim for partisan gerrymandering under the various provisions of the North Carolina Constitution. As such, Plaintiffs lack standing.

15. “Courts never anticipate a question of constitutional law before the necessity of deciding it arises.” *Chemical Co. v. Turner*, 190 N.C. 471, 130 S.E.2d 154 (1925). “They will not listen to an objection made to the constitutionality of an ordinance by a party whose rights it does not affect and who therefore has no interest in defeating it.” *State v. Trantham*, 230

N.C. 641, 644, 33 S.E.2d 198 (1949). In the equal protection context, “[i]t is not sufficient to show discrimination. It must appear that the alleged discriminatory provisions operate to hurt the [plaintiff] or adversely affect his rights or put him to a disadvantage.” *Id.* “He who seeks to raise the question as to the validity of a discriminatory statute has no standing for that purpose unless he belongs to the class which is discriminated against.” *Id.* *See also Munger v. State*, 2002 N.C. App. 404, 410-11 (2010) (using the same standard in the context of taxpayer standing).

16. NCLCV Plaintiffs and Plaintiff Common Cause assert claims of intentional racial discrimination and racial vote dilution under the North Carolina Constitution. Because this Court finds there to be no factual basis underlying these asserted claims, there is a lack of the requisite “direct injury”—i.e., the deprivation of a constitutionally guaranteed personal right. Accordingly, these Plaintiffs do not have standing for these claims.

17. Similarly, Plaintiff Common Cause lacks standing for its claim requesting a declaratory judgment from this Court directing the legislative process to be undertaken in redistricting.

II. Partisan Gerrymandering Claims

18. These consolidated cases raise important constitutional issues in which we are asked to strike down, as unconstitutional, redistricting maps enacted by the General Assembly based in part upon what is termed “extreme partisan gerrymandering.”

19. The function of the judiciary is to faithfully interpret the law through judicial review and determine whether it is compliant with the constitution. *State ex. Rel. McCrory v. Berger*, 368 N.C. 633, 635, 781 S.E.2d 248, 250 (2016) citing N.C. Const. art. IV, § 1; *Bayard v. Singleton*, 1 N.C. 5, 6-7, 3 N.C. 42, 1 Martin 48 (1787). While *Bayard* and *Marbury v. Madison*, 5 U.S. 137, 1 Cranch 137, 177, 2 L.Ed 60 (1803), establish the right of the court to say what the law is, “sometimes, however, ‘the law is that the judicial department has no

business entertaining the claim of unlawfulness – because the question is entrusted to one of the political branches or involves no judicially enforceable rights.” *Rucho v. Common Cause*, ____ U.S. ____, 139 S. Ct. 2484, 2494 (2019) (citing *Vieth v. Jubelirer*, 541 U.S. 267, 277 (2004)).

20. The political power in this State has always been invested in and derived from its citizens. N.C. Const. of 1776, Decl. of Rights § 2; N.C. Const. of 1868 art. I, § 2; N.C. Const. of 1971, art. I, § 3. Likewise, the sole and exclusive right to regulate the government of this State has always been vested in its citizens. N.C. Const. of 1776, Decl. of Rights § 2; N.C. Const. of 1868, art. I, § 3; N.C. Const. of 1971, art. I, § 3.

21. “The will of the people as expressed in the Constitution is the supreme law of the land.” *State v. Emery*, 224 N.C. 581, 583, 31 S.E.2d 858, 860 (1944) (citing *Warrenton v. Warren County*, 215 N.C. 342, 2 S.E.2d 463 (1939)). “The Constitution is a restriction of powers and those powers not surrendered are reserved to the people to be exercised through their representatives in the General Assembly; therefore, so long as an act is not forbidden, the wisdom and expediency of the enactment is a legislative, not a judicial, decision.” *Wayne County Citizens Ass’n for Better Tax Control v. Wayne County Bd of Comm’rs*, 328 N.C. 24, 29, 399 S.E.2d 311, 315 (1991)(citing *In re Housing Bonds*, 307 N.C. 52, 57, 296 S.E.2d 281, 284 (1982)). “[T]he power of the people, through their elected representatives in the General Assembly, is constrained by the specific limitations imposed by duly adopted constitutional provisions.” *Stephenson v. Bartlett*, 355 NC 354, 390, 562 S.E.2d 377, 402 (2002) (Orr, J. dissenting).

22. It is not the function of the judiciary to express the will of the people or to right perceived wrongs allowed by laws that public sentiment deems unwise or ill-advised. *Blankenship v. Bartlett*, 363 N.C. 518, 523, 681 S.E.2d 759, 763 (2009) (citing *Chisom v. Roemer*, 501 U.S. 380, 400 (1991) (“Judges are ‘often called upon to disregard, or even to defy,

popular sentiment,’ creating a ‘fundamental tension between the ideal character of the judicial office and the real world of electoral politics”)); *People ex rel Von Bokkelen v. Canady*, 73 N.C. 198, 221 (1875) (“Whether [an act of the General Assembly] is wise or unwise, the Court can give no opinion. Our province is to expound the Constitution and laws as they are made, and not to make them”).

23. Declaring as unconstitutional, an act of the branch of government that represents the people is a task that is not to be taken lightly. There is a strong presumption that enactments of the General Assembly are constitutional. *Town of Spruce Pine v. Avery County*, 346 N.C. 787, 792, 488 S.E.2d 144, 147 (1997). Despite the presumption of the constitutionality of an enactment of the legislature, “[i]t is well settled in this State that the courts have the power, and it is their duty in proper cases, to declare an act of the General Assembly unconstitutional—but it must be plainly and clearly the case. If there is any reasonable doubt, it will be resolved in favor of the lawful exercise of their powers by the representatives of the people.” *City of Asheville v. State*, 369 N.C. 80, 87-88, 794 S.E.2d 759, 766 (2016) (quoting *Glenn v. Bd. of Educ.*, 210 N.C. 525, 529-30, 187 S.E. 781, 784 (1936)); *State ex rel. Martin v. Preston*, 325 N.C. 438, 449, 385 S.E.2d 473, 478 (1989). “An act of the General Assembly will be declared unconstitutional only when ‘it [is] plainly and clearly the case,’ . . . and its unconstitutionality must be demonstrated beyond a reasonable doubt.” *Town of Boone v. State*, 369 N.C. 126, 130, 794 S.E.2d 710, 714 (2016).

24. Plaintiffs request that this Court strike down the Enacted Maps is based upon the following clauses of the North Carolina Constitution: (1) Free Elections Clause; (2) Equal Protections Clause; (3) Freedom of Speech Clause; and (4) Freedom of Assembly Clause.

25. In *Stephenson*, a case cited and relied upon by the Plaintiffs, the North Carolina Supreme Court explained the framework of the analysis this Court must use in interpreting and giving meaning to the terms of our state Constitution:

“Issues concerning the proper construction of the Constitution of North Carolina ‘are in the main governed by the same general principles which control in ascertaining the meaning of all written instruments.’” *Preston*, 325 N.C. at 449, 385 S.E.2d at 478 (quoting *Perry v. Stancil*, 237 N.C. 442, 444, 75 S.E.2d 512, 514 (1953)). . . .

As part of our constitutional interpretation, it is fundamental “to give effect to the intent of the framers of the organic law and of the people adopting it.” *Perry*, 237 N.C. at 444, 75 S.E.2d at 514. More importance is to be placed upon the intent and purpose of a provision than upon the actual language used. *Id.* “In arriving at the intent, we are not required to accord the language used an unnecessarily literal meaning. Greater regard is to be given to the dominant purpose than to the use of any particular words” *Id.* This Court will consider the “history of the questioned provision and its antecedents, the conditions that existed prior to its enactment, and the purposes sought to be accomplished by its promulgation” when interpreting the State Constitution in light of federal requirements. *Sneed v. Greensboro City Bd. of Educ.*, 299 N.C. 609, 613, 264 S.E.2d 106, 110 (1980); see also *Perry*, 237 N.C. at 444, 75 S.E.2d at 514.

Stephenson at 370-371, 562 S.E.2d at 389.

26. As our Supreme Court stated in *State v. Emery*, 224 N.C. 581, 584, 31 S.E. 858, 861 (1944):

It is a cardinal principle, in the interpretation of constitutions, that they should receive a consistent and uniform construction, **so as not to be given one meaning at one time and another meaning at another time, even though circumstances may have so changed as to render a different construction desirable. The will of the people as expressed in the organic law is subject to change only in the manner prescribed by them.**

Id. (emphasis added).

27. In order to determine the intent of the drafters, “[i]nquiry should be directed to the old law, the mischief and the remedy.” *Perry*, 237 N.C. at 444, 75 S.E.2d at 514 (1953).

The “court should look to the history, general spirit of the times, and the prior and the then existing law in respect of the subject matter of the constitutional provision under consideration, to determine the extent and nature of the remedy sought to be provided.” *Id.* The circumstances and conditions which existed at the time of the enactment of the constitutional provision must be given prime consideration in the construction of the language. *Id.* at 447, 75 S.E.2d at 516.

28. As Justice Orr stated in his partial dissent in *Stephenson*,

If the provisions of [an Article of the State Constitution] are obsolete or ill-adapted to existing conditions, this Court is without power to devise a remedy. However liberally we may be inclined to interpret the fundamental law, we should offend every canon of construction and transgress the limitations of our jurisdiction to review decisions upon matters of law or legal inference if we undertook to extend the function of the Court to a judicial amendment of the Constitution.

Stephenson, 355 at 410-411, 562 S.E.2d at 414 (Orr, J. dissenting) *citing Elliott v. State Bd. of Equalization*, 203 N.C. 749, 756, 166 S.E. 918, 922 (1932).

29. The principles stated above are bedrock principles of constitutional construction that have existed in the jurisprudence of this state for at least 150 years. The Court is not excused or relieved from this analytical framework because we disagree with the result it brings or even find personally repugnant.

30. Trial judges admonish jurors on an almost daily basis that it is “absolutely necessary that you understand and apply the law as [we] give it to you, not as you think the laws is, or as you might like it to be.” (N.C. Pattern Jury Instruction Civil 101.5; Criminal 101.5). It is our duty to apply the law as to the construction of the Constitution as set forth above. It is not our prerogative to deviate from this long-established analytical framework.

31. To date, no appellate court in North Carolina has examined the specific question of whether “extreme partisan gerrymandering” is violative of our State Constitution.

Plaintiffs, in support of their position that extreme partisan gerrymandering is unconstitutional, rely on two cases decided by a three-judge panel established pursuant to N.C. Gen. Stat. § 1-267.1(a): *Common Cause v. Lewis*, Wake County File No. 18CVS 14001 and its Judgment dated September 3, 2019; and (b) *Harper v. Hall*, Wake County, File No. 19 CVS 12667 (“*Harper I*”) and the Order on Injunctive Relief entered in that matter on October 28, 2019. In *Common Cause*, a prior three judge-panel, empaneled in 2010 pursuant to N.C. Gen. Stat. § 1-267.1(a), declared the legislative maps enacted in 2017 unconstitutional as a result of “extreme partisan” gerrymandering. That same panel, in *Harper I*, found congressional maps enacted by the N.C Legislature in 2016 unconstitutional as a result of “extreme partisan gerrymandering.”

32. While instructive and persuasive, the court’s legal analysis and conclusions in *Common Cause* and *Harper I* are not binding on this Court.

33. In reaching a decision, it is necessary for the Court to examine the history of the geographic areas from which legislators have been elected and the legislative body that was responsible for creating those districts and any limitations placed upon the same. In addition, it is necessary to review the history of the four constitutional provisions Plaintiffs claim are violated by the enactment of the maps at issue.

A. Historical Background

1. Structure of Government, Apportionment and Election of Members to Legislative Bodies Under the Lord Proprietors 1663-1729

34. North Carolinians have been electing individuals to representative bodies for approximately 350 years. The original 1663 Charter of Carolina from Charles II to the eight Lord Proprietors of Carolina and the 1665 Charter of Carolina gave the Lord Proprietors power to enact laws and constitutions with the “advice, assent and approbation of the freemen of the said province . . . or of their delegates.” Charter granted by Charles, II, King

of England to the Lords Proprietors of Carolina, March 24, 1663, The Colonial Records of North Carolina, Ed. William Sanders, Vol. 1 Raleigh, N.C. P.M. Hale, Printer to the State, 1886, 20-23 at 23, Documenting the South 2007, 2007 University Library, The University of North Carolina, <http://docsouth.edu/csr/>. (Colonial Records from docsouth are hereinafter referred to as C.R.)

35. In 1665 the Concessions and Agreements of the Lord Proprietors of the Province of Carolina were published. C.R. 1:75-93. The Concessions and Agreements provided for the election of freemen representatives to a General Assembly. The freemen were to be elected from certain political subdivisions within each county, with the election occurring annually on January 1. C.R. 1:81.

36. On March 1, 1669, the Lord Proprietors published the Fundamental Constitutions of Carolina (C.R. 1:187-206) which divided the province of Carolina into counties each of which consisted of four precincts. (C.R.1:80, Item Three) There were four precincts in each county. A parliament, consisting in part of freeholders elected from each precinct, was created and was required to meet every two years. (C.R. 1:99, Item 71). Elections for freeholder representatives were to be held on September 1 every two years. (C.R.1:200, Item 75).

**2. Structure of Government, Apportionment and Election of
Members to The General Assembly During Colonial Rule
1729-1996**

37. In 1729 the Lord Proprietors sold their interest in the province of Carolina to the Crown and North Carolina became an official English Colony. See Charles Lee Raper, NORTH CAROLINA, A STUDY IN ENGLISH COLONIAL GOVERNMENT, P 1-2 (1904). See also, C.R. 3:32-47

38. The Royal Governor, who was appointed by the Crown by way of a commission (see, C.R. 3:68) and given authority or directives from the Crown by way of instructions (see,

C.R.3:93), was “the supreme ruler in [North Carolina] and responsible to the crown for all of his acts, and not to the people whose affairs he was to administer.” Charles S. Cooke, *THE GOVERNOR, COUNSEL AND ASSEMBLY IN ROYAL NORTH CAROLINA*, Vol. 12, No. 1 The James Sprunt Historical Publications, (J.G. DeRoulhac Hamilton, Henry McGilbert Wagstaff, Eds.) p. 13, 23 (1912). *See also*, Raper at 27.

39. Pursuant to the letters and instructions to each governor, North Carolina was to be governed by a bicameral General Assembly. The General Assembly consisted of the upper house, which included the Royal Governor’s Council, and the lower house, also called the House of Burgesses. Raper at 85-71; *See also*, C.R. 3:90.

40. The Council was comprised of a set number of individuals recommended by the Royal Governor and appointed by the Crown and were largely under the control of the Royal Governor. Cooke at 16-17. The Council was essentially an executive body that advised the Royal Governor. In the absence or death of the governor, the president of the Council became the acting governor. Finally, the Council, as the upper house of the legislature, had the ability to hold up legislation by giving its consent to the same. Raper at 75, Cooke at 19-20. “[T]he governor and council were practically a unit in their point of view and in their attempt to maintain the rights and interest of the Crown.” Cooke at 40, *see also*, Raper at 71.

41. The authority for the existence of a lower house was set forth in commissions given to each Royal Governor. *See* C.R. 3:66 Raper at 85. The lower house “stood not merely for the representative principle in government but also for distinctly local interests.” Cooke at 23. The House of Burgesses consisted of freeman elected from each county and certain towns.

42. Beginning in 1774 there were five extralegal provincial congresses that met in North Carolina culminating in the Fifth Provincial Congress that drafted North Carolina’s First Constitution in 1776 (1776 Constitution). During the First Provincial Congress the

concept of voting by counties and towns was established as the best method of deciding any differences that would arise during the deliberations of the Provincial Congresses. The membership of the Provincial Congresses mirrored closely the membership of the House of Burgesses.

3. Structure of Government, Apportionment and Election of Members to the General Assembly of the State of North Carolina 1776-Present

43. The 1776 Constitution⁸ drafted and approved by the Fifth Provincial Congress provided, in part, as follows:

Wherefore, in our present state, in order to prevent anarchy and confusion, it becomes necessary that government should be established in this State; therefore we, the Representatives of the freemen of North-Carolina, chosen and assembled in Congress, for the express purpose of framing a Constitution, under the authority of the people, most conducive to their happiness and prosperity, do declare, that a government for this State shall be established, in manner and form following, to wit:

I. That the legislative authority shall be vested in two distinct branches both dependent on the people, to wit, a *Senate* and *House of Commons*.

