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464 MD 2021

IN THE COMMONWEALTH COURT OF PENNSYLVANIA

No. 464 M.D. 2021

Carol Ann Carter; Monica Parrilla; Rebecca Poyourow; William Tung; Roseanne Milazzo; Burt Siegel; Susan Cassanelli; Lee Cassanelli; Lynn Wachman; Michael Guttman; Maya Fonkeu; Brady Hill; Mary Ellen Bachunis; Tom DeWall; Stephanie McNulty; and Janet Temin,

Petitioners,

vs.

Leigh Chapman, in Her Official Capacity as the Acting Secretary of the Commonwealth of Pennsylvania; and Jessica Mathis, in Her Official Capacity as Director of the Bureau of Election Services and Notaries,

Respondents.

No. 465 M.D. 2021

Philip T. Gressman; Ron Y. Donagi; Kristopher R. Tapp; Pamela A. Gorkin; David P. Marsh; James L. Rosenberger; Amy Myers; Eugene Boman; Gary Gordon; Liz McMahon; Timothy G. Feeman; and Garth Isaak

Petitioners,

vs.

Leigh Chapman, in her Official Capacity as the Acting Secretary of the Commonwealth of Pennsylvania ; and Jessica Mathis, in Her Official Capacity as Director of the Bureau of Election Services and Notaries,

Respondents.

REBUTTAL BRIEF OF HOUSE REPUBLICAN INTERVENORS KERRY BENNINGHOFF, MAJORITY LEADER, AND BRYAN CUTLER, SPEAKER OF THE PENNSYLVANIA HOUSE OF REPRESENTATIVES

I. INTRODUCTION

Consistent with its prerogative and duty under both the United States and Pennsylvania Constitutions, the House and Senate have now passed House Bill 2146 which redistricts the Commonwealth into 17 congressional districts. It is sitting on the Governor's desk awaiting signature. House Bill 2146 is the only plan that has gone through a full, transparent and deliberative legislative process. Importantly, it adheres to traditional redistricting criteria and by numerous metrics is a fair map. It, therefore, deserves deference or at least special consideration.

House Bill 2146 is on par with, if not better than, the previous map adopted by the Supreme Court in 2018 and the other maps submitted to this Court in terms of equal population, compactness, and minimizing political subdivision splits. It also creates more competitive districts than any other map submitted to the Court. Due to the infinitesimal number of ways a congressional map can be drawn, and the competing criteria, there is no "best" or "optimal" map other than one that achieves the goals of the particular map drawer. But those are policy choices best left to the Representatives and Senators elected by the people of Pennsylvania.

As set forth more fully herein, several of the plans submitted—including those by the Carter Petitioners, the Gressman Petitioners, Governor Wolf, the Senate

Democratic Caucus (Maps 1 and 2), and the House Democratic Caucus—either subordinate traditional districting principles for partisan gain, or otherwise draw districts for unfair partisan advantage. In particular, the Governor's Plan and both Senate Democratic Caucus Plans split the City of Pittsburgh nearly in two for partisan purposes, and the House Democratic Caucus's plan keeps Pittsburgh whole but instead draws a Freddy Krueger-like claw district in Allegheny County to "grab" Pittsburgh to combine it with Republican-leaning areas to the north.

Additionally, the Carter Petitioners, Gressman Petitioners, Governor Wolf, the Senate Democratic Caucus, and the House Democratic Caucus all gerrymander their proposed plans by drawing the four most competitive districts in their simulated plans as strongly Democratic-leaning as possible. Through this and other means, those parties manage to draw plans that contain *ten* Democratic-leaning districts—a highly uncommon outcome in Dr. Barber's simulated plans (all drawn without political data and that follow traditional districting criteria).

And finally, several of the plans were apparently drawn with specific racial targets that have not been justified on this record, rending any reliance on them constitutionally infirm under the Equal Protection Clause of the U.S. Constitution.

This Court should adopt House Bill 2146.

II. DISCUSSION

A. The House Plan Does As Good As, If Not Better Than, All of the Submitted Maps in Overall Adherence to Traditional Redistricting Principles. Given the General Assembly's Prerogative to Redistrict the Commonwealth, Deference Should be Given to the House Plan.

Examined as a whole, it is clear that the House Plan meets or exceeds the other proposed plans on traditional redistricting criteria (population equality, contiguity, respect for the integrity of county, municipal, precinct, and ward lines, and compactness). The submitted plans all appear to comply with the equal population requirement with a deviation of at most plus or minus one person from the ideal district. Most of the proposed plans contain districts that are contiguous. As to traditional districting principles, the primary differences between the myriad plans are on political subdivision splits and compactness. A comparison of these metrics can be found in the Rebuttal Report of Dr. Michael Barber ("Barber Reb. Rep.") at 8, Table 1, attached as **Exhibit A.**

On political subdivision splits, House Bill 2146 performs exceptionally well. It splits only 15 counties – just two more than the fewest of any of the plans submitted. *Id.* The total range of municipalities that are split is from 16 to 20. *Id.* House Bill 2146 splits only 16 municipalities – as low as any of the submitted plans. *Id.* In addition, the range of precinct splits in the plans is from 9 to 38. *Id.* House Bill 2146 splits only 9 precincts, the lowest of any plan by seven precincts. *Id.* Thus,

no other plan performs as well overall as House Bill 2146 on these metrics. Barber Reb. Rep. at 8.

