

EXHIBIT 6

IN THE SUPREME COURT OF OHIO

**LEAGUE OF WOMEN VOTERS OF
OHIO, et al.,**

Petitioners,

v.

**OHIO REDISTRICTING COMMISSION,
et al.,**

Respondents.

Case No. 2021-1193

**Original Action Filed Pursuant to
Ohio Constitution, Article XI**

EXHIBITS TO OBJECTIONS — VOLUME 2 OF 2

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Warshaw Affidavit.pdf

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E-Signature Summary

E-Signature 1: Christopher Warshaw (CSW)

March 29, 2022 11:44:08 -8:00 [C0ADED CDC25C] [24.126.11.158]
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I, Theresa M Sabo, did witness the participants named above electronically sign this document.



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LEAGUE OF WOMEN VOTERS OF
OHIO, et al.,

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Case No. 2021-1193

Original Action Pursuant to
Ohio Const., Art. XI

AFFIDAVIT OF CHRISTOPHER WARSHAW

Franklin County

/ss

State of Ohio

Now comes affiant Christopher Warshaw, having been first duly cautioned and sworn, deposes and states as follows:

1. I am over the age of 18 and fully competent to make this declaration. I have personal knowledge of the statements and facts contained herein.
2. For the purposes of this litigation, I have been asked by counsel for Relators 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 expressed and, to the best of my knowledge, the accuracy of the factual statements made therein.

FURTHER AFFIANT SAYETH NAUGHT.

Executed on 03/29/2022, 2022.

Christopher Warshaw

Signed on 2022/03/29 11:44:08 -8:00

Christopher Warshaw

Sworn and subscribed before me this 03/29/2022, 2022.



Notary Stamp 2022/03/29 11:44:08 PST

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Exhibit A

An Evaluation of the Partisan Fairness of Ohio's March 28, 2022 State Legislative Districting Plan

Christopher Warshaw*

March 29, 2022

*Associate Professor, Department of Political Science, George Washington University. warshaw@gwu.edu. Note that the analyses and views in this report are my own, and do not represent the views of George Washington University.

Contents

1	Introduction	1
2	Qualifications, Publications and Compensation	1
3	Summary	2
4	Proportionality Results	3
4.1	Close Districts on State Senate plan	3
4.2	Close Districts on State House plan	5
5	Geographic Overlap between Plans	7
5.1	Overlap across Senate plans	7
5.2	Overlap across House plans	7
5.3	Summary	7
6	Conclusion	8

1 Introduction

My name is Christopher Warshaw. I am an Associate Professor of Political Science at George Washington University. Previously, I was an Associate Professor at the Massachusetts Institute of Technology (MIT) from July 2016 - July 2017, and an Assistant Professor at MIT from July 2012 - July 2016.

I have been asked by counsel representing the League of Women Voters plaintiffs in this case to analyze relevant data and provide my expert opinions about whether the number of close districts in Ohio's enacted March 28, 2022 state legislative districting plans are roughly proportional between the two parties. I have also been asked to compare the March 28 and February 24 plans. Specifically, I have been asked to examine:

- The number of seats on each plan where each party is expected to receive between 50 and 51% of the vote.
- The number of seats on each plan where each party is expected to receive between 51 and 52% of the vote.
- The geographic overlap between the March 28 and February 24 plans.

2 Qualifications, Publications and Compensation

My Ph.D. is in Political Science, from Stanford University, where my graduate training included courses in political science and statistics. I also have a J.D. from Stanford Law School. My academic research focuses on public opinion, representation, elections, and polarization in American Politics. I have written multiple papers that focus on elections and two published articles that focus specifically on partisan gerrymandering. I also have a forthcoming book that includes an extensive analysis on the causes and consequences of partisan gerrymandering in state governments.