II. That the Senate shall be composed of Representatives annually chosen by ballot, one for each county in the State.

III. That the House of Commons shall be composed of Representatives annually chosen by ballot, two for each counts [sic] and one for each of the towns of Edentown, Newbern, Wilmington, Salisbury, Hillsborough and Halifax.

IV. That the Senate and House of Commons, assembled for the purpose of legislation, shall be denominated, *The General Assembly*.

44. In 1789, and as part of the constitutional convention in North Carolina that was called for the purpose of ratifying the new U.S. Constitution, the 1776 Constitution was amended to allow Fayetteville to elect a representative to the House of Commons. John L.

⁸ The 1776 Constitution was not presented to the people for ratification.

Sanders, *Amendments to the Constitutions of North Carolina, 1776-1996*, 1 (1997) (hereinafter referred to as “*Sanders, Amendments to the Constitution of N.C.*”).

45. While not expressly provided for in the 1776 Constitution, the power to create counties and draw their boundaries was necessarily vested in the people of this State, through their elected representatives. See, *Wayne County Citizens Ass’n for Better Tax Control*, 328 N.C. at 29, 399 S.E.2d at 319 (citation omitted).

4. 1835 Amendments to the N.C. Constitution of 1776

46. In 1835 a Constitutional Convention met in Raleigh for the purpose of, again, amending the 1776 Constitution. The convention was a result of “dissatisfaction with the legislative representation system, which gave no recognition to population.” John L. Sanders, *Our Constitutions: An Historical Perspective*, p. ___, (200_) (hereinafter “*Sanders, Our Constitutions*”)(the document available to the Court was not dated and did not include page numbers).

47. As a result of the 1835 Constitutional Convention, the 1776 Constitution was amended, in part, to provide one senator per district to be laid out by the General Assembly based upon public taxes paid by each county into the Treasury of the State. The amendment also prohibited a county from being divided in the creation of a Senate district. 1776 Constitution, amend. of 1835, art. I, § 1.⁹ The provision that a county not be divided in the formation of a district has become known as the “Whole County Provision.”

⁹ Due to the public interest in this case and the facts that the prior Constitutions of North Carolina and amendments thereto may not be readily or easily accessible to the public, the Court has elected to provide the relevant text of the same in footnotes.

Article 1 of the N.C. Const. of 1776 amend. of 1835 provide in relevant part:

§ 1. The Senate of this State shall consist of fifty Representatives, biennially chosen by ballot, and to be elected by districts; which districts shall be laid off by the General

48. The 1835 amendments also provided for 120 seats in the House of Commons, each county being guaranteed one seat with the remaining seats being distributed among the counties according to their population. 1776 Constitution, amend. of 1835, art. I, § 2. The apportionment on population favored the more populous counties. Sanders, *Our Constitutions*, 1.

Assembly, at its first session after the year one thousand eight hundred and forty-one; and afterwards, at its first session after the year one thousand eight hundred and fifty-one; and then every twenty years thereafter, in proportion to the public taxes paid into the Treasury of the State, by the citizens thereof; and the average of the public taxes paid by each county into the Treasury of the State, for the five years preceding the laying off of the districts, shall be considered as its proportion of the public taxes, and constitute the basis of apportionment: *Provided*, That no county shall be divided in the formation of a Senatorial district. And when there are one or more counties having an excess of taxation above the ratio to form a Senatorial district, adjoining a county or counties deficient in such ratio, the excess or excesses aforesaid shall be added to the taxation of the county or counties deficient, and if, with such addition, the county or counties receiving it, shall have the requisite ratio, such county and counties each, shall constitute a Senatorial district.

§ 2. The House of Commons shall be composed of one hundred and twenty representatives, biennially chosen by ballot, to be elected by counties according to their federal population, that is, according to their respective numbers, which shall be determined by adding to the whole number of free persons, including those bound to service for a term of years, and excluding Indians not taxed, three fifths of all other persons, and each county shall have at least one member in the House of Commons, although it may not contain the requisite ratio of population.

§ 3. This apportionment shall be made by the General Assembly, at the respective times and periods when the districts for the Senate are hereinbefore directed to be laid off; and the said apportionment shall be made according to an enumeration to be ordered by the General Assembly, or according to the census which may be taken by order of Congress, next preceding the period of making such apportionment.

§ 4. In making the apportionment in the House of Commons, the ratio of representation shall be ascertained by dividing the amount of Federal population in the State, after deducting that comprehended within those counties which do not severally contain the one hundred and twentieth part of the entire Federal population aforesaid, by the number of Representatives less than the number assigned to the said counties. To each county containing the said ratio, and not twice the said ratio, there shall be assigned one Representative; to each county containing twice, but not three times the said ratio, there shall be assigned two Representatives, and so on progressively, and then the remaining Representatives shall be assigned severally to the counties having the largest fractions.

49. The 1835 Amendments also provided, for the first time, for the popular election of the Governor. 1776 Constitution, amend. 1835, art. 2, §1.

5. The North Carolina Constitution of 1868

50. In 1868, a constitutional convention was called at the initiative of the Federal Government in order to provide for a constitution that would allow North Carolina to rejoin the Union after the Civil War. While Article I largely became what had previously been known as the Declaration of Rights, Article II now set forth those provisions related to the Legislature.

51. Under the 1868 Constitution, the number of and apportionment of members of the newly renamed House of Representative remained relatively the same as set forth in the 1776 Constitution, amend. of 1835, art. I, § 2. However, apportionment of the Senate was now based upon population. The Whole County Provision remained and for the first time Senate districts drawn by the General Assembly were required to be contiguous, and once drawn could not be redrawn until the next statewide “enumeration” or census. 1868 Constitution, art. II, § 5. As the census was required every 10 years, the provision against redrawing districts until the next census has become known as the Mid-Decade Provision.¹⁰

¹⁰ Article II of the 1868 Constitution provides in relevant part:

Sec. 1. The Legislative authority shall be vested in two distinct branches, both dependent on the people, to wit: a Senate and House of Representatives.

Sec. 2. The Senate and House of Representatives shall meet annually on the third Monday in November and when assembled shall be denominated the General Assembly. Neither House shall proceed upon public business, unless a majority of all the members are actually present.

SEC. 3. The Senate shall be composed of fifty Senators biennially chosen by ballot.

. . .

Sec. 5. An enumeration of the inhabitants of the State shall be taken under the direction of the General Assembly in the year one thousand eight hundred and seventy-five, and at the end of every ten years thereafter; and the said Senate districts, shall be so altered by the General Assembly, at the first session after the return of every

6. Amendments to the North Carolina Constitution of 1868

52. In 1962, the voters of this State ratified a proposed Constitutional Amendment amending the apportionment of members of the House of Representatives by giving the Speaker of the House the authority of apportionment. 1868 Constitution, amend. of 1962, art. II, § 5.¹¹ The apportionment of the members of the Senate remained unchanged.

enumeration taken as aforesaid, or by order of Congress, that each Senate district shall contain, as nearly as may be, an equal number of inhabitants, excluding aliens and Indians not taxed, and shall remain unaltered until the return of another enumeration, and shall at all times consist of contiguous territory; and no county shall be divided in the formation of a Senate district, unless such county shall be equitably entitled to two or more Senators.

Sec. 6. The House of Representatives shall be composed of one hundred and twenty Representatives, biennially chosen by ballot, to be elected by the counties respectively, according to their population, and each county shall have at least one Representative in the House of Representatives, although it may not contain the requisite ratio of representation. This apportionment shall be made by the General Assembly at the respective times and periods when the districts for the Senate are hereinbefore directed to be laid off.

Sec. 7. In making the apportionment in the House of Representatives, the ratio of representation should be ascertained by dividing the amount of the population of the State, exclusive of that comprehended within those counties which do not severally contain the one hundred and twentieth part of the population of the State, by the number of Representatives, less the number assigned to such counties; and in ascertaining the number of the population of the State, aliens and Indians not taxed, shall not be included. To each county containing the said ratio and not twice the said ratio, there shall be assigned one representative; to each county containing twice but not three times the said ratio, there shall be assigned two representatives, and so on progressively, and then the remaining representatives shall be assigned severally to the counties having the largest fractions.

¹¹ The amendment of 1962 to art. II, § 5, reads in part:

The House of Representatives shall be composed of 120 Representatives, biennially chosen by ballot, to be elected by the counties respectively, according to their population, and each county shall have at least one Representative in the House of Representatives, although it may not contain the requisite ratio of representation. This apportionment shall be made by the Speaker of the House of Representatives at the first regular Session of the General Assembly convening after the return of every enumeration by order of Congress. The formula set out in Section 6 of this Article shall be applied by the Speaker and the new apportionment entered on the Journal of the House of Representatives on or before the 60th calendar day of the Session. When so entered, the new apportionment shall have the same force and effect as an Act of the

53. In 1968, the voters of this State ratified a proposed Constitutional Amendment which amended the apportionment of members in both the Senate and House. 1868 Constitution, amend. of 1968, art. II, §§ 4-5¹²: In the Senate the provisions remained almost the same with certain exclusions from the population omitted. 1868 Constitution, amend. of 1968, art. II, §§ 4-5. The 1968 Amendment had the greatest impact on the apportionment of seats in the House of Representatives. While keeping the membership of the House at 120

General Assembly, and shall become effective at the next election for members of the General Assembly.

¹² The amendment of 1968 to art. II, § 5, reads in part:

Sec. 4. Senate Districts; Apportionment of Senators. The Senators shall be elected from districts. The General Assembly shall, at the first regular Session convening after the return of every decennial enumeration taken by order of Congress, revise the Senate Districts and the apportionment of Senators among those districts, subject to the following requirements:

- (1) Each Senator shall represent, as nearly as may be, an equal number of inhabitants, the number of inhabitants which each Senator represents being determined for this purpose by dividing the population of the district he represents by the number of Senators apportioned to that district;
- (2) Each Senate District shall at all times consist of contiguous territory;
- (3) No county shall be divided in the formation of a Senate District;
- (4) When established, the Senate Districts and the apportionment of Senators shall remain unaltered until the return of another decennial enumeration taken by order of Congress

Sec. 5. Number of Representatives. The House of Representatives shall be composed of 120 Representatives, biennially chosen by ballot.

Sec. 6. Representative Districts; Apportionment of Representatives. The Representatives shall be elected from districts. The General Assembly shall, at the first regular Session convening after the return of every decennial enumeration taken by order of Congress, revise the Representative Districts and the apportionment of Representatives among those districts, subject to the following requirements:

- (1) Each Representative shall represent, as nearly as may be, an equal number of inhabitants, the number of inhabitants which each Representative represents being determined for this purpose by dividing the population of the district he represents by the number of Representatives apportioned to that district;
- (2) Each Representative District shall at all times consist of contiguous territory;
- (3) No county shall be divided in the formation of a Representative District;
- (4) When established, the Representative Districts and the apportionment of Representatives shall remain unaltered until the return of another decennial enumeration taken by order of Congress.

members, representatives were no longer apportioned by county, but instead by districts to be drawn by the General Assembly with apportionment based upon equal population. In addition, districts had to be contiguous, were subject to the While County Provision and Mid-Decade Provision. N.C. Const. of 1868, amend. of 1968, art. II, §§ 4-5.

7. The North Carolina Constitution of 1971

54. In March, 1968, the North Carolina State Constitution Study Commission (“Study Commission”) was “created by the North Carolina State Bar and North Carolina Bar Association, acting concurrently on the recommendation of His Excellency Governor Dan K. Moore . . . to give consideration to the question of whether there is need for either rewriting or amending the Constitution” Report of the North Carolina State Constitution Commission, p. iii (December 16, 1968) (hereinafter referred to as “Report of Study Comm’n”). The Study Commission made recommendations to change certain language in the 1868 Constitution. Changes to the 1868 Constitution were made in two ways: to the body of the constitution itself in the form of a “proposed constitution; and proposed amendments to the “proposed constitution” once it had been ratified. The changes to be effected in the “proposed constitution” were typically grammatical or stylistic changes. Those substantive changes contained in the “proposed constitution” were not calculated “to bring about any fundamental change in the power of state and local government or the distribution of that power.” Report of Study Comm’n at 10. Any substantive change reflected in the “proposed constitution itself [was] not of significant magnitude” to justify their treatment in separate proposed amendments. *Id.* Those proposed changes that were significant in magnitude or in which citizens of the State would strongly differ were recommended to be voted on through separate proposed amendments. *Id. at 9-10.*

55. In 1971, a new constitution was ratified by the voters of this state. The 1971 Constitution did not modify Article II of the 1868 Constitution as it pertains to apportionment in any substantive manner.

56. Table 1 below reflects a summary of the progression of how districts for state legislative seats were to be created and the requirements, if any, for those districts from 1776 to the present.

TABLE 1	
Senate	
Year	Method for creating districts
1776	One senator per county
1835	50 districts with one senator per district to be laid out by General Assembly, apportionment based on the amount of public taxes paid into the Treasury; includes a whole-county provision
1868	50 districts with one senator per district to be laid out by General Assembly, apportionment based on equal population; includes mid-decade provision, a contiguous territory provision, and whole-county provision (with only exception being if a county's population was large enough, then the county was entitled to two senators)
1968	50 districts with one senator per district to be laid out by the General Assembly, apportionment based on equal population; includes mid-decade provision, a contiguous territory provision, and whole-county provision
1971	Only slight grammatical changes to 1968 amendment
House of Representatives (initially referred to as House of Commons)	
Year	Method for creating districts
1776	Two representatives per county with six towns receiving an additional representative
1835	120 representatives elected by the counties and each county must have at least one representative, apportionment based on population
1868	120 representatives elected by the counties and each county must have at least one representative, apportionment based on population
1962	Apportionment now made by the Speaker of the House of Representatives
1968	120 representatives now elected in districts with one representative per district to be laid out by General Assembly, apportionment based on equal population; includes mid-decade provision, a contiguous territory provision, and whole-county provision
1971	Only slight grammatical changes to 1968 amendment

8. The Governor’s Power to Veto Acts of the General Assembly

57. As noted above, neither the 1776 Constitution, the 1868 Constitution, nor the 1971 Constitution as originally enacted, gave the Governor veto power over acts of the legislature.

58. In 1968, the Study Commission recommended nine separate amendments to the proposed constitution that provided such substantial changes that they believed the voters should have a chance to act upon them individually. Report Of Study Comm’n at 11-12. One proposed amendment would have granted the Governor the right to veto legislation passed by the General Assembly. *Id.* at 10, 102. In its commentary to the proposed amendment giving the Governor veto power, the Study Comm’n stated, “[i]t is intended to add to the legislative process one participant who is responsible to a state wide constituency, and who is in a position to consider the impact of a bill on the state as a whole and in the light of considerations perhaps not known to the majority of the General Assembly.” *Id.* at 104. While the General Assembly, at that time, proposed 5 amendments to the Constitution, it did not submit the proposed amendment giving the Governor the power to veto acts passed by the General Assembly.

59. Finally, in 1995, the General Assembly placed a proposed amendment to the 1971 Constitution on the ballot in the 1996 general election to provide the Governor the power to veto ordinary statewide legislation enacted by the General Assembly. N.C. Sess. Laws. 1995, Chapter 5. The act placing the proposed amendment on the ballot was passed by a House of Representatives controlled by the Republican Party and a Senate controlled by the Democratic Party. This amendment was ratified on November 5, 1996, by a vote of 1,652,294 to 544,335. John L. Sanders, *Amendments to the Constitution of N.C.*, 24 (1997). Notably excepted from the Governor’s veto power, as proposed by the General Assembly and approved by the people of this State, was the authority of the Governor to veto legislative or

congressional redistricting maps enacted by the General Assembly. 1971 Constitution, amend. of 1995, art. II, § 22(5)(b)-(d).

60. Over the last twenty years numerous bills have been submitted to the approximately 11 different General Assemblies in North Carolina which would require bipartisan or nonpartisan redistricting. Each party has had the ability to pass redistricting reform, yet each party has failed to take advantage of these opportunities.

