No. 22-807

IN THE

Supreme Court of the United States

THOMAS C. ALEXANDER, IN HIS OFFICIAL CAPACITY AS
PRESIDENT OF THE SOUTH CAROLINA SENATE, ET AL.,

Appellants,

v.

THE SOUTH CAROLINA STATE CONFERENCE OF THE
NAACP, ET AL.,

Appellees.

On Appeal from the United States District Court
for the District of South Carolina

BRIEF OF POLITICAL SCIENCE PROFESSORS AS
AMICI CURIAE IN SUPPORT OF APPELLEES

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INTEREST OF THE *AMICI CURIAE*[1]

Amici curiae are professors of political science and statistics who study, publish, and testify about voting rights and redistricting. They are experts in the intersection of voting rights, political science, and data. *Amici* submit this brief to help the Court understand the method Dr. Ansolabehere employed in *Cooper v. Harris*, 581 U.S. 285 (2017) and Dr. Palmer employed in *Bethune-Hill v. Virginia State Bd. of Elections*, 580 U.S. 178 (2017), as well as by Dr. Jordan Ragusa and Dr. Baodong Liu in this litigation.

Amicus Stephen Ansolabehere is the Frank G. Thompson Professor of Government at Harvard University, where he also directs the Center for American Political Studies. He is an expert in elections, representation, and public opinion, as well as statistical methods in social sciences. He has published extensively on voting behavior and elections as well as the application of statistical methods in social sciences.

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[1] No counsel for any party authored this brief in whole or in part. No entity or person other than *amici curiae* or their counsel made any monetary contribution toward the preparation and submission of this brief.

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SUMMARY OF ARGUMENT

Amici are political scientists and cross-disciplinary experts familiar with the expert methodology used by Drs. Ragusa and Liu in this case to help discern whether race or party directed the drawing of district lines. Where, like here, political motivations are raised as a defense to racial gerrymandering claims, courts must disentangle race and party in their assessment of redrawn districts. *See Cooper v. Harris*, 581 U.S. 285, 293 (2017). The expert methodology used by Drs. Ragusa and Liu provides circumstantial evidence that race, and not politics, predominated the South Carolina redistricting process.

This methodology is both reliable and relevant to the district court's inquiry. It is strong science, non-partisan, and uncontested.[2] The underlying goal of each analysis is straightforward: if the drawing of racial lines was neutral, there should be an equal probability of members of each race being moved in, kept in, or being moved out of a contested district. Ragusa Report at 4. *Amici* attest that the methodology was applied properly by Drs. Ragusa and Liu and agree with their conclusions, which provide evidence that race predominated the drawing of the district lines. The district court did not commit clear error in

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[2] The analysis to discern whether race or party was the motivating factor in districts' line-drawing differs from the analysis the court rejected in *Rucho*, which was the subject of division within the political science community. *Cf. Rucho v. Common Cause*, 139 S. Ct. 2484, 2500–01 (2019) (discussing the competing measures to determine that excessive partisanship had been used). No such division within the community exists to the race-versus-party methodology used by Drs. Ragusa and Liu.

relying in part on the expert work using this methodology to find that race, and not party, was the primary factor in the drawing of the district lines. *See Brnovich v. Democratic Nat'l Comm.*, 141 S. Ct. 2321, 2348–49 (2021) (appellate review of district court conclusion that a voting law was enacted with discriminatory purpose is clear error); *Cooper*, 581 U.S. at 293 (same).

ARGUMENT

I. Statistics and Demographics Are Necessary to Inform Courts' Determinations in Racial Gerrymandering Cases.

A. This Court's Jurisprudence Requires Showing that Race Predominated in Racial Gerrymandering Cases.

The Fourteenth Amendment's Equal Protection Clause prohibits a State, "in the absence of 'sufficient justification,' from 'separating its citizens into different voting districts on the basis of race.'" *Cooper*, 581 U.S. at 291 (quoting *Bethune-Hill v. Virginia State Bd. of Elections*, 580 U.S. 178, 187 (2017)). Governments must not engage in the "offensive and demeaning assumption that voters of a particular race, because of their race, 'think alike, share the same political interests, and will prefer the same candidates at the polls.'" *Miller v. Johnson*, 515 U.S. 900, 912 (1995) (quoting *Shaw v. Reno*, 509 U.S. 630, 647 (1993)).