My curriculum vitae is attached to this report. All publications that I have authored and published appear in my curriculum vitae. My work is published or forthcoming in peer-reviewed journals such as: the *American Political Science Review*, the *American Journal of Political Science*, the *Journal of Politics*, *Political Analysis*, *Political Science Research and Methods*, the *British Journal of Political Science*, *Political Behavior*, *Science Advances*, the *Election Law Journal*, *Nature Energy*, *Public Choice*, and edited volumes from Cambridge University Press and Oxford University Press. My book entitled *Dynamic Democracy in the American States* is forthcoming from the University of Chicago Press. My non-academic writing has been published in the *New York Times* and the *Washington*

Post. My work has also been discussed in the *Economist* and many other prominent media outlets.

My opinions in this case are based on the knowledge I have amassed over my education, training and experience, including a detailed review of the relevant academic literature. They also follow from statistical analysis of precinct-level data on recent statewide Ohio elections. Specifically, I use precinct-level data on Ohio's statewide elections between 2016-20 from the Voting and Election Science Team (University of Florida, Wichita State University). I obtained these data from the Harvard Dataverse.¹ I merge the precinct-level returns to the proposed plans by assigning precincts to the district that has the greatest overlap with it.² I also use data on each Census block's land area and population.³

I have previously provided expert reports in this case, as well as eight other redistricting-related cases and several Census-related cases (see my CV for a current list). I am being compensated at a rate of \$325 per hour. The opinions in this report are my own, and do not represent the views of George Washington University.

3 Summary

This report examines whether Ohio's enacted March 28, 2022 state legislative maps appear to meet the criteria in the Ohio Constitution. Specifically, it examines whether the close seats in the plans are roughly proportional between the parties.

It finds that the close seats are not proportional between the parties. Based on the Commission's approach of aggregating the raw votes in elections from 2016-2020, there are 6 Senate districts where Democrats are expected to receive between 50 and 52% of the vote, and no Senate districts where Republicans are expected to win between 50 and 52% of the vote. Moreover, there are 17 House districts where Democrats are expected to receive between 50 and 52% of the vote and zero-Republican leaning districts in this range. The fact that all of the close seats are Democratic-leaning and none are Republican-leaning gives the Republican party a substantial advantage in the translation of votes to seats in Ohio.

The disproportionate distribution of the close seats on the March 28 plan is nearly identical as the February 24 plan that was struck down by the Ohio Supreme Court.

1. See <https://dataverse.harvard.edu/dataverse/electionscience>.

2. This approach is slightly different from the one I used in my initial report, which joined precincts to the district where the geographic center of the precinct was located. There is very little substantive difference between the two approaches. But my current approach appears to better match the methodology used by the Commission in its analysis.

3. I obtained these data from <https://redistrictingdatahub.org/>.

Under that plan, there were 19 Democratic-leaning House Seats in the 50-52% range and 7 Senate seats in that range. There were no Republican-leaning state senate seat and no Republican-leaning state house seats in the 50-52% range.

In fact, the February 24 and March 28 plans are geographically, nearly identical to one another. They have nearly identical assignment of Census blocks to districts. They have nearly identical assignment of population to districts. And the actual voting patterns across districts are extremely similar across plans.

Overall, my analysis echos the findings in my earlier reports. Like the Commission's three earlier plans, the March 28 plan appears to be drawn to favor the Republican political party.