9. Power to Draw Congressional Districts.

61. While Congress has the ability to regulate districting with respect to congressional maps, it has largely left the redistricting of congressional districts to the state legislatures or other bodies. *League of Latin Am. Citizens v. Perry*, 548 U.S. 399, 414 (2006) (citations omitted). Despite having this ability and the repeated public outcry concerning partisan gerrymandering, Congress has not taken any action to address the problem. The lack of will to address the problem is not limited to a single political party as the Republicans had an opportunity to address the issue between 2017 and 2018 when they controlled both houses of Congress as well as the Presidency. Likewise, with the results of the 2020 census and redistricting of congressional districts looming, Democrats have had an opportunity in 2021 to address the issue as it has control over both chambers of Congress as well as the Presidency. Congress' inaction has left the Equal Protection Clauses in both our State and Federal Constitution as they relate to racial gerrymandering, the Voting Rights Act of 1965, and the one person one vote requirement set forth in *Baker v. Carr*, 369 U.S. 186 (1962) and *Reynolds v. Sims*, 377 U.S. 533 (1964) as the only constraints placed on our General Assembly in the drawing of congressional districts.

B. The Constitutional Provisions Plaintiffs Claim Have Been Violated

1. Free Elections Clause

62. The 1776 Constitution provided that “[t]he election of members, to serve as representatives, ought to be free.” N.C. Const. of 1776, Decl. of Rights §, IV. This has become known as the Free Elections Clause. With the ratification of the 1868 Constitution, the Free Elections Clause was restated as “[a]ll elections ought to be free.” 1868 Const. art. I, § 10. Finally, the Free Elections Clause was again amended as part of the 1971 Constitution and now states “[a]ll Elections shall be free.” “[O]ught was changed to shall throughout the Declaration of Rights to make clear the rights are commands.” Report of Study Comm’n at 74-75). The change to the Free Elections Clause was not meant as a substantive change that was intended to “bring about a fundamental change” to the power of the General Assembly. *Id.*

2. Equal Protection Clause

63. The Equal Protection Clause came into existence as part of the ratification of the 1971 Constitution and provided “[n]o person shall be denied equal protection of the laws, nor shall any person be subjected to discrimination because of race, color, religion or national origin.” 1971 Const. art. I, § 19. The addition of the Equal Protection Clause, while a substantive change, was not meant to “bring about a fundamental change” to the power of the General Assembly. Report of Study Comm’n at 10.

3. Free Speech Clause

64. Like the Equal Protection Clause, the Free Speech Clause was added to the Freedom of the Press Clause as part of the 1971 Constitution and now reads “freedom of speech and of the press are two of the great bulwarks of liberty and therefore shall never be restrained, but every person shall be held responsible for their abuse.” 1971 Const. art. I, § 14. The addition of the Free Speech Clause, while a substantive change, was not meant to

“bring about a fundamental change” to the power of the General Assembly. Report of Study Comm’n at 10.

4. Freedom of Assembly Clause

65. The Freedom of Assembly Clause first appeared in the Declaration of Rights set forth in the 1776 Constitution and provided that “the people have a right to assemble together, to consult for their common good, to instruct their Representatives, and to apply to the Legislature, for redress of grievances.” 1776 Const. Decl. of Rights XVII. The Freedom of Assembly Clause was modified by the 1868 Constitution by deleting the first word of the clause “that.” 1868 Const. art. I, § 26. Amendments were again made to the Freedom of Assembly Clause with the ratification of the 1971 Constitution which now reads “The people have a right to assemble together to consult for their common good, to instruct their representatives, and to apply to the General Assembly for redress of grievances; but secret political societies are dangerous to the liberties of a free people and shall not be tolerated.” 1971 Const. art. I, § 12. The change to the Freedom of Assembly Clause was not meant as a substantive change, nor was it meant to “bring about a fundamental change” to the power of the General Assembly. Rept. of Study Comm’n at 10.

C. Redistricting is an Inherently Political Process

66. Under our State Constitution, redistricting of Senate and House Districts is left to the General Assembly. As stated above, the drawing of congressional maps has been left to the discretion of state legislative bodies. *League of Latin Am. Citizens v. Perry*, 548 U.S. 399, 414 (2006) (citations omitted). In that redistricting is left to legislative bodies, bodies which are inherently political in nature, the United State Supreme Court has indicated that a State may engage in “constitutional political gerrymandering.” *Rucho*, ___ U.S. ___, 139 S. Ct. at 2947. Likewise, the North Carolina Supreme Court has stated:

[t]he General Assembly may consider partisan advantage and incumbency protection in the application of its discretionary redistricting decisions, *see Gaffney v. Cummings*, 412 U.S. 735, 37 L. Ed. 2d 298, 93 S. Ct. 2321 (1973), but it must do so in conformity with the State Constitution. To hold otherwise would abrogate the constitutional limitations or “objective constraints” that the people of North Carolina have imposed on legislative redistricting and reapportionment in the State Constitution.

Stephenson I, 355 N.C. at 371-372, 562 S.E.2d at 390.

67. Indeed, redistricting “inevitably has and is intended to have substantial consequences” as it is part of the American political process. *Rucho*, ___ U.S. at ___, 139 S. Ct. at 2497. While the United States Supreme Court has attempted to address partisan gerrymandering on a number of occasions, in *Rucho* it determined that claims for partisan gerrymandering were not justiciable because they:

present political questions beyond the reach of the federal courts. Federal judges have no license to reallocate political power between the two major political parties, with no plausible grant of authority in the [Federal] Constitution, and no legal standards to limit and direct their decisions.

Id. at ___, 139 S. Ct. at 2506-07.

68. While determining that political gerrymandering claims were beyond the reach of the federal courts, the U.S. Supreme Court noted that “[t]he States . . . are actively addressing the issue on a number of fronts,” and “[p]rovisions in state statutes and state constitutions can provide standards and guidance for state courts to apply.” *Id.* at 2507.

69. In *Rucho*, the U.S. Supreme Court pointed to examples of how the States are specifically addressing the issue and how statutes and constitutions can provide standards and guidance for the state courts to apply. In Florida, the Fair Districts Amendment to the Florida Constitution was adopted in 2010 and specifically provides that in creating congressional or legislative districts “[n]o apportionment plan or district shall be drawn with the intent to favor or disfavor a political party or an incumbent” Fla. Const. Art. III, §§ 20-21. In Michigan, the state constitution was amended in 2018 to provide for an independent citizens redistricting commission. Mich. Const. Art. IV, §6. Missouri has added

language to its constitution that requires that “[d]istricts be drawn in a manner that achieves both partisan fairness, and secondarily, competitiveness. . . .” Mo. Const. Art. III, § 3(b)(5). Other states identified by the Supreme Court, Iowa and Delaware, have elected to address the issue through their state statutes. All of the states identified and the manner in which they are addressing the problem have one thing in common: the problem was addressed by the people, their legislatures, or both—not the judiciary.

D. The Enacted Maps Are Not Unconstitutional as a Result of Partisan Gerrymandering.

1. The Enacted Maps Do Not Violate the Free Elections Clause

70. While the Free Elections Clause has been part of our constitutional jurisprudence since the 1776 Constitution, there are very few reported decisions that construe the clause. In *Clark v. Meyland*, 261 N.C. 140, 136 S.E.2d 168 (1964), the plaintiff, a registered Democrat sought to change his party affiliation to that of a Republican in order to vote in the next Republican primary. *Id.* at 141, 136 S.E.2d at 169. At the time, the then existing N.C.G.S. § 106-50, required a person changing their party affiliation to take an oath in which they agreed to support the nominees to their new party in all elections until such time as they change their party again. *Id.* The Court found that the provision of the oath requiring the plaintiff to vote for the candidate of his new party operated as a “detrant [sic] to his exercising a free choice among available candidates at the election ---even by casting a write-in ballot.” *Id.* at 142-143, 136 S.E.2d at 170. The Court found this to be violative of the Free Elections Clause. *Id.* at 143, 134 S.E.2d 170.

71. In *Swaringen v. Poplin*, 211 N.C. 700, 191 S.E. 746 (1937) the Supreme Court found that an allegation of fraud in an election was contrary to the Free Elections Clause and thus could serve as a basis to try title to an office through the *quo warranto* procedure. *Id.* at 701-02; 191 S.E. at 746.

72. In *Obie v. North Carolina State Board of Elections*, 762 F. Supp. 119 (E.D.N.C. 1991), the United States District Court for the Eastern District of North Carolina found that a requirement that an unaffiliated voter obtain the signature of 10% of the registered voters in the district in which they were running for office impeded the ability to gain access to the ballot and thus, among other things, violated the Free Elections Clause. *Id.* at 121.

73. None of the aforementioned cases deal with redistricting for partisan advantage. However, as noted above, “[t]he General Assembly may consider partisan advantage and incumbency protection in the application of its discretionary redistricting decisions, but it must do so in conformity with the State Constitution.” *Stephenson*, 355 N.C.at 371-72, 562 S.E.2d at 390. (citations omitted).

74. The Court must now seek to construe the Free Elections Clause as well as the redistricting provisions of the North Carolina Constitution within the analytical framework dictated by our Supreme Court, as set forth above and in light of the language of *Stephenson*.

75. The Free Elections Clause was first set forth as part of the North Carolina Declaration of Rights which was specifically incorporated as part of the 1776 Constitution. N.C. Const. of 1776, § XLIV. The Free Elections clause plainly and simply provided “[t]he election of members, to serve as representatives, ought to be free.” N.C. Const. of 1776, Decl. of Rights, § IV. “The word ‘free’ originally derives by way of Section 3 of the Virginia Declaration of Rights¹³, and from the English Bill of Rights (1689)¹⁴.” John V. Orth, *The North Carolina State Constitution: A Reference Guide*, 56 (1993). “The meaning is plain: free from interference or intimidation.” *Id.*

¹³ [E]lections of members to serve as representatives of the People, in assembly, ought to be free” Va. Decl. of Rights, §3.

¹⁴ [E]lections of members of Parliament ought to be free.”

76. In addition to the clear meaning of the words found in our Free Elections Clause, we are directed to also consider the circumstances and conditions which existed at the time of the enactment of the same. *Perry*, at 447, 75 S.E.2d at 516.

77. As Plaintiffs correctly point out, the words as originally used in the English Bill of Rights (1869) were crafted in response to abuses and interference by the Crown in elections for members of parliament which included changing the electorate in different areas to achieve electoral advantage. J.R. Jones, *The Revolution of 1688 in England*, 148 (1972). However, that is where the Plaintiffs’ analysis ends. Examining the North Carolina Free Elections Clause in a greater context gives a complete understanding to its meaning.

78. At the time of the Glorious Revolution, King James II embarked on a campaign to pack Parliament with members sympathetic to him in an attempt to have laws that penalized Catholics and criminalized the practice of Catholicism repealed.¹⁵ After failing in his attempt to pack parliament, King James II was ultimately overthrown and fled England, paving the way for King William and Queen Mary to rule together. As a condition of King William and Queen Mary’s assumption of the throne, they were required to sign the English Declaration of Rights which resulted in limiting the powers of the Crown and an increase in power to Parliament, most notably in the House of Commons.

79. The Glorious Revolution and the resulting English Bill of Rights were the beginning of a constitutional monarchy. While the English Bill of Rights, in part, sought to address the Crown’s interference with the affairs of Parliament, there is no indication that the English Free Election Clause was directed at anyone but the Crown, much less a restriction on the power of Parliament. In fact, the opposite seems true. The English Bill of Rights reflected a shift in power from the Crown, who generally acted to protect its own

¹⁵ In 1669, and prior to his ascension to the throne, King James, II converted to Catholicism.

interest, to the House of Commons in Parliament, whose members were elected by the people. Because the English Bill of Rights did not abolish the monarchy, provisions were necessary to provide protection to the elected members of parliament from interference by the Crown.

80. By the time the Virginia Declaration of Rights and the North Carolina Declaration of Rights and Constitution were passed, the Glorious Revolution had been over for almost a century. It is safe to say that none of the drafters of the 1776 Constitution were alive during the Glorious Revolution or the establishment of the English Bill of Rights and their experiences and concerns did not arise from direct interactions with the Crown, but instead from direct interactions with the Royal Governors and their Council who represented the interests of the Crown. Moreover, the Royal Governors were representatives of a constitutional monarch, unlike the monarchs who claimed the throne through divine right before and up to the signing of the English Bill of Rights.

81. Under colonial rule, the North Carolina Royal Governor had veto power, as no law could be passed without his consent. While his instructions did not allow him to determine the manner of electing members to the House of Burgesses or set the number of members, they did allow him to dissolve the House of Burgesses. Raper at 35. The instructions to the Royal Governor also allowed him to issue charters of incorporation for towns and counties from which representatives would be elected.

82. No doubt there were tensions between the House of Burgesses and the Governor from 1729 to 1776. In 1746, in an effort to give equal representation to each county, as the newer counties were given fewer representatives in the House of Burgesses, the Royal Governor moved the legislature to Wilmington where representatives of the larger counties would not travel, giving the smaller counties effective control of the lower house. As a result, the legislature passed legislation giving each county two representatives in the assembly.

This remained in effect until 1754 when the legislation was repealed by the Crown. Raper 90-91.

83. Disputes also arose as to whether the Governor could require counties and towns to obtain charters of incorporation prior to being able to elect representative to the legislature. As this was specifically allowed in his instructions from the Crown, the colonists did not continually press this particular issue. Raper at 69.

84. At times, the House of Burgesses refused to seat new members from counties created by the Governor. The dispute was not necessarily that the Governor did not have the authority, but the House believed they had a role in the process in the creation of counties. Raper at 89-90.

85. The House of Burgesses fought the Royal Governor over the right to establish a quorum for the legislature to act - the governor desiring a smaller number, feeling they would be easier to influence. Raper at 216-217.

86. The House of Burgesses and Governor also had disputes regarding land, quit-rents and the form of payment thereof, (Cooke at 35, Raper at 191-193), the nomination of public treasurers, (Raper at 205), the appointment of agents to England, (Raper at 26), and disposition of public revenue, Raper at 197-199; Cooke at 37.

87. The most serious disputes between the Royal Governor and the House of Burgesses arose over fiscal matters, the courts and appointment of judges. Raper at 208-209; Cooke at 38.

88. At the time of the adoption of the 1776 Constitution, North Carolina was:

much more democratic than many of her sister states, such as Virginia and Maryland. There was an absence of any landed aristocracy as found in Virginia and the absence of any large ports had hindered the development on an influential commercial class. Lastly, the Church of England with its aristocratic tendencies, was weaker in North Carolina than in her sister colonies directly north and south.

Ketcham at 216.

89. Upon the adoption of the 1776 Constitution, the Royal Governor, who represented and protected the interest of the Crown, was replaced by a Governor chosen by the General Assembly. N.C. Const. of 1776, § XV. Unlike Parliament, who after the passage of the Declaration of English Rights continued to have to deal with the Crown as part of the constitutional monarchy, North Carolinians and their General Assembly were no longer subservient to parliament, the Crown, or its representatives: the Royal Governor and his Council.

90. The circumstances under which the English Free Election Clause was written were far different than those which caused the same language to be used in the 1776 Constitution.

91. It was the experience of the people of the State of North Carolina that was the most important source for the creation of the 1776 Constitution. Ketcham at 230. By far, the greatest change in the structure of North Carolina's government, other than elimination of the parliament and the Crown, was the vast reduction in the powers of the Governor and the substantial increase in the powers of the General Assembly. These changes were made to make “the governor that figurehead in law which in fact the colonial legislature had long sought to make him.” *Id.* Turning the Governor into a figurehead was a result of the experience of the colonists with “the overbearing colonial governors who presided over North Carolina.” John V. Orth, *North Carolina Constitutional History*, 70 North Carolina Law Review, 1759, 1764 (Sept. 1, 1992).

92. Any argument that the Free Elections Clause placed limits on the authority of the General Assembly to apportion seats flies in the face of the overwhelming authority given to the General Assembly in the 1776 Constitution. First, apportionment was by county and town. As past disputes between the Royal Governor and the House of Burgesses dealt

primarily with what role the lower house had in creation of counties, that dispute was eliminated with the severance of ties with the Monarch and the Royal Governor. The General Assembly, and only the General Assembly, had the right to create counties.