On compactness, House Bill 2146 also performs well. The total range of average Polsby-Popper scores in the various plans is from .28 to .40. Barber Reb. Rep. at 8, Table 1. House Bill 2146 has an average PP compactness score of .32 – near the middle. *Id.* The range of the number of counties that are split among the various plans is from 13 to 17. *Id.*

That is key, because the Pennsylvania Supreme Court has recognized the special importance of minimizing political subdivision splits and favoring plans that accomplish this objective. *See Holt v. 2011 Legislative Reapportionment Comm'n*, 67 A.3d 1211, 1242 (Pa. 2013) (choosing to avoid "additional political subdivision splits" even though it created several insufficiently contiguous districts because of "geographic anomalies" in the Commonwealth). In particular, in choosing between a plan that minimizes political subdivision splits and a plan that better maintains compact districts, the more important consideration is minimizing political subdivision splits. In fact, "balancing the factors of population equality and integrity of political subdivisions *necessitates* 'a certain degree of unavoidable non-compactness in any reapportionment scheme'" and that a proposed plan "should not fail simply because 'the shape of a particular district is not aesthetically pleasing.'" *Id.* (emphasis added). *See also League of Women Voters v. Commonwealth*, 178

A.3d 737, 814-815 (Pa. 2018) (recognizing historical importance of the minimization of political subdivision splits dating back to the 1790 Constitution).

In addition, House Bill 2146 creates more competitive seats than any other plan. When analyzing districts that have a Democratic vote share of .48 to .52 – a common range when analyzing competitive elections, House Bill 2146 create five competitive seats. Barber Reb. Rep. at 13. Only one other plan creates even four competitive seats and most are between one and three. *Id.*

The above numbers demonstrate that selecting a plan that best satisfies traditional redistricting criteria is like splitting hairs. One plan that is better on compactness may be worse on minimizing subdivision splits, or vice-versa. For example, the Governor's plan scores higher on the Polsby-Popper compactness measure at .38, but does worse on county, municipal and precinct splits with 16, 18, and 17, respectively, than other plans, including splitting the City of Pittsburgh. The *Carter* Petitioners' map, however, has a lower Polsby-Popper score of .32, but splits only 14 counties – two less than the Governor's plan and one less than the House Plan. Yet, the *Carter* Petitioner's map splits 20 municipalities whereas the House Plan only splits 16. The examples are endless.

There is a simple solution. House Bill 2146 has now passed in the Senate and been approved by the full General Assembly. It, therefore, represents the will of the people of Pennsylvania speaking through their elected Representatives and Senators.

It is the only plan that has undergone a full, transparent and democratic process. The above numbers demonstrate that House Bill 2146 adheres to traditional redistricting criteria. This Court should defer to the legislature's policy choices of which subdivisions are divided to comply with population equality, or where appropriate, sacrificing compactness to preserve a municipality or community of interest. As discussed further below, keeping the City of Pittsburgh whole often results in lower compactness scores due to the odd district lines of the city. *See* Expert Report of Daryl R. DeFord at ¶ 64-65, Figure 6.

Redistricting is still intended to be a political process, and the Court should only intrude into that process if necessary to prevent a trampling of constitutional rights, or where, as here, there is an impasse because the Governor has refused to sign a fair map. There can be no demonstration that House Bill 2146, as it has been passed by the General Assembly, does not pass constitutional muster. Rather, the other parties simply submit that their map is "better." This Court need not and should not turn this into a beauty contest of selecting the prettiest map. There is no way to pick the "best" map because there is no "best map." As political science scholars have recognized, there are more ways to redistrict the Commonwealth than there are atoms in the universe.[1] There is no "optimal" map that can be reached other

[1] *See* Bangia, S., Vaughn Graves, C., Hershlag, G., Sung Kang, H., Luo, J. Mattingly, J., Ravier, R.; *Redistricting: Drawing the Line* at 17 (May 2017), available at: https://arxiv.org/pdf/1704.03360.pdf.

than one that optimizes the particular goals of that map drawer. And regardless of what policy decisions are made, and who makes them, some voters will be left pleased while others are unhappy.

The General Assembly is best positioned to make the policy choices necessarily involved in the drawing of congressional district lines for the citizens of the Commonwealth, regardless of any veto by the Governor, not a supercomputer drawing a plan without the benefit of a transparent and democratic process. This Court should defer to those decision and adopt House Bill 2146 that has been passed by both the House and the Senate. *See* Opening Brief of Intervenors Benninghoff and Cutler § II.C (citing case law supporting deference to the legislature in evaluating and selecting a redistricting plan).