4 Proportionality Results

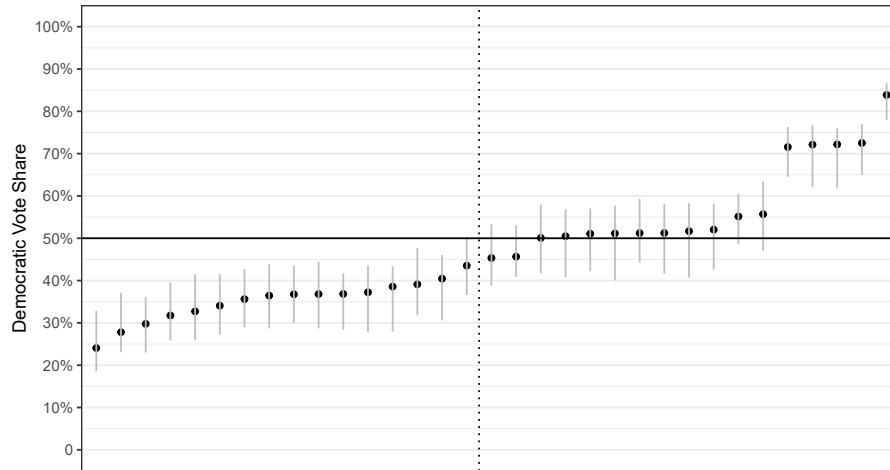
In this section, I analyze the proportionality of the close seats on the Commission's February 24 state legislative plans. In order to do this, it is necessary to estimate each party's share of the votes in each district. While the Ohio Constitution clearly states that the past decade of elections shall be used for this analysis, it does not provide guidance on how these elections should be aggregated. For my analysis here, I focus on the approach used by the Commission. Their analysis appears to sum the raw votes in each district for the 9 statewide elections between 2016 and 2020 (see the Commission's Section 8(C)(2) Statement). Based on these summed votes, they determine whether Democrats or Republicans would win each district on a plan.⁴

4.1 Close Districts on State Senate plan

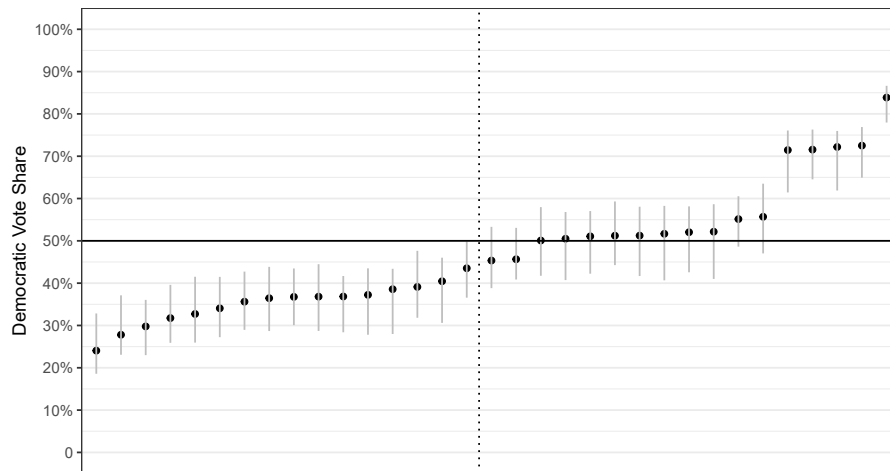
First, I analyze the proportionality of the close seats on the Commission's March 28 state Senate plan. Figure 1 shows the district-level vote shares using the aggregation approach used by the Commission. It indicates that distribution of votes across districts in these

4. As I discussed in a previous report, it is important to note that there are three important weaknesses of this approach. First, it only includes three election years. Moreover, it implicitly overweights the 2018 election cycle, since six of the nine election contests in this composite occurred during this cycle. This was a very strong election year for Democrats. So this is likely to over-estimate Democratic performance in future elections. This could be addressed by weighting each election year equally or including the 2012 and 2014 election years to capture the full range of elections over the past decade. Third, the Commission's approach yields a single, deterministic estimate of the winner of each district. So a district that one party is projected to win by .01% of the vote would count the same as one they are projected to win by 10%. In reality, however, the district where one party is projected to win by .01% is likely to be won by each party about half the time. In my previous report, I discussed other approaches that address these weaknesses.

plans is almost identical.



(a) February 24 Plan



(b) March 28 Plan

Figure 1: District-level Vote Shares on Commission's February 24 and March 28 State Senate plans based on the aggregation approach used by the Commission. The vertical lines around each dot show the range of statewide election results in that district. The dotted line shows the number of seats required for the majority.