93. In addition to having authority to create counties and towns, the legislature had the exclusive power to: (1) elect the Governor (N.C. Const. of 1776, § XV); (2) appoint the Attorney General; (3) appoint Judges of the Supreme Court of Law and Equity and Judges of Admiralty (*id.* at § XIII); (4) appoint the general and field officers of the militia (*id.* at § XIV); (5) elect the council of State (*id.* at. XVI); (6) appoint a treasurer or treasurers of the State (*id.* at §. XXII); (7) appoint the Secretary of State (*id.* at § XXXIII); and (8) recommend the appointment of Justice of the Peace to the Governor who shall commission them accordingly. (*id.* at § XXXIII). Moreover, unlike the Royal Governor, the Governor of the State of North Carolina was not given the power to veto acts of the legislature. The lack of veto and the sweeping powers granted to the legislature caused the governor’s “executive authority to be hemmed in on every side.” John v. Orth, *Constitutional History of North Carolina*, 70 North Carolina Law Review, 1759, 1764 (Sept 1, 1992). Much like the English Bill of Rights, the 1776 Constitution shifted power to the elected representatives of the people.

94. The drafters of the 1776 Constitution discussed how to place a check on legislative excess. See, C.R. 10:498-99, Letter from Samuel Johnston to James Iredell dated April 20, 1776. Their solution was simple and direct: have elections often.

95. The check on any excesses of the legislature was embodied in Section XX of the Declaration of Rights of the 1776 Constitution which states “[t]hat for redress of grievances and for amending and strengthening the laws, elections ought to be often held.” Further solidifying the check on legislative excesses was the requirement that Senators and Representatives be elected annually. N.C. Const. of 1776, arts. II & III. “Annual elections

ensured accountability” to the people of North Carolina. *The North Carolina State Constitution*, John V. Orth, Paul Martin Newby, 2nd Ed., p. 6 (2013).

96. While the legislature did not specifically draw districts from 1776 to 1835, they did create counties. In 1776 there were approximately 35 counties in North Carolina and by 1835 that number exceeded 60. There were no constitutional checks on the legislature’s ability to create counties, the basis of representation during that time, nor is there any evidence of the need for any constraints on that authority. As the General Assembly was given the authority to lay out Senate districts in 1835, objective constraints were placed on the General Assembly starting with a Whole County Provision. N.C. Const. of 1776, amended 1835, art. I, §1. Over time, additional objective constitutional constraints have been placed on the General Assembly so as today there are four objective constraints delineated in the North Carolina Constitution: (1) apportionment of the district by population such that the representative or senators in each district shall represent, as nearly as may be, an equal number of inhabitants; (2) A contiguity requirement; (3) a Whole County Provision; and (4) a Mid-Decade Provision.¹⁶ At no point has restriction of redistricting for partisan advantage ever been made part of any North Carolina Constitution.

97. Further evidence that the North Carolina Free Elections Clause was not intended to operate as a restriction on the authority of the General Assembly to redistrict is how the framers of the English Bill of Rights and Virginia Declaration of Rights understood how the provisions applied at the time they were enacted and immediately thereafter.

98. Before, during and after the Glorious Revolution, and the signing of the English Bill of Rights, there existed in England what were known as Rotten Boroughs. These

¹⁶ These are in addition to constraints/requirements imposed by the Fourteenth Amendment to the U.S. Constitution and the Voting Rights Act of 1965.

were Boroughs where there were very few residents but that elected the same number of members of parliament as heavily populated districts.

99. Thomas Paine in *The Rights of Man* explained:

The County of York, which contains nearly a million of souls, sends two county members; and so does the county of Rutland, which contains not an hundredth part of that number. The old town of Sarum, which contains not three houses, sends two members; and the town of Manchester, which contains upwards of sixty thousand souls, is not admitted to send any.

Thomas Paine, *The Rights of Man*, Part, the First, Being an Answer to Mr. Burke's Attack on the French Revolution.

100. Old Sarum was once the site of a cathedral and a fort, but when the cathedral moved, the population dwindled. Despite this, it continued to send two members to parliament. This allowed whoever controlled the land to elect the members. Old Sarum was just one of many Rotten Boroughs and it and others existed as such before, at the time of and after the signing of the English Bill of Rights.

101. Rotten Boroughs allowed fathers to pass on a constituency to their sons ensuring their son or a person of their choosing would have the power of a member of Parliament. <https://www.historylearningsite.co.uk/british-electoral-history-since-1832/rotten-boroughs/> (last visited 01/07/2022)

102. Despite the Free Elections Clause in the English Bill of Rights, the Rotten Boroughs were allowed to continue to exist until the Reform Act of 1832.¹⁷ At the time of the passage of the reform Act of 1832 more than 140 parliamentary seats out of a total of 658 or 21% of members of parliament came from Rotten Boroughs. Of those Rotten Boroughs, 50 had fewer than 50 voters.¹⁸

¹⁷ [Parliament.uk/about/living-heritage/evolutionofparliament/reformacts/overview/reformactof 1832/](https://www.parliament.uk/about/living-heritage/evolutionofparliament/reformacts/overview/reformactof1832/)

¹⁸ <http://www.britannica.com/topic/rotten-borough> (last visited January 7, 2022).

103. Given the existence of these Rotten Boroughs at the time of the signing of the English Bill of Rights, and their continued unopposed use of the same until 1832, it is doubtful that such boroughs maintained by or for members of parliament were subject to the English Free Elections Clause.

104. North Carolina’s Free Election Clause is modeled and taken from a similar clause in the Virginia Declaration of Rights written by George Mason and approved by the Fourth Virginia Convention in 1775. Members of the convention who approved the Virginia Declaration of Rights included Patrick Henry and James Madison.

105. In *Rucho*, the United States Supreme Court noted that

During the very first congressional elections, George Washington and his Federalist allies accused Patrick Henry of trying to gerrymander Virginia’s districts against their candidates—in particular James Madison, who ultimately prevailed over fellow future President James Monroe. Hunter, *The First Gerrymander?* 9 Early Am. Studies 792-794, 811 (2011). See 5 Writings of Thomas Jefferson 71 (P. Ford ed. 1895) (Letter to W. Short (Feb. 9, 1789)) (“Henry has so modelled the districts for representatives as to tack Orange [county] to counties where he himself has great influence that Madison may not be elected into the lower federal house”).

Rucho, ___ U.S. at ___, 139. S. Ct. at 2494.

106. What is telling is that Patrick Henry, who was responsible in part for the Free Elections Clause in the Virginia Declaration of Rights, was attempting to partisan gerrymander districts to the detriment of James Madison, who was also responsible in part for the Free Elections Clause in the Virginia Declaration of Rights. If the Virginia Free Elections Clause applied to partisan gerrymandering, two of the men responsible for the clause did not seem to think it applied. It did not stop Patrick Henry from his actions, nor did Madison or his supporters assert the Free Election Clause to stop Patrick Henry. If the two men who were responsible or approving the clause did not think it applied to partisan gerrymandering, this Court is certainly hesitant to do so. In fact, it was not until 2020 that Virginia addressed the issue of partisan gerrymandering, not by judicial fiat, but by a

constitutional amendment providing for a bipartisan districting commission. Va. Const. of 1971, amend. 2020, art. II, § 6-A. The Virginia General Assembly also passed legislation setting standards and criteria for redistricting. One of these standards specifically prohibits maps “when considered on a statewide basis from unduly favoring or disfavoring a political party.” Va. Code § 24.2-304.4 (8).

107. Given the history and factors described above, this Court concludes that the Free Elections Clause does not operate as a restraint on the General Assembly’s ability to redistrict for partisan advantage.

2. The Incorporation of the Free Speech Clause and the Equal Protection Clause to the North Carolina Constitution of 1971 Was Not Intended to Bring About a Fundamental Change to the Power of the General Assembly

108. In determining whether the Equal Protection Clause and Free Speech Clause were intended to apply to the political question of partisan gerrymandering, it is necessary to examine the intent of the framers and citizens who adopted it. *Sneed*, 299 N.C. at 613, 264 S.E.2d at 110. This necessarily entails an examination of “history, general spirit of the times, and the prior and the then existing law in respect of the subject matter of the constitutional provision under consideration” *Perry*, 237 N.C. at 444, 75 S.E.2d at 514.

109. The Equal Protection Clause was incorporated into our State constitution in 1971 as part of the Law of the Land Clause. N.C. Const. of 1971, art. I, § 19. The Free Speech Clause was incorporated into our State constitution in 1971 as part of Free Press Clause. N.C. Const. of 1971, art. I, § 14. Prior to the adoption of the “proposed constitution” in 1971, no version of an Equal Protection Clause or Free Speech Clause was found in any of our State’s prior Constitutions. *See* N.C. Const. of 1776, as amended; N.C. Const. of 1868 as amended. At the time the Equal Protection Clause and Free Speech Clause were added to the State Constitution, the North Carolina legislature had been dominated by the Democratic

Party since the end of Reconstruction, a period of over 90 years representing 45 legislative elections.

110. In 1967, and just three years prior to the addition of the Equal Protection Clause and Free Speech Clause to the State Constitution, the Legislature placed on the ballot for ratification a constitutional amendment setting forth the objective constraints placed on the legislature in the drawing of legislative districts. 1967 Sess. Laws ch. 640. This amendment was ratified on November 8, 1968, by a vote of 582,633 to 373,395. John L. Sanders, *Amendments to the Constitution of North Carolina 1776-1996*, 15 (1997). N.C. Const. of 1868, amend. 1968, art. II, §§ 4 & 6. The objective constraints listed in the amended Article II of the 1868 Constitution are the only objective constraints that the framers of the North Carolina Constitution and amendments thereto saw fit to place on the legislature in drawing legislative maps. *Id.* The constraints are overall consistent with the progression of constraints placed upon the legislature in the two prior constitutions. *See* Table 1.

111. Plaintiffs would have this Court infer that it was the intent of the framers of the 1971 Constitution, by including the Equal Protection Clause and Free Speech Clause in the State Constitution, to limit the legislature’s ability to redistrict for partisan advantage to some degree. As previously stated, the addition of the Equal Protection Clause and Free Speech Clause, while a substantive change, was not meant to “bring about a fundamental change” to the power of the General Assembly. Rept. of Study Comm’n at 10. If the framers did intend to limit the partisan advantage that could be obtained through redistricting, “it is reasonable to presume it would have been declared in direct terms and not be left as a matter of inference.” *Sneed*, 299 N.C. at 616, 264 S.E.2d at 112. We will not “assume that, whatever the intent of the framers, the citizens intended by their adoption at the polls of the 1970 constitutional changes” that the Equal Protection Clause and Free Speech Clause impose new restrictions on the political process of redistricting. *See Id.; Perry v. Stancil*, 237 N.C.

442, 447, 75 S.E.2d 512, 516 (1953) (“In the absence of an express provision to that effect, we should be slow in adopting the conclusion that it was the intention of the framers of the Constitution to enact so radical a change in the law; because if such was the intention, it is reasonable to presume it would have been declared in direct terms and not left to a matter of inference.”)

112. Perhaps most probative of the intent of the framers and citizens of 1971 was the refusal of the legislature, as the representative of the people, to accept the recommendation of the Study Commission to give the Governor, as a person elected on a Statewide basis by the majority of the voters of this State, the power of the veto as a check on the excesses of the Legislature.

a. The Enacted Maps Do Not Violate the Equal Protection Clause

113. Plaintiffs also ask this Court to strike down the enacted maps as unconstitutional as a violation of our State Constitution’s Equal Protection Clause.

114. As an initial matter, this Court notes that the United States declined to strike the partisan gerrymandered maps in *Rucho* as unconstitutional under the Equal Protection Clause of the Fourteenth Amendment of the United States Constitution. ___ U.S. at ___, 139 S.Ct. at 2504. It is true that in some instances greater protection has been afforded to citizens of North Carolina under our State Constitution than under the Federal Constitution. However, those occasions are rare. *Stephenson*, 355 N.C. at 397-98, 398 S.E.2d at 406-07 (Orr, J. concurring in part, dissenting in part).

115. It is also true that our Courts have found on several occasions that certain circumstances involving elections or the right to vote may give rise to equal protection claims under our state Constitution. In *Common Cause*, the court relied upon *Stephenson*, *Blankenship v. Bartlett*, 363 N.C. 518, 681 S.E.2d 759 (2007), and *Northampton County*

Drainage District No. One v. Bailey, 326 N.C. 742, 392 S.E.2d 352 (1990), to justify application of the equal protection clause to strike down the 2017 redistricting plan as unconstitutional based upon extreme partisan gerrymandering.

116. In *Stephenson*, the North Carolina Supreme Court held that “[t]he classification of voters into both single-member and multi-member districts within plaintiffs’ proposed remedial plans necessarily implicates the fundamental right to vote on equal terms” *Stephenson*, 355 N.C. at 378, 562 S.E.2d at 393-94. The Court went on to reason that members in multi-member districts had greater representation, in terms of members, than those voters in a single member district. *Id.*

117. In *Blankenship*, the Court held that the Equal Protection Clause was implicated and that the legislature’s actions were examined with heightened scrutiny when judicial districts created by the General Assembly represented a great disparity of residents to judge when one such district had five times the voting power of another district. *Blankenship*, 363 N.C. at 527-28, 681 S.E.2d at 766.

118. In *Northampton County Drainage No. One*, commissioners of the drainage district could assess members for maintenance or improvements in the district. 326 N.C. at 745-46, 392 S.E.2d at 355. The commissioners were appointed by the Northampton County Clerk of Court. *Id.* Because the drainage district encompassed land in Hertford County, the landowners within the Hertford County district were unable to vote for the Clerk of Court of Northampton County. *Id.* This gave Northampton County members voting rights that member in Hertford County lacked. *Id.* The North Carolina Supreme Court found that this deprived the Hertford County residents of Equal Protection under the law. 326 N.C. at 747, 392 S.E.2d at 356.

119. *Blankenship* and *Stephenson* are cases dealing with the ratio between the voters in a district and the elected representatives in that district. *Northampton* deals with the right to vote on equal terms with other members of the voting district.

120. In analyzing Plaintiffs’ Equal Protection Claims as it relates to redistricting for partisan advantage, Plaintiffs are not denied the right to vote, nor are they in a district where they have less voting power than those in other districts. Plaintiffs are not part of a suspect class. Plaintiffs cite no appellate case where a person’s membership in a political party is a suspect classification. The opposite seems to be true. *See Libertarian Party of North Carolina v. State*, 365 N.C. 41, 51, 707 S.E.2d 199, 206 (2011). To find as such would subject any person affected by a political decision of the state to heightened scrutiny.

121. It is true that there is a fundamental right to vote. However, if “no individual minority voter has a right to be included in a majority-minority district,” *League of United Latin Am. Citizens v. Perry*, 548 U.S. 399, 504, 126 S. Ct. 2594, 2659 (2006) (Roberts, C.J., concurring in part, concurring in the judgment in part, and dissenting in part) (citing *Shaw v. Hunt*, 517 U.S. 899, 917, and n. 9, 116 S. Ct. 1894, 135 L. Ed. 2d 207 (1996) (*Shaw II*); *id.*, at 947, 116 S. Ct. 1894, 135 L. Ed. 2d 207 (Stevens, J., dissenting)), then an individual voter would not be entitled to be included in a district that is more likely to elect a candidate from their own party.

122. Moreover, there is no requirement that each party must be influential in proportion to its number of supporters. *Rucho*, 139 S.Ct. at 951.

123. Redistricting and the political considerations that are part of that process do not impinge on the right to vote. Nothing about redistricting affects a person’s right to cast a vote. Any impingement is limited and distant and as such is subject to a rational basis review. “Under the rationality standard of review, ‘[s]tate legislatures are presumed to have

acted within their constitutional power despite the fact that, in practice, their laws result in some inequality.” *See Beech Mountain v. County of Watauga*, 324 N.C. 409, 414, 378 S.E.2d 780, 783 (1989) (citations omitted). The Court finds that the plans are amply supported by a rational basis and thus do not violate the Equal Protection Clause.

b. The Enacted Plans Do Not Violate the Free Speech Clause.

124. As stated above, the incorporation of the Free Speech Clause into the 1971 Constitution was not intended to bring about a fundamental change to the power of the General Assembly.