B. Dr. Barber's Simulations Reflect That House Bill 2146 Is Demonstrably Fair and Many of the Maps Are Democratic Outliers or Have an Unfair Democratic Bias.

Dr. Barber simulated 50,000 congressional redistricting plans for the state of Pennsylvania using only traditional redistricting criteria. Barber Reb. Rep. at 13-14. His analysis reflected that the most common outcome is a plan that results in 8 Democratic-leaning seats and 9 Republican-leaning seats. *Id.* at 14, Figure 4. Yet, the House Plan is predicted to result in 9 Democratic-leaning seats – one more than the most common outcome. Barber Reb. Rep. at 15, Table 3. Only one other expert prepared a simulation analysis and no expert included a simulation analysis

disclosing the predicted partisan distribution of seats for the simulated plans. *See* Barber Reb. Rep. at 20. As Dr. Barber found, this is problematic:

> This is problematic because if a proposed map contains apparent bias, we do not know if it is in fact biased until we compare it to a set of maps that we know were drawn using unbiased inputs. Without this benchmark, we cannot disentangle any measures of partisan bias from impacts due to the political geography of the state. As I noted at the beginning of this report, it is well known that the political geography of Pennsylvania is beneficial to Republicans. Thus, we need to know how much of bias is due, if at all, to geography, and how much is actually partisan bias from the map drawer.

Barber Reb. Rep. at 20.

Dr. Barber also examined the predicted seat share for the other maps submitted to the Court. Barber Reb. Rep. at 15, Table 3. He concludes that the House Democrats map predicts 11 Democratic-leaning seats and is an outlier because none of the 50,000 simulated plans generates this outcome. *Id*. at 15. There are eight plans that generate 10 Democratic-leaning seats: Governor, Carter Petitioner, Gressman Petitioner, Senate Democrats 1 & 2, CCFD, Draw the Lines, and Ali Intervernors. *Id*. Although not an outlier, 10 Democratic-leaning seats is a much more uncommon outcome in the simulation (see Barber Reb. Rep. at 14, Figure 4) and not in line with the most common outcome. *Id*. at 20.

However, it is also important to look at exactly how these plans are generating additional Democratic-leaning seats. "Across the plans that generate 10 and 11 Democratic districts there is a similar pattern: in places where the simulations

generate competitive districts (those with partisan indices close to 0.50), the[se] plans consistently create districts that are at the extreme Democratic edge of the simulations so as to generate the most favorable (or nearly the most favorable) outcome for Democrats." Barber Reb. Rep. at 16. There are four districts where the simulations generate both Republican-leaning and Democratic-leaning districts. These are the most competitive districts and have Democratic vote shares between .48 and .52. *Id.* at 17. The plans that predict 10 Democratic-leaning seats universally create districts that are at the most Democratic edge of the simulations in these competitive districts. *Id.*

For example, in these four middle competitive districts, the Governor's plan draws districts in the 97th, 98th, 99th, and 100th percentile of the simulations. *Id.* at 17-18, Figure 5. Even worse, all four of the middle, most competitive districts in the Gressman Petitioners' plan are in the 100th percentile. *Id.* "This indicates that in nearly 100% of cases (in 49,983 of the 50,000 simulations) the districts where partisan control is most up for grabs were more Democratic in the Gressman plan than the simulations." *Id.* Similar results are seen for the other plans that generate 10 Democratic-leaning districts. *Id.* at 19, Table 4. House Bill 2146 stands out as the least biased of all the plans submitted. *Id.*

In addition, House Bill 2146 is demonstrably fair when compared to the other submitted maps based upon other partisan fairness metrics, including mean-median,

efficiency gap, and a uniform swing analysis, despite the conclusions of other experts, even though these metrics don't take into account the political geography of the state. Dr. Barber calculated these metrics for each of the submitted plans. *See* Barber Reb. Rep. at 21, Table 5. First, the calculations of these metrics can change based upon the set of elections data being utilized. As Dr. Barber opines:

> Given that preferences shift across races and across time, it is possible that a plan might look especially biased using a single election or small set of elections. Furthermore, we cannot know if the particular set of elections was chosen to make a plan look especially good or bad. The solution to this is to use all statewide elections and to average them together into an index. As noted above, this provides the benefit of reducing the contribution of any particular election as well as giving a more complete and representative picture.

Barber Reb. Rep. at 20. Thus, Dr. Barber uses a broad array of all statewide elections from 2012-2020 for his analysis. Barber Reb. Rep. at 20.

Second, Dr. Barber went one step further. He also determined how these calculations compare to the unbiased simulated plans on these same metrics. Again, claiming a partisan bias based upon the results of these metrics alone is problematic because you do not know the cause of the bias.