This Court has explained that it is presumptively invalid for race to predominate the drawing of districts lines, even if the lines appear facially neutral. *Rucho v. Common Cause*, 139 S. Ct. 2484,

2496–97 (2019). It is up to the courts to determine "whether racial considerations predominated in drawing district lines." *Cooper*, 581 U.S. at 293.

For the past three decades, this Court has provided principles to guide this determination. In *Shaw v. Reno*, this Court concluded that a voter states an Equal Protection Clause claim for racial gerrymandering when they allege the redistricting process "rationally can be viewed only as an effort to segregate the races for purposes of voting, without regard for traditional districting principles and without sufficiently compelling justification." 509 U.S. at 642. "Classifications of citizens solely on the basis of race 'are by their very nature odious to a free people whose institutions are founded upon the doctrine of equality.'" *Id.* at 643 (quoting *Hirabayashi v. United States*, 320 U.S. 81, 100 (1943)).

This Court in *Shaw* further explained that:

> A reapportionment plan that includes in one district individuals who belong to the same race, but who are otherwise widely separated by geographical and political boundaries, and who may have little in common with one another but the color of their skin, bears an uncomfortable resemblance to political apartheid. It reinforces the perception that members of the same racial group—regardless of their age, education, economic status, or the community in which they live—think alike, share the same political interests, and will prefer the same candidates at the polls.

Shaw, 509 U.S. at 647.

In the three decades since *Shaw*, this Court has explained more precisely the contours of racial gerrymandering claims. A plaintiff must prove "race was the predominant factor motivating the legislature's decision to place a significant number of voters within or without a particular district," and "that the legislature subordinated traditional race-neutral districting principles . . . to racial considerations." *Bethune-Hill*, 580 U.S. at 187 (quoting *Miller*, 515 U.S. at 916) (cleaned up). To show predominance, a plaintiff need not show actual conflict, however, between a district's design and those principles: "Race may predominate even when a reapportionment plan respects traditional principles[.]" *Id.* at 189 (citing *Shaw v. Hunt*, 517 U.S. 899, 907 (1996)). Indeed, racial predominance may be shown, for example, through alternative district configurations satisfying nonracial criteria. *See Easley v. Cromartie*, 532 U.S. 234, 249 (2001) ("*Cromartie II*"). And although a plaintiff need not "submit one particular form of proof to prevail," "[a] plaintiff succeeds at this stage even if the evidence reveals that a legislature elevated race to the predominant criterion in order to advance other goals, including political ones." *Cooper*, 581 U.S. at 319 & 291 n.1 (citing *Bush v. Vera*, 517 U.S. 952, 968–70 (1996) and *Miller*, 515 U.S. at 914).

As explained below, the expert methodology pioneered by *Amici* and used by Drs. Ragusa and Liu provides the requisite circumstantial evidence that race, and not politics, predominated the South Carolina redistricting.

B. Academic Research and Scholarship Endorse the Expert Methodology Used Here.

Two of the methodologies used by the experts in this case, and in other recent racial gerrymandering cases, the in-and-out method and the envelope method, were pioneered by *Amici*. Both methodologies look for changes in the enacted and previous districts and try to discern the reasons for the changes. *Amici* first pioneered these methodologies in a peer-reviewed article, titled "Old Voters, New Voters" in the American Journal of Political Science, more than two decades ago. Stephen Ansolabehere, James M. Snyder, & Charles Stewart III, *Old Voters, New Voters, and the Personal Vote: Using Redistricting to Measure the Incumbency Advantage*, 44 AM. J. POL. SCI. 1, 17–34 (Jan. 2000). In the article, *Amici* used the same methodology to conduct an analysis to estimate the magnitude of the vote an incumbent receives by contrasting an incumbent's vote in the new part of the U.S. House district with his or her vote in the old part of the district following a decennial redistricting. *See id.*