125. Our appellate courts have interpreted the rights to free speech in alignment with cases interpreting the First Amendment to the United States Constitution. *State v. Petersilie*, 334 N.C. 169, 184, 432 S.E.2d 832, 841 (1993); *State v. Shackelford*, 264 N.C. App. 542, 552, 825 S.E.2d 689, 696 (2019); *Feltman v. City of Wilson*, 283 N.C. App. 246, 252, 767 S.E.2d 615, 620 (2014). The United States Supreme Court addressed the issue of whether partisan gerrymandering impinged upon free speech and other rights protected by the First Amendment to the United States Constitution. Their analysis was direct and to the point: “To begin, there are no restrictions on speech, association, or any other First Amendment activities in the districting plans at issue. The plaintiffs are free to engage in those activities no matter what the effect of a plan may be on their district.” *Rucho*, 139 S. Ct. at 2504. The same is true with the enacted plans. Plaintiffs are free to engage in speech no matter what the effect the Enacted Plans have on their district.

126. Plaintiffs’ claims based upon the Free Speech Clause fail.

c. The Enacted Plans Do Not Violate the Right of Assembly Clause.

127. The 1971 Constitution, art. I, § 14 provides: “The people have a right to assemble together to consult for their common good, to instruct their representatives, and to

apply to the General Assembly for redress of grievances; but secret political societies are dangerous to the liberties of a free people and shall not be tolerated.” With the exception of the provision relating to the “right to instruct,” the language of the Freedom of Assembly Clause closely resembles the language in the First Amendment to the United States Constitution which guarantees, in part, the right of the people “to assemble and petition the government for a redress of grievances.”

128. In *Libertarian Party*, our Supreme Court

[J]oin[ed] a growing number of federal courts applying the Supreme Court’s associational rights analysis to equal protection challenges in the context of ballot access restrictions on political parties and candidates. [They did] so because the interests of equal protection bear a strong relationship to the associational rights protected by our state constitution’s free speech and assembly provisions.

(citations omitted) *Libertarian Party*, 365 NC. at 48, 707 S.E.2d at 204. See *Feltman*, 238 N.C. App. at 253, 767 S.E.2d at 620 (recognizing that “[t]he right to freedom of assembly is similar to the right of freedom of association embodied within the federal constitution” and analyzing a claim based upon freedom of assembly in light of federal case law).

129. Given our appellate courts’ adoption of the United States Supreme Court’s associational rights analysis and other federal precedent, we find no reason not to adopt the United States Supreme Court’s analysis and findings on the effect of redistricting plans to the right of assembly and petition as set forth in *Rucho*, 139 S.Ct. at 2504. Plaintiffs remain free to engage in their associational rights and rights to petition no matter what effect the Enacted Plans have on their district.

130. There is absolutely no evidence that the Plaintiffs’ right to instruction was violated during the redistricting process or that the Enacted Maps somehow inhibit the right to instruct.

131. Plaintiffs’ claims based upon the Right of Assembly Clause fail.

132. As the North Carolina Supreme Court has stated:

[t]he General Assembly may consider partisan advantage and incumbency protection in the application of its discretionary redistricting decisions, *see Gaffney v. Cummings*, 412 U.S. 735, 37 L. Ed. 2d 298, 93 S. Ct. 2321 (1973), but it must do so in conformity with the State Constitution. To hold otherwise would abrogate the constitutional limitations or “objective constraints” that the people of North Carolina have imposed on legislative redistricting and reapportionment in the State Constitution.

Stephenson I, 355 N.C. at 371-372, 562 S.E.2d at 390.

133. The objective constitutional constraints that the people of North Carolina have imposed on legislative redistricting are found in Article II, Sections 3 and 5 of the 1971 Constitution and not in the Free Elections, Equal Protection, Freedom of Speech or Freedom of Assembly Clauses found in Article I of the 1971 Constitution.

134. Therefore, the Court concludes that our Constitution does address limitations on considering partisan advantage in the application of its discretionary redistricting decisions and Plaintiffs' claims on the basis of “extreme partisan advantage” fail.

E. Plaintiffs' Claims Are Nonjusticiable

135. In North Carolina, our Supreme Court has had an opportunity on a number of occasions to address whether the creation of boundaries is a question that presents a justiciable controversy. In those instances, the Supreme Court has found that they were political questions and thus non-justiciable. *See e.g., Howell v. Howell*, 151 N.C. 575, 66 S.E. 571 (1909) (rejecting partisan-gerrymandering challenge to a special-tax district); *Norfolk & S.R. Co. v. Washington County*, 154 N.C. 333, 335-36, 70 S.E. 634, 635 (1911) (holding the General Assembly's authority to “declare and establish what it deemed the true boundary between . . . counties . . . is a political question, and the power to so declare is vested in the General Assembly.”); *see also Carolina-Virginia Coastal Highway v. Coastal Tpk. Auth.*, 237 N.C. 52, 62, 74 S.E.2d 310, 317 (1953) (“[T]he power to create or establish municipal corporations . . . is a political function which rests solely in the legislative branch of the

government.”); *State ex. Rel. Tillett v. Mustain*, 243 N.C. 564, 569, 91 S.E.2d 696, 699 (1956) (“The power to create and dissolve municipal corporations, being political in character, is exclusively a legislative function.”); *Texfi Indus., Inc. v. City of Fayetteville*, 301 N.C. 1, 7, 269 S.E.2d 142, 147 (1980) (“Annexation by a municipal corporation is a political question which is within the power of the state legislature to regulate.”).

136. In *Hoke County Bd. of Educ. v. State*, 358 N.C. 605, 599 S.E.2d 365 (2004), in adopting the United States Supreme Court’s definition on what constitutes a nonjusticiable claim, the North Carolina Supreme Court held that “any trial court rulings that infringed on the legislative prerogative of establishing school-age eligibility were in error.” *Id.* at 639, 599 S.E.2d at 391. The North Carolina Supreme Court stated:

the United States Supreme Court has defined issues as nonjusticiable when either of the following circumstances are evident: (1) when the Constitution commits an issue, as here, to one branch of government; *or* (2) when satisfactory and manageable criteria or standards do not exist for judicial determination of the issue.

Id. (citing *Baker v. Carr*, 369 U.S. 186, 210, 7 L. Ed. 2d 663, 682, 82 S. Ct. 691 (1962)).

137. The constitutional provisions relevant to the issue before the Court establish that redistricting is in the exclusive province of the legislature. N.C. Const. of 1971, amend 1996, art. II §§ 3, 5, and 20. Moreover, redistricting of congressional districts is largely left to the legislatures of the individual states. *League of Latin Am. Citizens v. Perry*, 548 U.S. 399, 414, 126 S. Ct. 2594, 2607 (2006).

138. As to whether satisfactory and manageable criteria or standards exist for judicial determination of the issue, the United States Supreme Court’s analysis in *Rucho* is instructive. *See Rucho* 139 S. Ct. at 2498-2506.

139. As the role apportionment plays is critical and a traditional part of American politics, “[a]ny standard for resolving such claims must be grounded in a ‘limited and precise rationale’ and be ‘clear, manageable, and politically neutral.’” *Id.* at 2498.

140. This Court has not been asked to eliminate all partisan gerrymandering, only “extreme” partisan gerrymandering. In short, we are asked to decide how much partisanship is “extreme.” In attempting to do so, we necessarily require “especially clear standards” because “[w]ith uncertain limits [we] – even when proceeding with the best intentions – would risk assuming political, not legal, responsibility for a process that often produces ill will and distrust.” *Id.* (citing *Vieth, v. Jubelirer*, 541 U.S. 267, 307 (2004)).

141. “Partisan gerrymandering claims rest on an instinct that groups with a certain level of political support should enjoy a commensurate level of political power and influence. . . . But such a claim is based on a ‘norm that does not exist’ in our electoral system— ‘statewide elections for representatives along party lines.’” *Id.* at 2499. (citations omitted.)

142. In order to avoid repeating the entirety of *Rucho*, it is safe to say that all of the arguments as to justiciability in the present case were made before the United States Supreme Court in *Rucho* and after an exhaustive analysis, the United States Supreme Court determined that:

Excessive partisanship in districting leads to results that reasonably seem unjust. But the fact that such gerrymandering is “incompatible with democratic principles,” *Arizona State Legislature*, 576 U. S., at ___, 135 S. Ct. 2652, 192 L. Ed. 2d 704, 716, does not mean that the solution lies with the federal judiciary. We conclude that partisan gerrymandering claims present political questions beyond the reach of the federal courts. Federal judges have no license to reallocate political power between the two major political parties, with no plausible grant of authority in the Constitution, and no legal standards to limit and direct their decisions. “[J]udicial action must be governed by *standard*, by *rule*,” and must be “principled, rational, and based upon reasoned distinctions” found in the Constitution or laws. *Vieth*, 541 U. S., at 278, 279, 124 S. Ct. 1769, 158 L. Ed. 2d 546 (plurality opinion). Judicial review of partisan gerrymandering does not meet those basic requirements.

Id. at 2506-07

143. In essence we are asked to apportion political power as a matter of fairness. This is no different than what our Supreme Court was asked to determine in *Dickson v. Rucho*, 367 N.C. 542, 766 S.E.2d 238 (2014). In that case, the North Carolina Supreme Court stated:

Finally, plaintiffs argue that the enacted plans violate the “Good of the Whole” clause found in Article I, Section 2 of the Constitution of North Carolina. We do not doubt that plaintiffs’ proffered maps represent their good faith understanding of a plan that they believe best for our State as a whole. However, the maps enacted by the duly elected General Assembly also represent an equally legitimate understanding of legislative districts that will function for the good of the whole. Because plaintiffs’ argument is not based upon a justiciable standard, and because acts of the General Assembly enjoy “a strong presumption of constitutionality,” *Pope v. Easley*, 354 N.C. 544, 546, 556 S.E.2d 265, 267 (2001) (per curiam) (citation omitted), plaintiffs’ claims fail.

Id. at 575, 766 S.E.2d at 260, vacated and remained on other grounds *Dickson v. Rucho*, ___ U.S. ___ 135 S. Ct. 1843 (2015).

144. Utilizing the test for determining whether a claim is nonjusticiable as adopted in *Hoke County Bd. Of Education*, and following the extensive analysis of the nonjusticiability of partisan gerrymandering claims in *Rucho*, this Court determines that satisfactory and manageable criteria or standards do not exist for judicial determination of the issue and thus the partisan gerrymandering claims present a political issue beyond our reach.

145. We agree with the United States Supreme Court that excessive partisanship in districting leads to results that are incompatible with democratic principles. *Rucho*, 139 S.Ct. at 2504. Furthermore, it has the potential to violate “the core principle of republican government . . . that the voters should choose their representatives, not the other way around.” *Ariz. State Legislature v. Ariz. Indep. Redistricting Comm’n*, 567 U.S. 787, 824, 135 S. Ct. 2652, 2658 (2015). Also, it can represent “an abuse of power that, at its core, evinces a

fundamental distrust of voters, serving the self-interest of the political parties at the expense of the public good.” *LULAC v. Perry*, 548 U.S. 399, 456, 126 S.Ct. 2594, 2631 (2006) (Stevens, J. concurring in part and dissenting in part) (quotation and citation omitted)).

146. In addition, excessive partisan gerrymandering can subject the State to unwanted attention, ridicule and derision. As this Court mentioned at the hearing on Plaintiffs' Motions for Preliminary Injunction, the Supreme Court in *Stephenson* pointed out:

Since *Cavanagh*, many North Carolina legislative districts have been increasingly gerrymandered to a degree inviting widespread contempt and ridicule. See, e.g., “Red-Light District: It’s time to draw the line on gerrymandering,” John Fund's Political Diary, WSJ.com Opinion Journal from the Wall Street Journal Editorial Page, at <http://www.opinionjournal.com/diary/?id=105001756> (Mar. 13, 2002) (“elections in many semi-free Third World nations routinely offer more choices than many North Carolina residents will have” under the 2001 legislative redistricting plans); *How to Rig an Election*, The Economist, Apr. 27, 2002, at 29, 30 (“In a normal democracy, voters choose their representatives. In America, it is rapidly becoming the other way around” and asserting that “North Carolina [has been] long notorious for outrageous reapportionment.”)

Stephenson, 355 N.C. at 375, 562 S.E.2d at 392.

147. Over 19 years have elapse since *Stephenson* was decided. The political party drawing North Carolina’s legislative maps has changed, yet the ridicule has continued. See, “Gerrymandering Puts Partisanship in Overdrive; Can California Slow It” Gerald F. Seib, WSJ.com from the Wall Street Journal Politics Page at <https://www.wsj.com/articles/gerrymandering-puts-partisanship-in-overdrive-can-california-reverse-it-11638198550> (November 29, 2021).

148. This Court neither condones the enacted maps nor their anticipated potential results. Despite our disdain for having to deal with issues that potentially lead to results incompatible with democratic principles and subject our State to ridicule, this Court must remind itself that these maps are the result of a democratic process.

149. The drafters of the 1776 Constitution were elected from eligible males to the Fifth Provincial Congress who were responsible for drafting and approving the 1776 Constitution. Beginning with the 1835 Amendments to the 1776 Constitution, every proposed change since then relating to the drawing of legislative districts was proposed by elected representatives of the people of this State and ratified by the eligible voters. This democratic process left redistricting solely in the province of the legislature subject to only four objective restraints and accountability through frequent elections.

150. The decision of the voters of this State to approve an amendment to the Constitution giving the Governor the right to veto acts of the General Assembly, which excepted the right to veto redistricting maps, by an almost 3-1 margin, put out of reach any control over redistricting by a person elected by the majority of the citizens of this State.

151. The Enacted Maps comply with the objective constraints contained in the North Carolina Constitution of 1971, art. II, §§ 3 & 5., and were thereafter approved by a majority of the elected members of the General Assembly, all of whom were elected pursuant to maps that had previously been determined constitutional by the courts of North Carolina.

152. The people of this State enacted this political process and specifically declined to place any checks on their representatives, other than the objective constraints set forth in the North Carolina Constitution of 1971, art. II, §§ 3 & 5. Some of these people, perhaps even a majority, now ask this Court to undo what they have allowed to be done through the democratic processes of this State. To do so would require us to act outside the bounds of our constitutional authority.

153. Redistricting is a political process that has serious political consequences. It is one of the purest political questions which the legislature alone is allowed to answer. Were we as a Court to insert ourselves in the manner requested, we would be usurping the political power and prerogatives of an equal branch of government. Once we embark on that slippery

slope, there would be no corner of legislative or executive power that we could not reach. Indeed, under Plaintiffs’ rationale, we could require the Governor to ensure that the partisan makeup of his political appointees matched or closely resembled the percentage of votes that his political opponent received.

154. We are aware of the effects of partisan gerrymandering. This Court is not without power remedy some of those effects. If partisan gerrymandering dilutes the vote of minorities, remedies under Section 2 of the Voting Rights Act are available. However, either for strategic reasons or a lack of evidence, Plaintiffs have repeatedly informed the Court that they are not pursuing a Voting Rights Act claim, but rather, are only pursuing a State Constitutional claim for racial gerrymandering. This is true despite the fact that it potentially would be easier to prove a violation of the Voting Rights Act, as one only need prove effect and need not prove intent.

155. Plaintiffs’ theory of extreme partisan gerrymandering necessarily entails a calculation of the number of seats a party is expected to win in any given election. Seats that are deemed outliers based upon certain calculations are the result of “extreme partisan gerrymandering.”

156. In a scenario where a party is expected to win 65 seats and the legislatively approved extreme partisan gerrymandered maps would result in a win of 75 seats, those seats in excess of 65 would be outliers and under plaintiffs’ theories, are the product of extreme partisan gerrymandering. The Court would be required to order the mapmakers to redraw the maps so that they are consistent with the number of seats a party would expect to win. Given that the party could reach the 65 seat projection through the use of allowable partisan gerrymandering, some of the voters in the 65 permitted districts would suffer the same effects from partisan gerrymandering that the voters in the 10 excessively gerrymandered districts would have suffered had the maps not been withdrawn. To accept

the Plaintiffs’ arguments that the maps are unconstitutional on the theories advanced would necessarily mean that no partisan gerrymandering is allowed as no voter should suffer from the effects of the same. This is contrary to the established precedent of the United States Supreme Court and the North Carolina Supreme Court. *Rucho*, 139 S. Ct. at 2504; *Stephenson*, 355 N.C.at 371-372, 562 S.E.2d at 390.