Dr. Barber concluded that the mean-median for all of the plans has a slight pro-Republican bias, but at the same time, all of the plans – including House Bill 2146 – are more Democratic-leaning than the most common result in the simulation. *Id.* at 21. However, many of the plans, including the Governor, Carter Petitioner,

Gressman Petitioner, House Democrats, Senate Democrats 1 & 2, and CCFD are more Democratic-leaning than 97% or more of the simulations. *Id.*

The efficiency gap shows a slightly different story, but the same conclusion. *Id.* at 22. The submitted plans that generate 9 Democratic-leaning seats, like House Bill 2146, have an efficiency gap in the middle of the range of the efficiency gaps calculated for the simulations. *Id.* But those plans that have 10 Democratic-leaning seats have efficiency gaps that are positive, meaning they are biased in favor of Democrats and are more extreme when compared to the simulations. *Id.* "The House Democrats plan stands out as an extreme outlier with an efficiency gap value of .093, indicating significant bias for Democrats." *Id.* House Bill 2146, however, lands nearly in the middle of the simulation results (44th percentile) on a uniform swing analysis. Barber Reb. Rep. at 22.

Overall, when compared to the set of non-partisan simulations, 9 of the plans are partisan outliers because in the most competitive districts these plans are extreme outliers: Governor, Carter Petitioners, Gressman Petitioners, Senate Democrats 1 & 2, House Democrats, CCFD, Draw the Lines, and Ali Intervenors. These plans are more favorable to the Democratic Party than nearly 100% of the simulations in these most highly competitive districts. Barber Reb. Rep. at 23. Moreover, on the other measures of partisan bias, there is a variation across plans, but they all share the common feature that the plans are generally more favorable to Democrats than the

non-partisan simulations – including House Bill 2146 which is often in the middle – but some of them are *much* more favorable to Democrats. *Id.*

C. Many of the Submitted Maps Overtly Attempt to Negate the Natural Clustering of Democratic Voters in Urban Areas to Create Proportional Representation By Subordinating Traditional Redistricting Criteria To Unfairly Advantage Democrats—The Very Definition Of A Gerrymander.

Some of the parties argue that strict adherence to traditional districting principles is unfair to Democrats because their supporters are more densely concentrated in cities—and have urged the Court to adopt plans that negate that advantage and to seek instead a map that yields proportional representation. This argument unmasks their partisan motivations, and their pleas for partisan favoritism should be soundly rejected because "subordinat[ing] the traditional redistricting criteria in the service of partisan advantage… deprives [the people] of their state constitutional right to free and equal elections." *League of Women Voters v. Commonwealth*, 178 A.3d 737, 818 (Pa. 2018). "The constitutional reapportionment scheme does not impose a requirement of balancing the representation of the political parties; it does not protect the 'integrity' of any party's political expectations. Rather, the construct speaks of the 'integrity' of political subdivisions, which bespeaks history and geography, not party affiliation or expectations." *Holt v. 2011 Legislative Reapportionment Comm'n*, 67 A.3d 1211, 1235–36 (Pa. 2013). In seeking to advance their partisan interests, Plaintiffs' must present "a meritorious

challenge premised upon population equality, compactness, contiguity, respect for political subdivisions, or the Voting Rights Act." *Id.* at 1236–37. Proportionality of representation, however, is not an objective in redistricting or a basis for a meritorious challenge.

Any argument that this Court should draw lines that prioritize proportional partisan representation at the expense of strictly adhering to neutral redistricting principles should be rejected because partisan gerrymandering "subverts democracy" and "violates individuals' constitutional rights." *Rucho v. Common Cause*, 139 S. Ct. 2484, 2513 (2019) (Kagan, J., dissenting). Free and fair elections are the core of democracy, and Plaintiffs' plan fail to pass muster under neutral guidelines. Those plans should be rejected.

Consider first the Governor's plan. Professor Duchin, the Governor's proffered expert, indicates in her report that House Bill 2146

> can be seen to systematically advantage the candidates of one major party over the other, when overlaid with a range of recent elections in Pennsylvania. In large part this is due to the 'political geography' of Pennsylvania, in which the current patterns of concentration in electoral preferences creates a landscape that is titled towards Republicans. My analysis leads me to conclude that the Citizens' Plan, and especially the Governor Plan, overcome this structural tilt to make fairer maps for the people of Pennsylvania.

Expert Report of Moon Duchin, Ph.D at 2. Professor Duchin ran a simulation of an "ensemble" of 100,000 randomly drawn districting plans. *See id.* at 18, Figure 7. Notably, Dr. Duchin concedes that "[r]andom plans tend to exhibit pronounced