Since then, the article has been cited in more than 584 peer-reviewed published papers. *See, e.g.*, Alexander Lee, *Incumbency, Parties, and Legislatures*, 52 COMP. POL. 2, 311–31 (Jan. 2020); Andrew C. Eggers & Arthur Spirling, *Incumbency Effects and the Strength of Party Preferences*, 79 THE J. OF POL. 3, 903–20 (July 2017); Mariana Lopes da Fonseca, *Identifying the Source of Incumbency Advantage through a Constitutional Reform*, 61 AM. J. POL. SCI. 3, 657–70 (July 2017); Bernard L. Fraga, *Redistricting and the Causal Impact of Race on Voter*

Turnout, 78 The J. OF POL. 1, 19–34 (Jan. 2016); Daniel Hayes & Seth C. McKee, *The Intersection of Redistricting, Race, and Participation*, 56 AM. J. POL. SCI. 1, 115–30 (Jan. 2012); Scott W. Desposato & John R. Petrocik, *The Variable Incumbency Advantage: New Voters, Redistricting, and the Personal Vote*, 47 AM. J. POL. SCI. 1, 18–32 (Jan. 2003). Many authors not only cite "New Voters, Old Voters," but also apply its methodology to conduct their analyses.

For example, in "The Intersection of Redistricting, Race, and Participation," the authors showed redistricting's negative effects on Black voter participation measured by voter roll-off in U.S. House elections from 11 post-redistricting elections in five states from 1992 through 2006 with precinct-level election data. Daniel Hayes & Seth C. McKee, *The Intersection of Redistricting, Race, and Participation*, 56 AM. J. POL. SCI., 1, 115–30 (Jan. 2012). For each election, the authors overlaid shapefiles of the congressional districts before and after the redistricting and classified precincts into three categories: redrawn into a new incumbent's congressional district; remaining in the same incumbent's district; or facing an open-seat contest. *Id.* at 118. The authors assessed the election returns, voter-roll off, and the racial composition of the voting-age population in each precinct to estimate the effects of redistricting on different racial groups. *Id.* at 117.

In "Reprecincting and Voting Behavior," the authors determined that registered voters who are reassigned to a different election day polling place before an election are less likely to turn out than those assigned to vote at the same precinct location, by assessing the reconfigured boundaries of precincts

and the reduction of polling stations in Manatee County, Florida in 2014. Brian Amos, Daniel A. Smooth, & Casey Ste. Claire, *Reprecincting and Voting Behavior*, 39 POL. BEHAV. 1, 133–56 (Mar. 2017). The authors overlaid the 2014 precincts over the 2012 precincts in Manatee County and determined the rate at which voters were reassigned to new polling locations by assessing demographic and precinct characteristics of precincts that were redrawn. *Id.* at 138. They determined that Black registered voters were disproportionately likely to be reassigned to a new polling location, and though the differences by party were more subtle, Republicans were considerably less likely to be assigned a new polling place than their Democratic counterparts. *Id.* at 138, 140.

This methodology is employed by academics and experts across the ideological spectrum. *See, e.g.*, M.V. Hood III[3] & Seth C. McKee, *Trying to Thread the Needle: The Effects of Redistricting in a Georgia Congressional District*, 42 PS: POL. SCI. AND POLITICS

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[3] Professor Hood is frequently an expert witness in voting rights and redistricting cases on behalf of state and local officials. *See, e.g.*, *Robinson v. Ardoin*, Case No. 3:22-cv-00211-SDD-SDJ, Dkt. 109-1 (M.D. La. Apr. 29, 2022); *Walen v. Burgum*, Case No. 1:22-cv-00031-PDW-RRE-DLH, Dkt. 100-10 (D.N.D. Feb. 28, 2022); *Nielsen v. DeSantis*, Case No. 4:20-cv-00236-RH-MJF, Dkt. 479 (N.D. Fla. July 6, 2020); *Libertarian Party of Ark. v. Thurston*, Case No. 4:19-cv-00214-KGB, Dkt. 17-2 (E.D. Ark. May 24, 2019); *Ohio A. Philip Randolph Inst. v. Householder*, 373 F. Supp. 3d 978, 1048-53 (S.D. Ohio 2019), *vacated and remanded sub nom. Chabot v. Ohio A. Philip Randolph Inst.*, 140 S. Ct. 102 (2019) (Mem) (vacated for further consideration in light of *Rucho*, 139 S. Ct. 2484); *Frank v. Walker*, 17 F. Supp. 3d 837, 849 (E.D. Wis. 2014), *rev'd*, 768 F.3d 744 (7th Cir. 2014).