III. Intentional Racial Discrimination and Racial Vote Dilution Claims

A. Intentional Discrimination and Voter Dilution in Violation of the Equal Protection Clause

157. NCLCV Plaintiffs and Plaintiff Common Cause have asserted a claim that the Enacted Plans unnecessarily dilute the voting strength of Black North Carolinians and intentionally discriminate against Black North Carolinians in violation of the Equal Protection Clause of the North Carolina Constitution. The Court concludes that based upon the record before the Court, Plaintiffs have failed to prove the merit of their claim.

158. Under North Carolina’s Equal Protection Clause, North Carolina’s citizens—including its minority voters—have “a constitutionally protected right to participate in elections on an equal basis with other citizens in the jurisdiction.” *White v. Pate*, 308 N.C. 759, 768, 304 S.E.2d 199, 205 (1983). In particular, North Carolina’s minority voters have a right to “substantially equal voting power” and “substantially equal legislative representation.” *Stephenson I*, 355 N.C. at 379.

159. The North Carolina Constitution’s guarantees of “substantially equal voting power” and “substantially equal legislative representation” are violated when a redistricting plan deprives minority voters of “a fair number of districts in which their votes can be effective,” measured based on “the minority’s rough proportion of the relevant population.” *Bartlett v. Strickland*, 556 U.S. 1, 28-29 (2009) (Souter, J., dissenting)

160. An act of the General Assembly can violate North Carolina’s Equal Protection Clause if discriminatory purpose was “a motivating factor.” *Holmes v. Moore*, 270 N.C. App. 7, 16, 840 S.E.2d 244, 254 (quoting *N.C. State Conference of NAACP v. McCrory*, 831 F.3d 204, 220-21 (4th Cir. 2016)); *see also Stephenson I*, 355 N.C. at 377, 562 S.E.2d at 393 (quoting *White*, 308 N.C. at 766, 304 S.E.2d at 204) (strict scrutiny is triggered under North Carolina’s Equal Protection Clause when it creates a “classification” that “operates to the peculiar disadvantage of a suspect class”). And whether discriminatory purpose was a motivating factor can be “inferred from the totality of the relevant facts, including the fact, if it is true, that the law bears more heavily on one race than another.” *Holmes*, 270 N.C. App. at 17. To determine whether this is true, the court may weigh the law’s historical background, the sequence of events leading up to the law, departures from normal procedure, legislative history, and the law’s disproportionate impact. *Id.* at 17.

161. The Supreme Court has observed that “courts must exercise extraordinary caution in adjudicating claims that a State has drawn district lines on the basis of race.” *Dickson v. Rucho*, 368 N.C. 481, 506, 781 S.E.2d 404, 423 (2015), *cert. granted, judgment vacated on other grounds*. The Court considers three factors:

First, in light of the interplay detailed below between the Fourteenth Amendment, which virtually forbids consideration of race, and the VRA, which requires consideration of race, the Supreme Court has acknowledged that the existence of legislative consciousness of race while redistricting does not automatically render redistricting plans unconstitutional.

Second, the Supreme Court has recognized the importance of the states' own traditional districting principles, holding that states can adhere to them without being subject to strict scrutiny so long as those principles are not subordinated to race.

Finally, the Supreme Court has accepted that some degree of deference is due in light of the difficulties facing state legislatures when reconciling conflicting legal responsibilities.

Id. (internal citations omitted).

162. North Carolina’s Equal Protection Clause is treated the same as the Equal Protection Clause of the United States Constitution. “No person shall be denied the equal protection of the laws; nor shall any person be subjected to discrimination by the State because of race, color, religion, or national origin.” N.C. Const. art. I, § 19.

163. “[A] finding that race was the predominant motive in drawing a district does not automatically render that district unconstitutional. Nor does it signify that the legislature acted in bad faith or with discriminatory intent in its redistricting.” *Covington v. N.C.*, 316 F.R.D. 117, 129 (2016). Further, a legislatures knowledge of racial demographics is most certain, “but that sort of race consciousness does not lead inevitably to impermissible race discrimination.” *Id.* (quoting *Shaw v. Reno*, 509 U.S. 630, 646 (1993)).

164. If a plaintiff shows “that race predominated over traditional race-neutral redistricting principles, [then the court is to] apply strict scrutiny,” and the government defendants then “have the burden of show[ing] not only that [their] redistricting plan was in pursuit of a compelling state interest, but also that [their] redistricting legislation is narrowly tailored to achieve [that] compelling interest.” *Id.* (quoting *Shaw v. Hunt*, 517 U.S. 899, 908 (1996)) (internal quotations omitted).

165. A “discriminatory purpose may often be inferred from the totality of the relevant facts,” even when no discriminatory purpose is “express or appear[s] on the face of the statute.” *Washington v. Davis*, 426 U.S. 229, 241-42, 96 Ct. 2040, 2048 (1976).

166. The relevant framework for analyzing whether an official action was motivated by discriminatory purpose is set forth in *Village of Arlington Heights v. Metro. House. Dev. Corp.*, 429 U.S. 252 (1977). Courts must undertake “a sensitive inquiry into such circumstantial and direct evidence of intent as may be available.” *Id.* at 266; *State v. Jackson*,

322 N.C. 251, 261, 318 S.E.2d 838, 843-44 (1988) (Frye, J., concurring). The Supreme Court of the United States in *Arlington Heights* laid out a non-exhaustive list of factors for courts to consider. *Holmes v. Moore*, 270 N.C. App. 7, 18 (2020). Those factors include: (1) the law’s historical background, (2) the specific sequence of events leading to the law’s enactment, including any departures from the normal procedural sequence, (3) the legislative history of the decision, and (4) the impact of the law and whether it bears more heavily on one race than another.” *Arlington Heights*, 429 U.S. at 266-68.

167. NCLCV Plaintiffs and Plaintiff Common Cause have failed to satisfy their burden of establishing that race was the predominant motive behind the way in which the Enacted Plans were drawn.

168. First, Plaintiffs have failed to show a predominant racial motive through direct evidence. The Adopted Criteria proscribed the use of racial considerations in the drawing of the Enacted Plan, nor did the General Assembly consider race by, for instance, conducting a racially polarized voting study on the selected plans prior to their enactment.

169. Plaintiffs have also failed to show a predominant racial motive through circumstantial evidence. Though the testimony elicited from Plaintiff’s expert, Dr. Leloudis, provided a contextual backdrop for the way redistricting maps have been drawn, litigated, and accordingly struck down in the past, it is incumbent upon this Court to afford the legislature a presumption of good faith. *N.C. State Conference of the NAACP v. Raymond*, 981 F.3d 295, 303 (4th Cir. 2020). “A legislature’s past acts do not condemn acts of a later legislature, which we must presume acts in good faith.” *Id.* at 298 (citing *Abbot v. Perez*, 138 S. Ct. 2305, 2324 (2018)). Plaintiffs have failed to link past, impermissible race-based redistricting to the current legislature and have failed to provide sufficient circumstantial evidence in accordance with the requirements of the *Arlington Heights* analysis.

170. Second, Plaintiffs have failed to establish that the General Assembly failed to adhere to traditional districting principles *on account of racial considerations*. Plaintiffs provide insufficient evidence that the instances in which traditional districting principles were not adhered to was because of *racial* considerations. Instead, as discussed above, the General Assembly consistently acted with an intent to redistrict for partisan advantage, and nothing in the record shows that to be a pretext for underlying racial considerations.

171. Third, giving deference to the redistricting process as conducted by the General Assembly, Plaintiffs have failed to make the requisite evidentiary showing that the General Assembly sought to dilute the voting strength of Blacks based upon their race, or that Blacks have less of an opportunity to vote for or nominate members of the electorate less than those of another racial group. Plaintiffs have shown, and the Court agrees, that a substantial number of Black voters are affiliated with the Democratic Party. What Plaintiffs have not shown, however, is how the General Assembly targeted this group on the basis of race instead of partisanship. Black voters who also happen to be Democrats have therefore been grouped into the partisan intent of the General Assembly. There is nothing in the evidentiary record before this Court showing that race *and* partisan gain were *coincident* goals predominating over all other factors in the redistricting.

172. Plaintiffs, for the same reasons, have failed to satisfy their burden of showing that the General Assembly was motivated by discriminatory purpose with regard to violating the Equal Protection Clause. Plaintiffs have presented no direct evidence as to discriminatory purpose, and the circumstantial evidence presented is insufficient to sustain their burden pursuant to *Arlington Heights*.

B. Voter Dilution in Violation of the Free Elections Clause

173. NCLCV Plaintiffs’ claim that the Enacted Plan unnecessarily dilutes the voting power of citizens on account of race in violation of the Free Elections Clause of Art. I, § 10 is without an evidentiary or legal basis.

174. Under North Carolina’s Free Elections Clause, “the object of all elections is to ascertain, fairly and truthfully the will of the people.” *Hill v. Skinner*, 169 N.C. 405, 415, 86 S.E.351, 356 (1915).

175. As explained above, the Free Elections Clause has been interpreted narrowly, and Courts have upheld violations of the Free Elections Clause infrequently. “The meaning [of the word free] is plain: free from interference or intimidation.” John V. Orth, *The North Carolina State Constitution: A Reference Guide*, 56 (1993). The Free Elections Clause is inapplicable to NCLCV Plaintiffs’ voter dilution claim.

176. Further, Plaintiffs failed to assert a claim under the Voting Rights Act of 1965 (“VRA”), and their application of the *Gingles* analysis, even if used in support of a VRA claim, is insufficient—Plaintiffs failed to conduct a complete *Gingles* analysis. While Dr. Duchin conducted an analysis and made findings concerning the “effective” districts for Black voters, admittedly, she did not conduct step 1 of the *Gingles* analysis.

IV. Whole-County Provision Claims

177. NCLCV Plaintiffs claim that certain state legislative districts violate the Whole County Provision of the North Carolina Constitution. While the boundaries for these districts, noted in the findings of fact, cross county lines, the Court concludes that the counties grouped and then divided in the formation of the specific districts at issue for this claim were the minimum necessary, and contained the minimum number of traversals and maintained sufficient compactness, to comply with the one-person-one-vote standard in such

a way that it met the equalization of population requirements set forth in *Stephenson v. Bartlett*, 355 N.C. 354, 383, 84, 562 S.E.2d 377, 397 (2002).

178. The Court further concludes that the manner by which the counties at issue for this specific claim were traversed was not unlawful because it was predominantly for traditional and permissible redistricting principles, including for partisan advantage, which are allowed to be taken into account in redistricting.

V. Declaratory Judgment Claim Regarding the Redistricting Process Laid Out in *Stephenson I* and *Dickson*.

179. Intervenor-Plaintiff Common Cause, in its First Claim for Relief requests that this Court declare that

Plaintiff and its members and the voters it serves are entitled to, and Legislative Defendants have a duty to undertake, a redistricting process that adheres to the requirements of Article II, Sections 3 and 5 of the North Carolina Constitution as set forth in *Stephenson v. Bartlett*, including a requirement to undertake the analysis of racial data necessary to ascertain what districts are required by the VRA.

Common Cause Complaint, ¶ 157.

180. Plaintiff Common Cause further seeks injunctive relief requiring

the North Carolina General Assembly to adhere to the requirements of Article II, Sections 3 and 5, as set forth in *Stephenson v. Bartlett*, and specifically to perform a meaningful attempt to determine whether there are any districts compelled by the VRA, which, at a minimum, requires the consideration of racial data to understand changing demographics and performing a racially polarized voting analysis where the racial demographics indicate potential VRA problems before designating county clusters required in Senate and House legislative maps.

Common Cause Complaint, ¶ 159.

181. At the outset, the Court notes that in *Stephenson v. Bartlett*, 355 N.C. 354, 562 S.E.2d 377 (2002), the Supreme Court of North Carolina was asked to address whether the legislative plans enacted in 2001 violated the Whole County Provision (WCP) of the State Constitution. *Id.* 355 N.C. at 360, 520 S.E.2d at 383. The Supreme Court stated “the

expanded question before this Court, in light of the VRA, is whether the WCP is now entirely unenforceable . . . or, alternatively, whether the WCP remains enforceable throughout the State to the extent not preempted or otherwise superseded by federal law.” *Id.* at 369, 562 S.E.2d at 388.

182. The Court then embarked on an analysis to harmonize the WCP and VRA. The *Stephenson* Court, in reconciling the VRA and WCP, required the formation of single-member legislative districts to ensure compliance with the VRA according to the following criteria:

[L]egislative districts required by the VRA shall be formed prior to creation of non-VRA districts. ... To the maximum extent practicable, such VRA districts shall also comply with the legal requirements of the WCP, as herein established for all redistricting plans and districts throughout the State.

In forming new legislative districts, any deviation from the ideal population for a legislative district shall be at or within plus or minus five percent for purposes of compliance with federal "one-person, one-vote" requirements.

In counties having a 2000 census population sufficient to support the formation of one non-VRA legislative district falling at or within plus or minus five percent deviation from the ideal population consistent with "one-person, one-vote" requirements, the WCP requires that the physical boundaries of any such non-VRA legislative district not cross or traverse the exterior geographic line of any such county.

When two or more non-VRA legislative districts may be created within a single county, which districts fall at or within plus or minus five percent deviation from the ideal population consistent with "one-person, one-vote" requirements, single- member non-VRA districts shall be formed within said county. Such non-VRA districts shall be compact and shall not traverse the exterior geographic boundary of any such county.

In counties having a non-VRA population pool which cannot support at least one legislative district at or within plus or minus five percent of the ideal population for a legislative district or, alternatively, counties having a non-VRA population pool which, if divided into districts, would not comply with the at or within plus or minus five percent "one- person, one-vote" standard, the requirements of the WCP are met by combining or grouping the minimum number of whole, contiguous counties necessary to comply with the at or within

plus or minus five percent "one-person, one-vote" standard. Within any such contiguous multi-county grouping, compact districts shall be formed, consistent with the at or within plus or minus five percent standard, whose boundary lines do not cross or traverse the "exterior" line of the multi-county grouping; provided, however, that the resulting interior county lines created by any such groupings may be crossed or traversed in the creation of districts within said multi-county grouping but only to the extent necessary to comply with the at or within plus or minus five percent "one-person, one-vote" standard. The intent underlying the WCP must be enforced to the maximum extent possible; thus, only the smallest number of counties necessary to comply with the at or within plus or minus five percent "one-person, one-vote" standard shall be combined, and communities of interest should be considered in the formation of compact and contiguous electoral districts.

Id. at 355 N.C. at 381-84, 520 S.E.2d at 396-97.

183. The requirement in *Stephenson* that districts required by the VRA be drawn first was put in place to alleviate the conflict and tension between the WCP and VRA. There is nothing in *Stephenson* that requires any particular analysis prior to making a decision as to whether VRA districts are necessary. In this case, having just been involved in multiple redistricting lawsuits, the Legislative Defendants determined, based on their prior experience, that no VRA districts were required. FOF 41-50, 52, 72. The Legislative Defendants were open to considering any VRA analysis submitted. While counsel for Common Cause "raised concerns," no VRA analysis was provided to Legislative Defendants that contradicted the Legislative Defendant's perception of the need, or lack thereof, for VRA districts. Whether the decision to rely on prior experience rather than an expert analysis was prudent or wise, that is not for the Court to decide and would impermissibly intrude on the internal decision-making processes of the Legislature. The fact is, whether correct or not, the Legislative Defendants made a decision that no VRA Districts are required.

184. What Plaintiff Common Cause asks of this Court is to impose a judicially-mandated preclearance requirement. Such a requirement does not exist in *Stephenson*.

185. If the Legislative Defendants are incorrect that no VRA Districts are required, Plaintiff Common Cause has an adequate remedy at law and that is to bring a claim under Section 2 of the VRA. Plaintiff Common Cause has made it abundantly clear that it has not made such a claim and have presented no evidence to support such as claim.

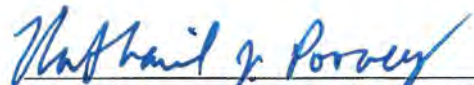
186. For the reasons stated above, the Court concludes, as a matter of law, that Plaintiff Common Cause is not entitled to a Declaratory Judgment or Injunctive Relief pursuant to its First Claim for Relief.