Just as on the February 24 plan, the close districts are extremely disproportionate. There are 6 districts where Democrats are expected to receive between 50 and 52% of the vote, and no districts where Republicans are expected to win between 50 and 52% of the vote. This is only one less competitive Democratic-leaning district than on the February 24 plan. As a result, while the February 24 plan had 7 Senate seats in the 50-52% range of Democratic vote share, the March 28 plan has 6 Senate seats in that range and no competitive Republican seats.

The asymmetric distribution of close Senate seats gives Republicans a large advantage

in the translation of votes to seats. All 18 Republican-leaning districts are safe seats with a composite Republican vote share of 52% or more. In contrast, only 9 of the 15 Democratic-leaning districts are safe seats with a composite Democratic vote share of 52% or more. As a result, Republicans are likely to win 66% of the non-competitive seats on this plan.

More specifically, on the Commission's March 28 state senate plan there are:

- 2 districts where Democrats are expected to receive between 50 and 51% of the vote.
- 4 districts where Democrats are expected to receive between 51 and 52% of the vote

In contrast, there are:

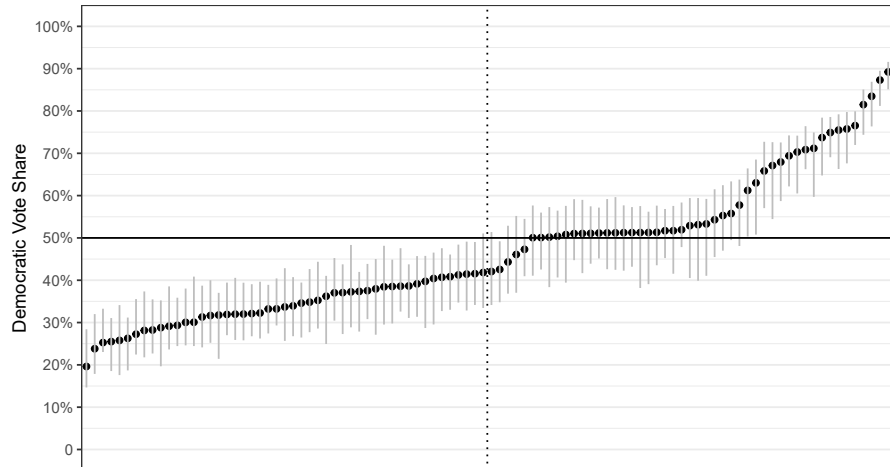
- no districts where Republicans are expected to win between 50 and 51% of the vote.
- no districts where Republicans are expected to win between 51 and 52% of the vote.
- no districts where Republicans are expected to win between 52 and 53% of the vote.
- no districts where Republicans are expected to win between 53 and 54% of the vote.

4.2 Close Districts on State House plan

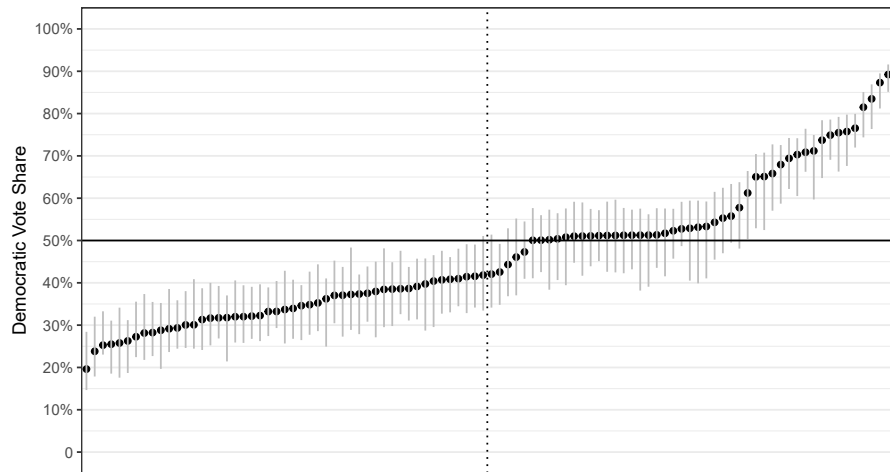
Next, I analyze the proportionality of the close seats on the Commission's March 28 state House plan. Figure 2 shows the district-level vote shares using the aggregation approach used by the Commission. It indicates that distribution of votes across districts in these plans is nearly identical to the naked eye.