4, 679–87 (Oct. 2009). In that article, the authors compared the old and new Georgia congressional maps to assess the effects of the redistricting and redrawn precincts of District 8 on voter turnout and vote choice. *Id.* at 681–82. The authors assessed the voter-turnout model from voter-registration and history databases maintained by the secretary of state and estimated an individual-level voter turnout model for District 8 in the general election, with primary variables for the registrant's race and whether they were a redrawn-district resident, and secondary variables for a registrant's history of political participation. *Id.* at 682. To model vote choice, the authors relied on precinct-level data by aggregating the number of Black, female, and 65-and-over voters (all of whom were expected to relate to Democratic vote choice) divided by the total 2006 turnout in a given precinct, with a dummy variable for whether the precinct was redrawn. *Id.* The authors concluded the redrawn precincts disproportionately reduced the likelihood of voting amongst redrawn Black voters but had no substantial effect on the redrawn white population. *Id.* at 685. Additionally, redistricting had no effect on the voting preferences of the Black population, but redrawn majority white precincts were significantly more supportive of the Republican candidate. *Id.*

C. This Court's Recent Racial Gerrymandering Opinions Support the Use of the Expert Methodologies to Provide Circumstantial Evidence of Racial Gerrymandering.

Over the past two decades this Court has endorsed use of the methodologies discussed *supra* as

permissible evidence that race, and not party, predominated the drawing of district lines. In *Cromartie I*, this Court analyzed "statistical and demographic evidence with respect to the precincts that were included" or not included in the new district at issue. *Hunt v. Cromartie*, 526 U.S. 541, 548 (1999) ("*Cromartie I*"). Even though the circumstantial evidence in *Cromartie I* was insufficient to warrant summary judgement—because intent remained a genuine issue of material fact—this Court emphasized this need not always be the case. *Id.* at 553; *see also Cromartie II*, 532 U.S. at 267 (Thomas, J, dissenting) (finding evidence sufficient for summary judgement ruling that map was racially gerrymandered under the clear error standard).

Recently, in *Cooper*, this Court analyzed what factors and evidence are most helpful in redistricting actions where a partisanship defense has been raised. There, this Court distinguished between racial gerrymandering cases in which a defendant raised a partisanship defense and those with no such defense. In the latter "more usual case," "the court can make real headway by exploring the challenged district's conformity to traditional districting principles," like compactness and county lines. *Cooper*, 581 U.S. at 308. But where a defendant raises a partisanship defense to rebut allegations of racial gerrymandering, "such evidence loses much of its value" because a district's "bizarre shape . . . can arise from a 'political motivation' as well as a racial one." *Id.* (citing *Cromartie I*, 526 U.S. at 547 n.3). The key inquiry, therefore, is disaggregating race from party.

Recognizing the reality that race and party may often be correlated, "a trial court has a formidable

task: It must make 'a sensitive inquiry' into all 'circumstantial and direct evidence of intent' to assess whether the plaintiffs have managed to disentangle race from politics and prove that the former drove a district's lines." *Id.* (quoting *Cromartie I*, 526 U.S. at 546). Plaintiffs may choose one or more of several paths to do so: "direct evidence of legislative intent, circumstantial evidence of a district's shape and demographics, or a mix of both." *Id.* at 291 (quoting *Miller*, 515 U.S. at 916) (cleaned up).