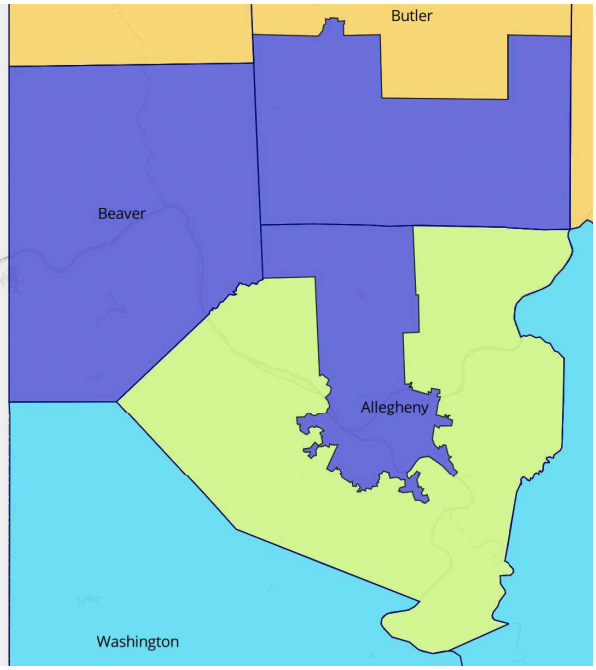
advantage to Republicans across this full suite of recent elections." *Id.* Dr. Duchin indicates that the Governor's Plan was "seen to correct this tendency." But nowhere does Dr. Duchin report the distribution of predicted seats for the two political parties in her "ensemble" of 100,000 simulated maps.[2] Thus, she hides whether the ensemble of maps would create far less Democratic-leading seats absent intentional drawing of lines to correct for the geographic clustering of Democratic voters. Professor Rodden likewise recognizes: "It is worth nothing that Pennsylvania's demographic changes are highly correlated with partisanship. In Pennsylvania, as in the rest of the United States, population density is highly correlated with Democratic voting." Report of Jonathan Rodden at 9.

The Governors' plan, however, touted by Professor Duchin as correcting the impact of the political geography of the state while following traditional redistricting principles, in fact subordinates such criteria to reach this goal. The division of Pittsburgh is notable because it presents an exceptional example of subverting non-partisan redistricting criteria to achieve a partisan objective. *See* Barber Reb. Rep. at 9. Pittsburgh has a 2020 Census population of 302,971 people, which is less than

[2] Notably, Justice Kagan in her dissent in *Rucho* specifically recommended using simulations to measure a proposed plan should be measured for partisan bias by comparing the plan against a "neutral baseline from which to assess whether partisanship has run amok." *Rucho*, 139 S. Ct. at 2520 (Kagan, J., dissenting). The "neutral baseline" should be formed based on "other maps the State could have produced given its unique political geography and its chosen districting criteria." Dr. Barber performed this analysis. The result? House Bill 2146 passes the test with flying colors. But tellingly, the Governor (and others) failed to put their partisanship to the test—and when Dr. Barber did (*see infra,* at § B), it showed many of the plans failed.

half a congressional district. It can easily be contained in a single district. Though it does not need to be divided, the Governor's plan and four other plans—Senate Democrats 1 & 2, CCFD, and Drawn the Lines—divide the city nearly in half. *Id.* at 9-10, Table 2. There is no apparent reason to divide Pittsburgh other than for partisan gain to even out the heavily Democratic area in the city with more Republican areas in the suburbs while still creating two relatively safe Democratic districts.

While the House Democrats do not divide the city of Pittsburgh, their decisions in this area are far more egregious. A depiction of Pittsburgh in the House Democrats plan is below:



Barber Reb. Rep. at 12, Figure 3. Thus, while the House Democrats do not technically divide Pittsburgh, they use "another well-established tactic of gerrymandering by joining the Democratic voters of the city with rural Republican

voters in Beaver and Butler Counties in order to dilute the influence of Republican voters and create a democratic-leaning, but not overwhelming Democratic district." *Id.* at 11. It results in a strange Freddy-Krueger's Glove-shaped district that is clearly the result of attempting to combine Democratic votes in Pittsburgh with the surrounding suburbs. *Id.*

Moreover, there is no reason to gerrymander the map to "correct" for geographic political patterns. As Dr. Barber indicates "[t]he current pattern of partisanship is . . . not static and has changed from the past and will likely change in the future." Barber Reb. Rep. at 5. Dr. Barber's rebuttal report reflects that over the last decade, rural counties have trended towards voting more and more Republican. Barber Reb. Rep. at 5-6, Figure 1. But his analysis shows that the trend in suburban counties is either flat or slightly increasing for Democratic support. *Id.* He also shows that there can be very large swings in electoral trends even within a decade. *Id.* Thus, as Dr. Barber observed, "we have no way of knowing if the geographic patterns they are trying to 'correct' for will 1.) remain the same, 2.) perhaps become more pronounced, or 3.) reverse in direction." *Id.* at 6-7. As Dr. Barber concludes:

> As a result, an attempt to "overcome this structural tilt to make fairer maps for the people of Pennsylvania (Duchin Report, pg. 2)" is misguided for two reasons. First, it is explicitly considering partisanship in the creation of districts. This is as close as one can come to the definition of gerrymandering - the drawing of maps to obtain a partisan advantage. Second, even if the effort is to undue a naturally occurring disadvantage to a party that is due to the contemporary geographic distribution of voters, there is no reason to believe that the

> particular arrangement of voters will persist into the future, even the near future. The previous decade shows us that partisan preferences can be dynamic and will likely be so in the future as well. A better approach to redistricting would be to not consider partisanship when drawing the boundaries and let the chips fall where they may as geography of politics shifts and changes over time.