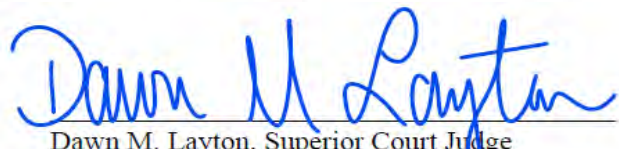
DECREE

Having considered all of the evidence, the memoranda and arguments of counsel, and the record proper, and based upon the foregoing Findings of Fact and Conclusions of Law, the Court ORDERS the following:

- I. Plaintiffs' requests for Declaratory Judgment are DENIED.
- II. Plaintiffs' requests for Permanent Injunctive Relief are DENIED.
- III. This Judgment fully and finally resolves all claims of all Plaintiffs raised in the consolidated cases and Judgment is hereby entered in favor of Legislative Defendants, and Plaintiffs Claims are hereby dismissed with prejudice.
- IV. The candidate filing period for the 2022 primary and municipal elections is hereby set and shall resume at 8:00 A.M. on Thursday, February 24, 2022 and shall continue through and end at 12:00 noon on Friday, March 4, 2022.
SO ORDERED, this the 11th day of January, 2022.


A. Graham Shirley, Superior Court Judge


Nathaniel J. Poovey, Superior Court Judge


Dawn M. Layton, Superior Court Judge

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing document was served on the persons indicated below via e-mail transmission addressed as follows:

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Service is made upon local counsel for all attorneys who have been granted pro hac vice admission, with the same effect as if personally made on a foreign attorney within this state.

This the 11th day of January 2022.

/s/ Kellie Z. Myers
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STATE OF NORTH CAROLINA
COUNTY OF WAKE

FILED IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
21 CVS 015426, 21 CVS 500085

NORTH CAROLINA LEAGUE OF
CONSERVATION VOTERS, INC.;
HENRY M. MICHAUX, JR., et al.,

Plaintiffs,

REBECCA HARPER, et al.,

Plaintiffs,

v.

REPRESENTATIVE DESTIN HALL, in
his official capacity as Chair of the House
Standing Committee on Redistricting, et al.,

Defendants.

2022 JAN 11 P 4: 50

WAKE CO. C.S.C.

BY

NOTICE OF APPEAL

TO THE HONORABLE SUPREME COURT OF NORTH CAROLINA:

Pursuant to the Supreme Court of North Carolina's December 8, 2021 Order, Plaintiffs in Case No. 21 CVS 15426 hereby give notice of appeal to the Supreme Court of North Carolina from the Judgment entered on January 11, 2022 in the North Carolina Superior Court for Wake County.

Dated: January 11, 2022

Respectfully submitted,

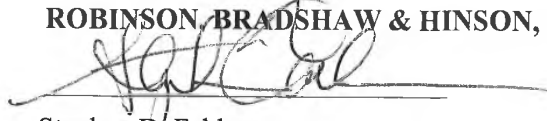
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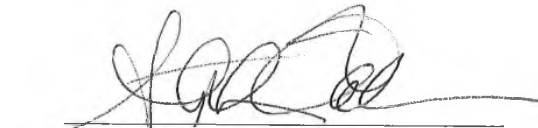
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This 11th day of January, 2022.



Stephen D. Feldman

STATE OF NORTH CAROLINA

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION

COUNTY OF WAKE

111 JUN 12 AM 9 46
NORTH CAROLINA LEAGUE OF
CONSERVATION VOTERS, INC., *et al.* COUNTY C.S.C.

Plaintiffs

and

COMMON CAUSE,
Plaintiff-Intervenor,

v.

REPRESENTATIVE DESTIN HALL, in his
official capacity as Chair of the House Standing
Committee on Redistricting, *et al.*
Defendants.

Case No. 21 CVS 015426

REBECCA HARPER, *et al.*,
Plaintiffs

v.

REPRESENTATIVE DESTIN HALL, in his
official capacity as Chair of the House Standing
Committee on Redistricting, *et al.*
Defendants.

Case No. 21 CVS 500085

PLAINTIFF COMMON CAUSE'S NOTICE OF APPEAL

TO THE HONORABLE COURT OF APPEALS OF NORTH CAROLINA:

Plaintiff-Intervenor Common Cause ("Plaintiff"), by and through counsel, pursuant to Rule 3 of the North Carolina Rules of Appellate Procedure, hereby gives notice of appeal to the Court of Appeals of North Carolina from the Judgment entered by the three-judge panel in the Superior

Court, Wake County on Tuesday, January 11, 2022, and all interlocutory orders that merged with the final judgment. A Notice of Appeal was e-filed with the Supreme Court of North Carolina on January 11, 2022, pursuant to that Court's December 8, 2021 Order.

Respectfully submitted, this the 12th day of January, 2022.



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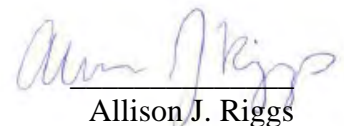
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This the 12th day of January, 2022.

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TENTH DISTRICT

SUPREME COURT OF NORTH CAROLINA

FILED

2022 JAN 12 A 9:34

STATE OF NORTH CAROLINA
COUNTY OF WAKE

WAKE CO., C.S.C. IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
No. 21 CVS 500085

REBECCA HARPER, *et al.*,

Plaintiffs,

v.

REPRESENTATIVE DESTIN HALL, in his
official capacity as Chair of the House
Standing Committee on Redistricting, *et al.*,

Defendants.

**HARPER PLAINTIFFS'
NOTICE OF APPEAL**

STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
No. 21 CVS 015426

NORTH CAROLINA LEAGUE OF
CONSERVATION VOTERS, INC., *et al.*,

Plaintiffs,

and

COMMON CAUSE,

Plaintiff-Intervenor,

v.

REPRESENTATIVE DESTIN HALL, in his
official capacity as Chair of the House
Standing Committee on Redistricting, *et al.*,

Defendants.

TO THE HONORABLE SUPREME COURT OF NORTH CAROLINA:

Pursuant to the Supreme Court of North Carolina’s order issued on December 8, 2021, and Rule 3 of the North Carolina Rules of Appellate Procedure, the *Harper* Plaintiffs hereby give notice of appeal to the Supreme Court of North Carolina from the order ruling in favor of Defendants entered on January 11, 2022, in the North Carolina Superior Court for Wake County, as well as all of the Superior Court’s interlocutory orders issued prior to judgment, including: the court’s December 24, 2021 order refusing to enforce the sword/shield doctrine based on certain Legislative Defendants’ invocation of legislative privilege to block their depositions; its orders regarding the admissibility of testimony from Legislative Defendants’ expert witnesses; its January 4, 2022 order denying the *Harper* Plaintiffs’ motion for sanctions based on Legislative Defendants’ spoliation and failure to comply with the court’s discovery order; and its January 6, 2022 oral ruling sustaining Legislative Defendants’ objections to the admission of certain of the *Harper* Plaintiffs’ exhibits.

Dated: January 11, 2022

By: _____

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R. Stanton Jones*
Samuel F. Callahan*
601 Massachusetts Avenue NW
Washington, DC 20001-3743
(202) 954-5000
elisabeth.theodore@arnoldporter.com

Counsel for Plaintiffs

* Admitted *pro hac vice*

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing *by email*, addressed to the following counsel for the other parties:

Amar Majmundar
Stephanie A. Brennan
Terence Steed
NC Department of Justice
P.O. Box 629
Raleigh, NC 27602
amajmundar@ncdoj.gov
sbrennan@ncdoj.gov
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*Counsel for the State Board of Elections and
its members*

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Hilary H. Klein
Southern Coalition for Social Justice
1415 W. Highway 54, Suite 101
Durham, NC 27707
allison@southerncoalition.org
hilaryhklein@scsj.org

Counsel for Intervenor

Phillip J. Strach
Alyssa Riggins
John E. Branch, III
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4140 Parklake Ave., Suite 200
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phil.strach@nelsonmullins.com
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Counsel for the Legislative Defendants

Stephen D. Feldman
Adam K. Doerr
Erik R. Zimmerman
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434 Fayetteville Street, Suite 1600
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sfeldman@robinsonbradshaw.com
adoerr@robinsonbradshaw.com
ezimmerman@robinsonbradshaw.com

Counsel for NCLCV Plaintiffs

This the 11th day of January, 2022.



Narendra K. Ghosh



Supreme Court of North Carolina

AMY L. FUNDERBURK, Clerk
Justice Building, 2 E. Morgan Street
Raleigh, NC 27601
(919) 831-5700

Fax: (919) 831-5720
Web: <https://www.nccourts.gov>

Mailing Address:
P. O Box 2170
Raleigh, NC 27602

From N.C. Court of Appeals
(P21-525)
From Wake
(21CVS015426 21CVS500085)

21 January 2022

Mr. Stephen D. Feldman
Attorney at Law
ROBINSON, BRADSHAW & HINSON, P.A.
434 Fayetteville St., Suite 1600
Raleigh, NC 27601

RE: Harper, et al. v Hall, et al. - 413PA21-1

Dear Mr. Feldman:

The following order has been entered on the Motion filed on the 19th of January 2022 by Plaintiffs (N.C. League of Conservation Voters, Inc., et al.) to Admit Sam Hirsch, Jessica Ring Amunson, Zachary C. Schauf, Urja Mittal, and Karthik P. Reddy Pro Hac Vice:

"Motion Allowed by order of the Court in conference, this the 21st of January 2022."

**s/ Berger, J.
For the Court**

WITNESS my hand and the seal of the Supreme Court of North Carolina, this the 21st day of January 2022.

Amy L. Funderburk
Clerk, Supreme Court of North Carolina

A handwritten signature in black ink, appearing to read "M. C. Hackney", is written over the printed name and title of the Assistant Clerk.

M. C. Hackney
Assistant Clerk, Supreme Court Of North Carolina

Copy to:

North Carolina Court of Appeals

Mr. Narendra K. Ghosh, Attorney at Law, For Harper, Rebecca, et al. - (By Email)

Mr. Terence Steed, Assistant Attorney General, For State Board of Elections, et al. - (By Email)

Mr. Amar Majmundar, Senior Deputy Attorney General, For State Board of Elections, et al. - (By Email)

Ms. Stephanie A. Brennan, Special Deputy Attorney General, For State Board of Elections, et al. - (By Email)

Mr. Burton Craige, Attorney at Law, For Harper, Rebecca, et al. - (By Email)

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Mr. Thomas A. Farr, Attorney at law, For Hall, Destin, et al. - (By Email)

Mr. Stephen D. Feldman, Attorney at Law, For N.C. League of Conservation Voters, Inc., et al. - (By Email)

0785
Mr. Adam K. Doerr, Attorney at Law, For N.C. League of Conservation Voters, Inc., et al. - (By Email)
Mr. Erik R. Zimmerman, Attorney at Law, For N.C. League of Conservation Voters, Inc., et al. - (By Email)
Mr. Ryan Y. Park, Solicitor General, For Gov. Cooper and AG Stein - (By Email)
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Mr. Zachary W. Ezor, Solicitor General Fellow, For Gov. Cooper and AG Stein - (By Email)
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Mr. Sean F. Perrin, Attorney at Law, For NC Sheriffs' Association, et al. - (By Email)
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Mr. Matthew L. Boyatt, Assistant Attorney General, For NC Sheriffs' Association, et al. - (By Email)
Ms. Hilary H. Klein, Attorney at Law, For Common Cause - (By Email)
Ms. Allison J. Riggs, Attorney at Law, For Common Cause - (By Email)
Mr. Mitchell Brown, Attorney at Law, For Common Cause - (By Email)
Ms. Katelin Kaiser, Attorney at Law, For Common Cause - (By Email)
Mr. Jeffrey Loperfido, Attorney at Law, For Common Cause - (By Email)
Ms. Noor Taj, Attorney at Law, For Common Cause - (By Email)
N.C. Supreme Court Clerk - (By Email)
West Publishing - (By Email)
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Supreme Court of North Carolina

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Raleigh, NC 27602

From N.C. Court of Appeals
(P21-525)
From Wake
(21CVS015426 21CVS500085)

21 January 2022

Mr. Narendra K. Ghosh
Attorney at Law
PATTERSON HARKAVY LLP
100 Europa Dr., Suite 420
Chapel Hill, NC 27517

RE: Harper, et al. v Hall, et al. - 413PA21-1

Dear Mr. Ghosh:

The following order has been entered on the Motion filed on the 20th of January 2022 by Plaintiffs (Harper, et al.) to Admit Elisabeth S. Theodore, R. Stanton Jones, Samuel F. Callahan, Abha Khanna, Lalitha D. Madduri, Jacob D. Shelly, and Graham W. White Pro Hac Vice:

"Motion Allowed in Part, Denied in Part; Allowed as to Abha Khanna and Lalitha D. Madduri, Denied as to Elisabeth S. Theodore, R. Stanton Jones, Samuel F. Callahan, Jacob D. Shelly, and Graham W. White, by order of the Court in conference, this the 20th of January 2022."

**s/ Berger, J.
For the Court**

WITNESS my hand and the seal of the Supreme Court of North Carolina, this the 21st day of January 2022.

Amy L. Funderburk
Clerk, Supreme Court of North Carolina

A handwritten signature in black ink, appearing to read "M. C. Hackney".

M. C. Hackney
Assistant Clerk, Supreme Court Of North Carolina

Copy to:

North Carolina Court of Appeals

Mr. Narendra K. Ghosh, Attorney at Law, For Harper, Rebecca, et al. - (By Email)

Mr. Terence Steed, Assistant Attorney General, For State Board of Elections, et al. - (By Email)

Mr. Amar Majmundar, Senior Deputy Attorney General, For State Board of Elections, et al. - (By Email)

Ms. Stephanie A. Brennan, Special Deputy Attorney General, For State Board of Elections, et al. - (By Email)

Mr. Burton Craige, Attorney at Law, For Harper, Rebecca, et al. - (By Email)

Mr. Paul E. Smith, Attorney at Law, For Harper, Rebecca, et al. - (By Email)

Mr. Phillip J. Strach, Attorney at Law, For Hall, Destin, et al. - (By Email)

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Mr. John E. Branch, III, Attorney at Law, For Hall, Destin, et al. - (By Email)

Mr. Thomas A. Farr, Attorney at law, For Hall, Destin, et al. 3787 (By Email)
Mr. Stephen D. Feldman, Attorney at Law, For N.C. League of Conservation Voters, Inc., et al. - (By Email)
Mr. Adam K. Doerr, Attorney at Law, For N.C. League of Conservation Voters, Inc., et al. - (By Email)
Mr. Erik R. Zimmerman, Attorney at Law, For N.C. League of Conservation Voters, Inc., et al. - (By Email)
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Mr. Zachary W. Ezor, Solicitor General Fellow, For Gov. Cooper and AG Stein - (By Email)
Ms. Kellie Z. Myers, Trial Court Administrator - (By Email)
Mr. James R. Morgan, Jr., Attorney at Law, For NC Sheriffs' Association, et al. - (By Email)
Mr. Sean F. Perrin, Attorney at Law, For NC Sheriffs' Association, et al. - (By Email)
Mr. Edmond W. Caldwell, Jr., Executive Vice President and General Counsel, For NC Sheriffs' Association, et al. - (By Email)
Mr. Matthew L. Boyatt, Assistant Attorney General, For NC Sheriffs' Association, et al. - (By Email)
Ms. Hilary H. Klein, Attorney at Law, For Common Cause - (By Email)
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Supreme Court of North Carolina

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Raleigh, NC 27602

From N.C. Court of Appeals
(P21-525)
From Wake
(21CVS015426 21CVS500085)

21 January 2022

Ms. Hilary H. Klein
Attorney at Law
SOUTHERN COALITION FOR SOCIAL JUSTICE
1415 West Highway 54
Suite 101
Durham, NC 27707

RE: Harper, et al. v Hall, et al. - 413PA21-1

Dear Ms. Klein:

The following order has been entered on the Motion filed on the 19th of January 2022 by Plaintiff-Intervenor (Common Cause) to Admit J. Tom Boer and Olivia T. Molodanof Pro Hac Vice:

"Motion Allowed by order of the Court in conference, this the 21st of January 2022."