In *Cooper*, *Amicus* Dr. Stephen Ansolabehere provided circumstantial evidence that race predominated. In that report, this Court explained, Dr. Ansolabehere's analysis:

> looked at the six counties overlapping with [the district at issue]—essentially the region from which the mapmakers could have drawn the district's population. The question he asked was: Who from those counties actually ended up in [the district]? The answer he found was: Only 16% of the region's white registered voters, but 64% of the black ones. . . . Ansolabehere next controlled for party registration, but discovered that doing so made essentially no difference: For example, only 18% of the region's white Democrats wound up in [the district], whereas 65% of the black Democrats did. . . . The upshot was that, regardless of party, a black voter was three to four times more likely than a white voter to cast his ballot within [the district]'s borders.

Id. at 315.[4]

This Court credited the lower court's finding of racial predominance in part due to evidence that the changes to the challenged district "appreciably shifted the racial composition of District 12: As the district gained some 35,000 African Americans of voting age and lost some 50,000 whites of that age, its BVAP increased from 43.8% to 50.7%." *Id.* at 295–96 (citations omitted).

Dr. Ansolabehere's method was also used in *Bethune-Hill v. Virginia State Bd. of Elections*, 141 F. Supp. 3d 505, 551–52 (E.D. Va. 2015) ("*Bethune-Hill I*"). Following a reversal and remand from this Court, *Bethune-Hill v. Virginia State Bd. of Elections*, 580 U.S. 178 (2017), *Amicus* Dr. Maxwell Palmer testified in the district court's second bench trial. Dr. Palmer used and testified regarding the method developed by Dr. Ansolabehere for determining whether race or party predominated the redistricting. *Bethune-Hill v. Virginia State Bd. of Elections*, 326 F. Supp. 3d 128, 140 (E.D. Va. 2018) ("*Bethune-Hill II*"). The Court there noted that "both experts provided credible testimony based on sound methodology." *Id.* at 145.

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[4] Similarly, the lower court specifically credited Dr. Ansolabehere's analysis when determining changes in the plan "can be only explained by race and not party." *Harris v. McCrory*, 159 F. Supp. 3d 600, 621 (M.D.N.C. 2016), *aff'd sub nom. Cooper v. Harris*, 581 U.S. 285 (2017). The lower court in *Cooper* found that Dr. Ansolabehere's analysis provided "circumstantial support for the conclusion that race predominated." *Id.*

Dr. Palmer "conducted statistical analyses regarding the populations of the challenged districts to determine whether race predominated in the construction of those districts" by assessing the "manner in which [Voting Tabulation Districts] and political subdivisions were split in the [redistricting] plan." *Id.* at 147. He found the number of split Voting Tabulation Districts ("VTDs") was more common in the challenged districts, and there was "'substantial evidence' that race was the predominant factor in the manner that the VTDs, cities and other places were split between challenged and non-challenged districts" because, with few exceptions, "these areas were divided such that the portions allocated to challenged districts had a higher BVAP percentage [, by 24%,] than the portions allocated to non-challenged districts." *Id.* Thus, "BVAP level was predictive of an area's inclusion in a challenged district because 'as the BVAP of a census block increases, the probability that it is assigned to a challenged district increases.'" *Id.* at 148.

Dr. Palmer also conducted "an extensive analysis of the question whether racial composition or political party performance in a VTD was a stronger predictor that a particular VTD would be assigned to a challenged district" in part by examining Drs. Jonathan Katz[5] and Ansolabehere's expert testimony in *Bethune-Hill I. Id.* at 149. Dr. Palmer concluded that the "racial disparities in the manner the VTDs

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[5] Dr. Katz was an expert who testified on behalf of the intervenors in *Bethune-Hill I*, 141 F. Supp. 3d at 578, and *Bethune-Hill II*, who critiqued Dr. Ansolabehere's report. *Bethune-Hill II*, 326 F. Supp. 3d at 149. The court in *Bethune-Hill II* found Dr. Katz's results "illogical." *Id.* at 150.