Barber Reb. Rep. at 7. It is dangerous to allow a plan to purposely draw districts to benefit a political party—even if done for purposes of negating a geographic disadvantage—when a few years from now that disadvantage may no longer exist further augmenting the partisan impact of the gerrymander.

In addition, as discussed above, many of the proposed maps go much farther than just negating any impacts caused by the natural clustering of Democrats in cities—they create districts predicted to result in more Democratic seats than the Democratic party's historic two-party vote share in statewide elections. Maps submitted by the Carter Petitioners, the Gressman Petitioners, the Governor, and Senate Democrats are all predicted to result in 10 Democratic-leaning seats and only 7 Republican-leaning seats. Barber Reb. Rep. at 15, Table 3. According to Professor Rodden, the average two-party vote share for the Democrats using different sets of historical elections is between 52.05% and 52.85%. That means a proportional map would result in between 8.85 and 8.98 seats for the Democrats. Yet, these maps predict 10 Democratic-leaning seats. This goes way beyond correcting any geographic disadvantage and results in a disproportional number of seats for Democrats (i.e. – a Democratic gerrymander).

D. Many of the Submitted Plans Impermissibly Consider Race And Therefore Do Not Comply With The Fourteenth Amendment To The U.S. Constitution.

Several of the other parties in this case urge the adoption of plans on the basis that their plans were designed with a specific racial composition of the Philadelphia-area districts that, they argue, "complies" with Section 2 of the Voting Rights Act. The Gressman Petitioners submitted a plan drawn using a "computational redistricting" approach, Gressman Opening Br. at 10, which it argues "optimized" certain "redistricting" requirements—including compliance with the VRA. *Id.* at 13. Using this "computational" approach that explicitly considered race, the Gressman Petitioners drew a plan that created three "majority-minority districts" that they urge the Court to adopt. *Id.* at 46. The Senate Democratic Caucuses likewise intentionally used race to construct their plans. They argued that the VRA "mandates" the creation of a majority-minority district in Philadelphia, and argue that one of their Plans should be adopted—both of which intentionally create the majority-minority district and "a number of potential coalition districts to increase the voice of minorities." Senate Democratic Caucus Opening Br. at 16. The Senate Democratic Caucus's Plan 2 reflects their even more aggressive attempt at using race—they claim they created "an expanded minority coalition in District 2." *Id.* at 20. Finally, although the Carter Petitioners assert that their mapmaker, Dr. Rodden, did not explicitly consider racial data, he intentionally adopted a "least-change" approach to modifying the

Pennsylvania Supreme Court's 2018 Remedial Plan, which had a majority-minority district, and Carter Petitioners urge the adoption of their plan because he closely followed "the 2018 Remedial Plan with regard to those areas of the state with sizeable minority populations, thus preserving the minority opportunity districts that the Pennsylvania Supreme Court approved in 2018." Carter Opening Br. at 11.

But this approach is not defensible under governing U.S. Supreme Court case law—nor under *Mellow v. Mitchell*, 607 A.2d 204, 210 (Pa. 1992)—because there is no record evidence that the Black or Hispanic voters of Philadelphia require a majority-minority district, or some other district drawn to a racial target, to have an equal opportunity to elect representatives of their choice to Congress. The intentional and unjustified use of race to draw these plans renders them infirm under the Fourteenth Amendment and, if selected, would render the Commonwealth vulnerable to a racial-gerrymandering lawsuit under federal law.

i. Legal Background

"Redistricting is never easy." *Abbott v. Perez*, 138 S. Ct. 2305, 2314 (2018). This is, in part, because "federal law impose[s] complex and delicately balanced requirements regarding the consideration of race." *Id.* Specifically, the Equal Protection Clause restricts consideration of race in redistricting, and at the same time, the Voting Rights Act demands consideration of race; this interplay creates

'competing hazards of liability'" to a state undertaking redistricting. *Id.* at 2315 (quoting *Bush v. Vera*, 517 U.S. 952, 977 (1996)).

1. Racial Gerrymandering

The first competing hazard of liability is a racial-gerrymandering claim. Specifically, "[t]he Equal Protection Clause forbids 'racial gerrymandering,' that is, intentionally assigning citizens to a district on the basis of race without sufficient justification." *Abbott*, 138 S. Ct. at 2314 (citing *Shaw v. Reno*, 509 U.S. 630, 641 (1993) (*Shaw I*)). The Fourteenth Amendment prohibits "the deliberate segregation of voters into separate districts on the basis of race." *Shaw*, 509 U.S. at 641.