**s/ Berger, J.
For the Court**

WITNESS my hand and the seal of the Supreme Court of North Carolina, this the 21st day of January 2022.

Amy L. Funderburk
Clerk, Supreme Court of North Carolina

A handwritten signature in black ink, appearing to read "M. C. Hackney".

M. C. Hackney
Assistant Clerk, Supreme Court Of North Carolina

Copy to:

North Carolina Court of Appeals

Mr. Narendra K. Ghosh, Attorney at Law, For Harper, Rebecca, et al. - (By Email)

Mr. Terence Steed, Assistant Attorney General, For State Board of Elections, et al. - (By Email)

Mr. Amar Majmundar, Senior Deputy Attorney General, For State Board of Elections, et al. - (By Email)

Ms. Stephanie A. Brennan, Special Deputy Attorney General, For State Board of Elections, et al. - (By Email)

Mr. Burton Craige, Attorney at Law, For Harper, Rebecca, et al. - (By Email)

Mr. Paul E. Smith, Attorney at Law, For Harper, Rebecca, et al. - (By Email)

Mr. Phillip J. Strach, Attorney at Law, For Hall, Destin, et al. - (By Email)

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Mr. Stephen D. Feldman, Attorney at Law, For N.C. League of Conservation Voters, Inc., et al. - (By Email)

08789
Mr. Adam K. Doerr, Attorney at Law, For N.C. League of Conservation Voters, Inc., et al. - (By Email)
Mr. Erik R. Zimmerman, Attorney at Law, For N.C. League of Conservation Voters, Inc., et al. - (By Email)
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Supreme Court of North Carolina

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Raleigh, NC 27602

From N.C. Court of Appeals
(P21-525)
From Wake
(21CVS015426 21CVS500085)

21 January 2022

Mr. Phillip J. Strach
Attorney at Law
NELSON MULLINS RILEY & SCABOROUGH LLP
4140 Parklake Avenue
Glen Lake One, Suite 200
Raleigh, NC 27612

RE: Harper, et al. v Hall, et al. - 413PA21-1

Dear Mr. Strach:

The following order has been entered on the Motion filed on the 19th of January 2022 by Legislative-Defendants to Admit Katherine McKnight Pro Hac Vice:

"Motion Allowed by order of the Court in conference, this the 21st of January 2022."

**s/ Berger, J.
For the Court**

WITNESS my hand and the seal of the Supreme Court of North Carolina, this the 21st day of January 2022.

Amy L. Funderburk
Clerk, Supreme Court of North Carolina

M. C. Hackney
Assistant Clerk, Supreme Court Of North Carolina

Copy to:

North Carolina Court of Appeals

Mr. Narendra K. Ghosh, Attorney at Law, For Harper, Rebecca, et al. - (By Email)

Mr. Terence Steed, Assistant Attorney General, For State Board of Elections, et al. - (By Email)

Mr. Amar Majmundar, Senior Deputy Attorney General, For State Board of Elections, et al. - (By Email)

Ms. Stephanie A. Brennan, Special Deputy Attorney General, For State Board of Elections, et al. - (By Email)

Mr. Burton Craige, Attorney at Law, For Harper, Rebecca, et al. - (By Email)

Mr. Paul E. Smith, Attorney at Law, For Harper, Rebecca, et al. - (By Email)

Mr. Phillip J. Strach, Attorney at Law, For Hall, Destin, et al. - (By Email)

Ms. Alyssa Riggins, Attorney at Law, For Hall, Destin, et al. - (By Email)

Mr. John E. Branch, III, Attorney at Law, For Hall, Destin, et al. - (By Email)

Mr. Thomas A. Farr, Attorney at law, For Hall, Destin, et al. - (By Email)

Mr. Stephen D. Feldman, Attorney at Law, For N.C. League of Conservation Voters, Inc., et al. - (By Email)

08791
Mr. Adam K. Doerr, Attorney at Law, For N.C. League of Conservation Voters, Inc., et al. - (By Email)
Mr. Erik R. Zimmerman, Attorney at Law, For N.C. League of Conservation Voters, Inc., et al. - (By Email)
Mr. Ryan Y. Park, Solicitor General, For Gov. Cooper and AG Stein - (By Email)
Mr. James W. Doggett, Deputy Solicitor General, For Gov. Cooper and AG Stein - (By Email)
Mr. Zachary W. Ezor, Solicitor General Fellow, For Gov. Cooper and AG Stein - (By Email)
Ms. Kellie Z. Myers, Trial Court Administrator - (By Email)
Mr. James R. Morgan, Jr., Attorney at Law, For NC Sheriffs' Association, et al. - (By Email)
Mr. Sean F. Perrin, Attorney at Law, For NC Sheriffs' Association, et al. - (By Email)
Mr. Edmond W. Caldwell, Jr., Executive Vice President and General Counsel, For NC Sheriffs' Association, et al. - (By Email)
Mr. Matthew L. Boyatt, Assistant Attorney General, For NC Sheriffs' Association, et al. - (By Email)
Ms. Hilary H. Klein, Attorney at Law, For Common Cause - (By Email)
Ms. Allison J. Riggs, Attorney at Law, For Common Cause - (By Email)
Mr. Mitchell Brown, Attorney at Law, For Common Cause - (By Email)
Ms. Katelin Kaiser, Attorney at Law, For Common Cause - (By Email)
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Supreme Court of North Carolina

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From N.C. Court of Appeals
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21 January 2022

Mr. Phillip J. Strach
Attorney at Law
NELSON MULLINS RILEY & SCABOROUGH LLP
4140 Parklake Avenue
Glen Lake One, Suite 200
Raleigh, NC 27612

RE: Harper, et al. v Hall, et al. - 413PA21-1

Dear Mr. Strach:

The following order has been entered on the Motion filed on the 19th of January 2022 by Legislative-Defendants to Admit Mark Braden Pro Hac Vice:

"Motion Allowed by order of the Court in conference, this the 21st of January 2022."

**s/ Berger, J.
For the Court**

WITNESS my hand and the seal of the Supreme Court of North Carolina, this the 21st day of January 2022.

Amy L. Funderburk
Clerk, Supreme Court of North Carolina

A handwritten signature in black ink, appearing to read "M. C. Hackney".

M. C. Hackney
Assistant Clerk, Supreme Court Of North Carolina

Copy to:

North Carolina Court of Appeals

Mr. Narendra K. Ghosh, Attorney at Law, For Harper, Rebecca, et al. - (By Email)

Mr. Terence Steed, Assistant Attorney General, For State Board of Elections, et al. - (By Email)

Mr. Amar Majmundar, Senior Deputy Attorney General, For State Board of Elections, et al. - (By Email)

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Mr. John E. Branch, III, Attorney at Law, For Hall, Destin, et al. - (By Email)

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Mr. Stephen D. Feldman, Attorney at Law, For N.C. League of Conservation Voters, Inc., et al. - (By Email)

08763
Mr. Adam K. Doerr, Attorney at Law, For N.C. League of Conservation Voters, Inc., et al. - (By Email)
Mr. Erik R. Zimmerman, Attorney at Law, For N.C. League of Conservation Voters, Inc., et al. - (By Email)
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Mr. Edmond W. Caldwell, Jr., Executive Vice President and General Counsel, For NC Sheriffs' Association, et al. - (By Email)
Mr. Matthew L. Boyatt, Assistant Attorney General, For NC Sheriffs' Association, et al. - (By Email)
Ms. Hilary H. Klein, Attorney at Law, For Common Cause - (By Email)
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Mr. Mitchell Brown, Attorney at Law, For Common Cause - (By Email)
Ms. Katelin Kaiser, Attorney at Law, For Common Cause - (By Email)
Mr. Jeffrey Loperfido, Attorney at Law, For Common Cause - (By Email)
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STATEMENT OF TRANSCRIPT OPTION

Pursuant to Rule 9(c) of the North Carolina Rules of Appellate Procedure, Plaintiffs-Appellants designate the transcripts of:

- T1: The 3 December 2021 preliminary injunction hearing, taken by Dawn M. Dantschisch, Official Court Reporter, consisting of 114 pages, numbered 1–114, bound in one volume; and
- T2: Trial proceedings held on 3 January 2022, taken by Maren M. Fawcett, Official Court Reporter, consisting of 255 pages, numbered 1–255, bound in one volume, comprising the first of four volumes of trial transcripts.
- T3: Trial proceedings held on January 4, 2022, taken by Maren M. Fawcett, Official Court Reporter, consisting of 269 pages, numbered 256–524, bound in one volume, comprising the second of four volumes of trial transcripts.
- T4: Trial proceedings held on January 5, 2022, taken by Maren M. Fawcett, Official Court Reporter, consisting of 367 pages, numbered 525–891, bound in one volume, comprising the third of four volumes of trial transcripts.
- T5: Trial proceedings held on January 6, 2022, taken by Maren M. Fawcett, Official Court Reporter, consisting of 65 pages,

numbered 892–956, bound in one volume, comprising the fourth of four volumes of trial transcripts.

Pursuant to Appellate Rule 7(f), Plaintiffs-Appellants will file the transcripts listed above electronically as soon as practicable.

STATEMENT OF RULE 9(d) EXHIBITS

Pursuant to Appellate Rule 9(d), the parties designate the following exhibits, copies of which will be filed in separately paginated form:

- Plaintiffs' Exhibits PX1–PX44, PX46–PX49, PX52–PX53, PX55–PX57, PX59–PX66, PX68–PX103, PX109–PX110, PX114–PX127, PX129–PX146, PX150–PX211, PX214–PX217, PX234–PX241, PX247–PX251, PX400–PX535, PX538–PX598, PX602–PX687, PX1400–PX1413, PX1415–PX1448, PX1458–PX1465, PX1467–PX1559, PX1561–PX1583, PX1585–PX1587, PX1589–PX1621.
- Legislative Defendants' Exhibits LDTX1–LDTX85, LDTX89–LDTX90, LDTX94–LDTX127, LDTX130–LDTX154, LDTX156–LDTX160, LDTX163–LDTX174, LDTX176, LDTX179–LDTX206.

STIPULATION SETTling RECORD ON APPEAL

1. Based in part on this Court's Expedited Briefing Order, the proposed record on appeal was served on the Appellees on 19 January 2022. The certificate of service of the proposed record is, therefore, omitted from the settled record.
2. Legislative Defendants responded with objections on 20 January 2022. The parties came to an agreement as to which documents would be included in the printed record. Because no party moved for judicial settlement, the Record on Appeal was deemed settled on 21 January 2022.
3. The parties stipulate that the transcript of the preliminary injunction hearing and the transcript of the trial were properly and timely requested and served upon all parties of record. Therefore, the parties have omitted any transcript documentation from the Record on Appeal.
4. The parties stipulate that the following documents constitute the agreed-upon Record on Appeal to be filed with the Clerk of the North Carolina Supreme Court:
 - a. This printed Record on Appeal, consisting of pages 1 through 3812;

- b. The preliminary injunction transcript and trial transcript described on the Statement of Transcript Option; and
 - c. Rule 9(d) exhibits consisting of 11,622 pages and identified on the Statement of Rule 9(d) Exhibits.
5. The parties stipulate that with permission, electronic signatures can be used on these stipulations as if hand-signed herein.
6. The parties stipulate that email service of all documents filed with this Court is preferred as an appropriate manner of service and mail service can be omitted.

/s/ Stephen D. Feldman
Stephen D. Feldman
Robinson, Bradshaw & Hinson, P.A.
Counsel for NCLCV Plaintiffs
434 Fayetteville Street
Suite 1600
Raleigh, NC 27601
(919) 239-2600
sfeldman@robinsonbradshaw.com

/s/ Narendra K. Ghosh
Narendra K. Ghosh
Patterson Harkavy LLP
Counsel for Harper Plaintiffs
100 Europa Dr. Ste. 420
Chapel Hill, NC 27517
(919) 942-5200
nghosh@pathlaw.com

/s/ Hilary Harris Klein

Hilary Harris Klein
Southern Coalition for Social Justice
Counsel for Common Cause
1415 West Highway 54, Ste 101
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(919) 323-3380
hilaryhklein@scsj.org

/s/ Phillip J. Strach
Phillip J. Strach
Nelson Mullins Riley & Scarborough LLP
Counsel for Legislative Defendants
4140 Parklake Avenue, Suite 200
Raleigh, NC 27612
(919) 329-3800
phillip.strach@nelsonmullins.com

/s/ Terence Steed
Terence Steed
North Carolina Department of Justice
Counsel for State Defendants
Special Litigation Section
114 W. Edenton St.
Raleigh, NC 27603
(919) 716-6567
tsteed@ncdoj.gov

NCLCV PLAINTIFFS' PROPOSED ISSUES ON APPEAL

Pursuant to Rule 10 of the North Carolina Rules of Appellate Procedure, NCLCV Plaintiffs intend to present the following issues on appeal:

1. Do the “intentional, pro-Republican” gerrymanders that the trial court found in the General Assembly’s 2021 redistricting maps for Congress, the state Senate, and the state House (the “Enacted Plans”) violate the North Carolina State Constitution?
2. Did the trial court err by failing to hold that three House clusters are the product of intentional pro-Republican gerrymandering?
3. Do the Enacted Plans dilute the voting power of North Carolina’s Black citizens in violation of the North Carolina State Constitution?
4. Do the Enacted Plans violate the North Carolina State Constitution’s Whole County Provisions and the *Stephenson/Dickson* line of cases?
5. Did the trial court err by holding that the NCLCV Plaintiffs lack standing to bring their partisan gerrymandering and racial vote-dilution claims, based on the trial court’s view that those claims were not justiciable or did not succeed on the merits?

HARPER PLAINTIFFS' PROPOSED ISSUES ON APPEAL

Pursuant to Rule 10 of the North Carolina Rules of Appellate Procedure,

Harper Plaintiffs intend to present the following issues on appeal:

1. Did the trial court err in holding that North Carolina courts lack power to hear partisan gerrymandering claims brought under the North Carolina Constitution?
2. Did the trial court err in holding that *Harper* Plaintiffs lack standing?
3. Did the trial court err in holding that the 2021 Congressional, House, and Senate Plans do not violate the North Carolina Constitution's Free Elections Clause?
4. Did the trial court err in holding that the 2021 Congressional, House, and Senate Plans do not violate the North Carolina Constitution's Equal Protection Clause?
5. Did the trial court err in holding that the 2021 Congressional, House, and Senate Plans do not violate the North Carolina Constitution's Freedom of Speech and Assembly Clauses?

COMMON CAUSE PROPOSED ISSUES ON APPEAL

Pursuant to Rule 10 of the North Carolina Rules of Appellate Procedure, Common Cause intends to present the following issues on appeal:

1. Did the trial court err in denying Plaintiffs-Appellants' Motion for Sanctions arising out of Legislative Defendants' unlawful failure to preserve and produce secret concept maps used in drawing the Enacted House Map?
2. Did the trial court err in holding that Plaintiffs lack standing?
3. Did the trial court err in holding that the Enacted House, Senate, and Congressional Plans do not violate the Free Elections Clause of the North Carolina Constitution?
4. Did the trial court err in holding that the Enacted House, Senate, and Congressional Plans do not violate the Equal Protections Clause of the North Carolina Constitution?
5. Did the trial court err in holding that the Enacted House, Senate, and Congressional Plans do not violate the Free Speech Clause of the North Carolina Constitution?
6. Did the trial court err in holding that the Enacted House, Senate, and Congressional Plans do not violate the Right of Assembly Clause of the North Carolina Constitution?
7. Did the trial court err in holding that Plaintiffs' Partisan Gerrymandering Claims under the North Carolina Constitution are nonjusticiable?
8. Did the trial court err in holding that the Enacted House, Senate, and Congressional Plans are not racially discriminatory in violation of the Equal Protections Clause of the North Carolina Constitution?
9. Did the trial court err in denying Plaintiff Common Cause's first Claim for Relief under the Declaratory Judgment Act?

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CERTIFICATE OF SERVICE OF FINAL RECORD ON APPEAL

Pursuant to Rule 26 of the North Carolina Rules of Appellate Procedure,
I hereby certify that the foregoing Record on Appeal has been served upon each
of the parties to this action by email to the following:

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