were split were especially strong evidence of racial predominance" because election data was "not available for the individual census blocks that make up the VTDs and Virginia [did] not maintain political party registration in voter files, [so] the precision and specificity with which the VTD split separated white and black voters [could] not be explained by anything other than the intentional consideration of race." *Id.* at 148. Like Dr. Ansolabehere, Dr. Palmer concluded that "black voters were moved from non-challenged districts at a higher rate than white or Democratic voters," and "conversely, white and Democratic voters were moved out of the challenged districts and into non-challenged districts at a higher rate than black voters." *Id.* Both Drs. Palmer and Ansolabehere concluded that "the effect of race is much larger than that of party in the assignment of VTDs to challenged districts." *Id.* at 151. Based on this analysis, the court "conclude[d] that the BVAP of a VTD was a more accurate predictor of whether that VTD would be included in a challenged district than the Democratic performance of the VTD." *Id.* Accordingly, plaintiffs established racial pre-dominance. *Id.* at 175.

The *Amici* expert analysis in *Cooper* and *Bethune Hill* served as a guide for Drs. Ragusa and Liu in their work in South Carolina.

II. Plaintiffs' Experts Drs. Ragusa and Liu Used the Methodology this Court Blessed in *Cooper*.[6]

A. The Reliance on Expert Evidence in this Case Survives the Clear Error Standard.

The reliance on expert work in the first instance is the providence of the district judge. *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 147 (1999) (explaining "Federal Rule of Evidence 702 imposes a special obligation upon a trial judge to 'ensure that any and all scientific testimony . . . is not only relevant, but reliable.'" (quoting *Daubert v. Merrell Dow Pharms., Inc.,* 509 U.S. 579, 589 (1993)); *Daubert*, 509 U.S. at 597 (explaining the Federal Rules of Evidence "assign to the trial judge the task of ensuring that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand"). This Court's precedent and the Federal Rules of Evidence set forth standards to guide district courts in evaluating whether expert testimony can be admitted and relied on in the final determination. *See Kumho Tire*, 526 U.S. at 141 (listing factors a district court can consider when determining whether to admit expert testimony).

Further, the district court's determination that race, and not party, was the primary factor in the drawing of the district lines at issue in the case is subject to clear error review. *See Brnovich*, 141 S. Ct. at 2348 (applying clear error standard to district court conclusion that a voting law was enacted with discriminatory purpose); *Cooper*, 581 U.S. at 293 (same). Here, the district court did not commit clear

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[6] Drs. Ragusa and Liu's methodology was also blessed by the district court in *Bethune-Hill II*, 326 F. Supp. 3d at 151.

error by relying on Drs. Ragusa and Liu's expert analysis.

Although Appellants refer to the methodologies interchangeably, Drs. Ragusa and Liu used two distinct methods to assist the district court below—the in-and-out method and the envelope method.[7] The benefits of two different methods are that when both point in the same direction, they add robustness to the results. This mirrors the racially polarized voting analysis in the Section 2 context, where several models can be used simultaneously to determine whether racially polarized voting exists. *See Thornburg v. Gingles*, 478 U.S. 30, 52–54 (1986) (discussing two analyses used by the expert to find racially polarized voting). Similarly, Dr. Ansolabehere used both methods in his analysis before the district court in *Cooper* and both Drs. Ragusa and Liu used versions of these two analyses in this case. The primary question is whether the methodology proffered before the district court was reliable and relevant to the inquiry. *Daubert*, 509 U.S. at 597. The methodology here undoubtedly meets this standard: As discussed *supra*, it is part of a long history of academic research and legal precedent.[8]

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[7] *See supra* I.B. for a discussion of the differences between the in-and-out and envelope method.

[8] Notably, Appellants failed in their attempt to contest the reliability of the methodology at issue. Appellants' sole expert witness, Mr. Sean Trende, argued only that: 1) Dr. Ragusa should have used percentage rather than the count of Black residents of voting age in the district; 2) Dr. Ragusa did not control for traditional redistricting criteria; and 3) Dr. Ragusa did not consider contiguity. Trende Rebuttal Report at 8–11. However, as *Amici* state here, none of these three criticisms

B. The Use of the In-and-Out Method Survives the Clear Error Standard.

The in-and-out method looks at VTDs, also known as voting precincts, and breaks them into three different categories: (1) the "core" VTDs which were present in the previous version of the maps and the new version of the map, (2) the "in" VTDs which were not previously present in the district and moved into the district, and (3) the "out" VTDs which were previously present in the district and moved out of the district. If changes in district lines are unrelated to race, one would expect the racial composition of the "in" districts and "out" districts on average to be similar.