The Supreme Court has developed a two-part test to evaluate such claims of "racial gerrymandering." First, a Fourteenth Amendment plaintiff must show "that race was the predominant factor motivating the legislature's decision to place a significant number of voters within or without a particular district." *Bethune-Hill v. Virginia State Bd. of Elections*, 137 S. Ct. 788, 797 (2017) (citation omitted). "Where a challenger succeeds in establishing racial predominance, the burden shifts to the State to 'demonstrate that its districting legislation is narrowly tailored to achieve a compelling interest.'" *Id.* at 800–01 (citation omitted).

At the tailoring stage, the question is whether "the legislature [had] a strong basis in evidence in support of the (race-based) choice that it has made." *Id.* at 801. The only compelling interest the U.S. Supreme Court has assumed justifies race-

based redistricting is compliance with the VRA, and, where the state asserts the VRA as its compelling interest, the question is whether "the legislature has '*good reasons* to believe' it must use race in order to satisfy the Voting Rights Act." *Id.* at 801 (emphasis in original) (citation omitted). In particular, "[i]f a State has good reason to think that all the '*Gingles* preconditions' are met, then so too it has good reason to believe that § 2 requires drawing a majority-minority district. But if not, then not." *Cooper v. Harris*, 137 S. Ct. 1455, 1470 (2017) (citation omitted).

The state's burden in invoking a VRA-compliance justification for race-based districting is demanding. *See Miller v. Johnson*, 515 U.S. 900, 915 (1995) (rejecting the view "that a State's assignment of voters on the basis of race would be subject to anything but our strictest scrutiny"). For a state to justify a district under VRA § 2, it must adduce evidence—at the time of redistricting—establishing the three *Gingles* preconditions (described below). *See, e.g., id; Cooper*, 137 S. Ct. at 1470. The Pennsylvania Supreme Court recognized this principle in *Mellow*, when it rejected a proposed congressional plan that drew a district with 70% BVAP because "there [was] no statistical evidence indicating that a 70% African-American district is necessary to provide the African-American community an equal opportunity to elect a representative of their choice." *Mellow*, 607 A.2d at 57.

2. Section 2 of the Voting Rights Act

The other competing hazard of liability is the Voting Rights Act, which can *require* the consideration of race. "A State violates § 2 if its districting plan provides 'less opportunity' for racial minorities 'to elect representatives of their choice.'" *Abbott*, 138 S. Ct. at 2314 (quoting *League of United Latin American Citizens v. Perry*, 548 U.S. 399, 425 (2006) (*LULAC*)). "In a series of cases tracing back to *Thornburg v. Gingles*, 478 U.S. 30 (1986), [the U.S. Supreme Court has] interpreted this standard to mean that, under certain circumstance, States must draw 'opportunity' districts in which minority groups form 'effective majorit[ies].'" *Id.* (citation omitted).

But there are limits to this obligation. "[C]ourts may not order the creation of majority-minority districts unless necessary to remedy a violation of federal law." *Voinovich v. Quilter*, 507 U.S. 146, 156 (1993). First, § 2 requires majority-minority districts only if "three threshold" elements are proven. *Cooper*, 137 S. Ct. at 1470. Those elements, known as the *Gingles* preconditions, are that: (1) the relevant minority group is "'sufficiently large and geographically compact to constitute a majority' in some reasonably configured legislative district"; (2) the relevant minority group is "politically cohesive," and (3) the "district's white majority . . . 'vote[s] sufficiently as a bloc' to usually 'defeat the minority's preferred candidate.'" *Id.* (quoting *Gingles*, 478 U.S. at 50–51). If the preconditions are satisfied, "the court must then determine under the 'totality of circumstances'

whether there has been a violation of Section 2." *Lewis v. Alamance County, N.C.*, 99 F.3d 600, 604 (4th Cir. 1996) (citation omitted).

Under the second *Gingles* precondition, a Section 2 plaintiff must prove that members of the relevant minority group consistently favor the same candidates, which courts have deemed to mean consistent support of more than 50% (at a minimum) of members of the relevant group for the same candidates. *See, e.g.*, *Levy v. Lexington County, S.C.*, 589 F.3d 708, 720 n.18 (4th Cir. 2009); *Monroe v. City of Woodville, Miss.*, 881 F.2d 1327, 1331 (5th Cir. 1989), *as corrected*, 897 F.2d 763 (5th Cir. 1990); *Rodriguez v. Pataki*, 308 F. Supp. 2d 346, 388-90 (S.D.N.Y. 2004); *Smith v. Board of Supervisors*, 801 F. Supp. 1513, 1522 n.11 (E.D. Va. 1992).

Under the third *Gingles* precondition, a Section 2 plaintiff must prove that a white voting bloc consistently defeats the candidate of choice of the minority community. Courts have generally viewed a minority-preferred candidate failure rate of more than 50% (i.e., more often than not) to be a minimum showing under this requirement. *Lewis*, 99 F.3d at 616; *Cottier v. City of Martin*, 604 F.3d 553, 560 (8th Cir. 2010) (en banc); *Clay v. Bd. of Educ. of City of St. Louis*, 90 F.3d 1357, 1362 (8th Cir. 1996).

ii. Several Litigants Impermissibly Propose Race-Based Districts Without A "Strong Basis In Evidence" To Justify Their Choice.