Just as on the February 24 plan, the close districts are extremely disproportionate. There are 17 districts where Democrats are expected to receive between 50 and 52% of the vote, and no districts where Republicans are expected to win between 50 and 52% of the vote. This is only two less competitive Democratic-leaning districts than on the February 24 plan. As a result, while the February 24 plan had 19 House seats in the 50-52% range of Democratic vote share, the March 28 plan has 17 House Democratic seats in that range and no competitive Republican seats.

Moreover, the asymmetric distribution of close House seats gives Republicans a large advantage in the translation of votes to seats. This asymmetry means that Republicans are likely to win far more than 54 seats in most elections on this plan. In fact, all 54 Republican-leaning districts are safe seats with a composite Republican vote share of 52% or more. In contrast, only 28 of the 45 Democratic-leaning districts are safe seats with a



(a) February 24 Plan



(b) March 28 Plan

Figure 2: District-level Vote Shares on Commission's February 24 and March 28 State House plans based on the aggregation approach used by the Commission. The vertical lines around each dot show the range of statewide election results in that district. The dotted line shows the number of seats required for the majority.

composite Democratic vote share of 52% or more. So Republicans are likely to win 66% of the safe seats on this plan.

More specifically, on the Commission's March 28 House plan there are:

- 5 districts where Democrats are expected to receive between 50 and 51% of the vote.
- 12 districts where Democrats are expected to receive between 51 and 52% of the vote

In contrast, there are:

- no districts where Republicans are expected to win between 50 and 51% of the vote.
- no districts where Republicans are expected to win between 51 and 52% of the vote.

5 Geographic Overlap between Plans

In this section, I analyze the overlap between the February 24 plans and the most recent plans passed on March 28. I use three approaches to determine how much the March 28 plans differ from the February 24 plans. First, I examine the number of Census blocks and the percentage of Ohio's land area assigned to new districts on the March 28 plans. Second, I examine the number of people in the Census blocks assigned to a different district across maps. Finally, I examine how many districts changed across the plans based on the composite voting data I discussed earlier.

5.1 Overlap across Senate plans

The March 28 Senate plan only assigns 270 Census blocks to a new district between the February 24 plan and March 28 plans (0.1% of the 276,428 census blocks in Ohio). Put differently, only .01% of the land area of Ohio changed districts across these plans. Moreover, the March 28 plan only assigns 23,823 people (0.2% of Ohio's population) into a new Senate district compared with the February 24 plan. Finally, 31 out of 33 districts are exactly the same under the two plans.

5.2 Overlap across House plans

The March 28 House plan only assigns 451 Census blocks to a new district between the February 24 plan and March 28 plans (0.16% of the 276,428 census blocks in Ohio). Only .11% of the land area of Ohio changed districts across these plans. In addition, the March 28 plan only assigns 31,244 people (0.26% of Ohio's population) into a new House district compared with the February 24 plan. Finally, 92 out of 99 districts are exactly the same under the two plans.

5.3 Summary

Overall, the February 24 and March 28 plans appear to be geographically, nearly identical. They have nearly identical assignment of Census blocks to districts. They have nearly identical assignment of population to districts. And the actual voting patterns across districts are extremely similar across plans.

6 Conclusion

Based on my evaluations of the Commission's March 28 enacted plans, I reach the conclusion that the close seats on these plans are not proportionate between the parties. Instead, all the close seats slightly lean toward Democrats. There are no close Republican-leaning seats. This means that Republicans are very likely to win far more than 55% of the seats on both plans. Moreover, the plans are geographically, nearly identical to the February 24 ones struck down by the Ohio Supreme Court. Thus, the new plans appear to have again been drawn to favor the Republican Party.