Here, both Drs. Ragusa and Liu used the in-and-out method. Dr. Ragusa used a version of the in-and-out method in Model 2 of his initial report, where he focused only on the VTDs in an old district and asked about the probability that these VTDs would have been moved out of the district. Through this analysis, Dr. Ragusa found "that VTDs with 100 Black voters had only a 13% chance of being moved out of the 1st district, compared to 60% for VTDs with 1500 Black voters." Ragusa Rebuttal Report at 6. This is the analysis that the district court specifically credited in its findings. *S.C. State Conf. of NAACP v. Alexander*, No. 3:21-cv-03302-MGL-TJH-RMG, --- F. Supp. 3d. ---, 2023 WL 118775, at *19 (D.S.C. Jan. 6, 2023).

Dr. Ragusa conducted another version of the in-and-out method in his rebuttal report. In "Figure 1" in

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weigh against the method's reliability and usefulness to the district court. *Infra* at II.D.

his rebuttal report, he "arranges the VTDs in the 1st district prior to redistricting based on their Biden vote (on the x-axis) and [Black Voting Age Population (BVAP)] (y-axis)." *Id.* at 7. He found that "there [we]re 339 VTDs with <1000 Biden and Black voters" and "among them, 52 (15.3%) were drawn out of the district. In other words, precincts with the fewest Biden and Black voters were less likely to be removed from the district compared to the baseline." *Id.* Dr. Ragusa found that "[a]t the other extreme, in the upper right quadrant there are five VTDs with >1000 Biden and Black voters" and "that the four precincts with the largest BVAP in the 1st district were all removed from the district." *Id.* at 7–8. Further, precincts with low BVAP but high Biden voters were less likely to be moved out of the district. *Id.* These data led Dr. Ragusa to one logical conclusion: "the racial composition of a precinct was a stronger predictor of whether it was removed from the 1st district than its partisan composition." *Id.* at 8.

Dr. Liu also conducted an in-and-out analysis by looking at the "in" VTDs, the "core" VTDs, and the "out" VTDs of the districts. Like Dr. Ragusa, Dr. Liu's analysis found that Black precincts were far less likely to be kept in and far more likely to be moved out of the new District 1. Liu Report at 17.

C. The Use of the Envelope Method Survives the Clear Error Standard.

The envelope method analyzes the counties where a disputed district is located. The whole county population is taken as the potential population from which a district could be drawn. The analysis then computes the likelihood that a voter of a particular race was included or excluded from the district. As

with the in-and-out method, if the lines were drawn without respect to race, one would expect that white and Black voters would have approximately the same likelihood of inclusion in the disputed district.

Drs. Ragusa and Liu both used the envelope method as well. Dr. Ragusa used two versions of the envelope method in his report. The first version of the envelope method is found in his Model 1, which "analyzes which VTDs surrounding the district were moved into the redrawn district" using all the districts in a county envelope. Ragusa Initial Report at 2. District 1 included portions of five counties: Beaufort, Berkeley, Charleston, Colleton, and Dorchester. In Model 1, Dr. Ragusa studied the VTDs moved in from the county envelope, those kept in the district, and those moved out. *Id.* When Dr. Ragusa ran Model 3 for District 1, he found "that Black voters were significantly less likely to be moved into and kept in the district." *Id.* at 5.

Dr. Liu had a slightly larger county envelope than Dr. Ragusa for District 1. He included six counties: Beaufort, Berkeley, Charleston, Colleton, Dorchester, and added Jasper. Dr. Liu found "that voters in all six counties (*i.e.*, the envelope) have a 68.87% chance of being assigned to CD 1 [, b]ut white voters have a greater probability of being assigned to CD 1 (74.43%) as opposed to Black voters (52.69%)." Liu Report at 19.

D. Appellants' Concerns Do Not Demonstrate Clear Error by the District Court.

Appellants' concerns about the use of these two methodologies do not render the methodologies unreliable. Appellants' primary concern is the

methods' failure to expressly control for traditional redistricting criteria. Yet, both methodologies implicitly account for traditional redistricting criteria by assessing a limited set of geography to conduct the analysis—geography that had previously been or currently is included in the contested district. The map drawer and the state must have concluded that the geography conformed with and satisfied traditional redistricting criteria to have been included in the contested district at one point or another. In the in-and-out method, the geography assessed is only the VTDs or precincts that were either previously or currently included in the contested district. The envelope method inherently considers the traditional criteria of avoiding county splits, compactness (by not stretching the district into distant counties), and the preservation of district cores (by not bringing the district into new counties) while taking a broader approach by looking at whole counties that had been previously or currently included in the district. As Dr. Ragusa stated, he limited his inquiry to those VTDs in the bordering counties that "could be added to the redrawn district without crossing county borders and/or significantly reconfiguring the district." Ragusa Initial Report at 2. Thus, if the previous map adhered to traditional redistricting criteria and the current map adheres to traditional redistricting criteria, the analysis' area of focus would also adhere to those criteria.

Further, to the extent Appellants claim the analysis fails to account for the role geography played in the changing of district lines, Appellants' Brief at 50–51, the county envelope method used by Dr. Ragusa includes a proxy for geography by including VTD size as one of the variables. Ragusa Initial

Report at 2. Inclusion of this variable asks whether inclusion or exclusion from a district could be explained by geography, *i.e.,* whether it was more likely for the smaller rural VTDs or large urban VTDs to be included or excluded from the new district.[9]

Appellants' other primary objection—that the analysis cannot possibly be right because a greater absolute number of white Democrats were moved than Black voters—misses the point. The analysis determines whether race *or* party was the primary driver based on the assumption that if changes in district lines were race neutral, then proportional numbers of Blacks and whites would have been moved out of the district. That was not the case here. As the district court found:

> Where a VTD had 100-500 voters, the chance of being moved out of Congressional District No. 1 was no greater than 20%. However, when the number of African American voters became 1,000 or more, the chance of the VTD being moved out of Congressional District No. 1 rose to 40% and at 1500 voters the chance was 60%.

S.C. State Conf. of NAACP, 2023 WL 118775, at *8.

Put another way, "if mapmakers drew Black voters out of the district in a proportionate manner, they would number 19,641. Recall that 27,626 Black voters were removed from the district by the redrawn map.

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[9] It also undercuts Appellants' complaints that Dr. Ragusa's dependent variable was the raw BVAP number rather than % BVAP. Appellants' Brief at 52.

In other words, 7,985 additional Black voters were moved out of the 1st district in excess of parity." Ragusa Rebuttal Report at 9. The district court found Dr. Ragusa's analysis on this point "particularly probative." *S.C. State Conf. of NAACP*, 2023 WL 118775, at *8. This finding easily survives the clear error standard.

Finally, Appellants argue that by looking at all counties in the district's "envelope" and treating all precincts within the county equally—regardless of whether they abut the district at issue—Dr. Ragusa's method fatally ignored contiguity in the district's map drawing. *See* Trende Rebuttal Report at 9–10. Yet, as Plaintiffs explained, the Enacted Plan itself shows that the mapmakers here did not limit themselves to movement of VTDs that were directly proximate to another district. Pls.' Resp. to Def.'s *Daubert* Motion Re: Ragusa, Dkt. 384 at 10. The mapmaker here drew lines that snaked around other geographic boundaries, and split TRPs, such as in Richland. *Id.* The methodology Dr. Ragusa employed concerns what mapmakers *can* do, and the Enacted Plan evidences that all of these precincts (whether they directly abut the district or not) in fact were considered by the mapmaker. There was no clear error in relying on Dr. Ragusa's method.

CONCLUSION

For the foregoing reasons, *Amici curiae* request that this Court affirm the decision of the United States District Court for the District of South Carolina.

Respectfully submitted,

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[10] University affiliation is provided for identification purposes only; Professor Charles and Ms. Thomas-Lundborg sign this *amicus* brief in their individual capacities and not on behalf of Harvard Law School.