Several of the litigants in this case[3] have urged the Court to adopt plans they admit were drawn with specific racial goals and targets in mind. But none has provided this Court with a "strong basis in evidence in support of the (race-based) choice" they made. *Bethune-Hill,* 137 S. Ct. at 801.

The *Gressman* Petitioners urge the adoption of a plan containing three "majority-minority districts" containing "51%, 52%, and 57%" minority voting-age population. Gressman Opening Br. at 43, 46. But the only evidence they proffer to justify this choice is a racially-polarized voting analysis of Philadelphia by Dr. DeFord, which utterly fails to show that Black and Hispanic-preferred candidates of choice "usually" lose due to oppositional white-bloc voting in order to satisfy the third *Gingles* precondition.

In fact, Dr. DeFord's comparison between the *Gressman* plan and House Bill 2146 illustrates the point. Although House Bill 2146 has only two majority-minority districts (unlike the *Gressman* plan, which has three), Dr. DeFord's analysis

[3] Governor Wolf's Brief does not explicitly argue his plan was drawn with racial goals. However, his expert witness, Dr. Duchin, included in her report a purported analysis of racial voting polarization using "the primary and general elections of 2015 and 2019" for at-large Philadelphia City Council elections. Wolf Opening Br. at Ex. A, Duchin Rep., at 5. But she does not opine that legally significant polarized voting exists in Philadelphia, and nor could she, given the small sample of elections she reviewed. "[S]ection 2 focuses on 'larger trends' and on 'pattern[s] of racial bloc voting that extend[] over a period of time.'" *Wright v. Sumter County Bd of Elections & Registration*, 979 F.3d 1282, 1310 (11th Cir. 2020).

concludes that Black and Hispanic-preferred candidates of choice nearly always prevail under House Bill 2146. Gressman Opening Br. at Ex. A, DeFord Rep., at ¶ 123 ("the preferred candidate of Black voters [in District 3] is also the top vote getter in the Democratic primary for every election in...each plan's proposed district" with a narrow exception); *id.* at ¶ 133 ("it is clear that the performance of the Black-preferred candidate is similar in all the plans" for District 5); *id.* at ¶ 140 ("[o]verall, District 2 performs, in all the plans, for both Black and Latino voters in all the general elections and in at least 70% of the Democratic primaries"). There is, then, no need to draw *three* majority-minority districts to afford Black and Hispanic voters an equal opportunity to elect.

The *Carter* Petitioners, for their part, urge the adoption of a map that they argue closely follows "the 2018 Remedial Plan with regard to those areas of the state with sizeable minority populations, thus preserving the minority opportunity districts" in the 2018 Remedial Plan. Carter Opening Br. at 11. But they have produced not one whit of evidence to show that the intentional creation of a majority-minority district is grounded in a "strong basis in evidence."

The Senate Democratic Caucus goes arguably the farthest, arguing—without any evidence at all of legally significant racially polarized voting—that simply because a majority-minority district can be physically created, the VRA "mandates" that it be drawn. Senate Democratic Caucus Opening Br. at 16. This position is flatly

inconsistent with governing case law cited above; the physical ability to draw the district potentially satisfies only *one* of the *three Gingles* preconditions. And the Senate Democratic Caucus submitted two plans that it argued created "a number of potential coalition districts" in Plan 1, and an "expanded minority coalition in District 2" in Plan 2. *Id.* at 16, 20.

The selection of thresholds of minority voting-age percentages for the Philadelphia-area districts renders reliance on any of these plans infirm. Whether 51%, 57%, or some other percentage of minority voters, an argument that such a district is drawn to "comply" with the VRA will *not* save a plan absent a showing that the third *Gingles* precondition is satisfied. As *Covington* explained, white bloc voting is only legally significant (and satisfies the third *Gingles* precondition) if it "exist[s] at such a level that the candidate of choice of African-American voters would usually be defeated without a VRA remedy." *Covington v. North Carolina*, 316 F.R.D. 117, 168 (M.D.N.C. 2016) (three-judge court), *aff'd*, 137 S. Ct. 2211 (2017). A VRA remedy is a 50% minority VAP district. *See Bartlett*, 556 U.S. at 19. "In the absence of significant white bloc voting it cannot be said that the ability of minority voters to elect their chosen representatives is inferior to that of white voters." *Voinovich*, 507 U.S. at 157–58. *See also, e.g., Abrams v. Johnson*, 521 U.S. 74, 93 (1997) (finding the third precondition unmet because of a "the 'general willingness' of whites to vote for blacks"); *Cooper*, 137 S. Ct. at 1470 (finding no

evidence of the third precondition where "a meaningful number of white voters joined a politically cohesive black community to elect that group's favored candidate").

Drawing districts in this manner without a strong basis in evidence that the jurisdiction has legally significant racially polarized voting is not defensible. In Virginia, for example, 11 majority-minority districts were recently struck down where the General Assembly employed a "55% BVAP threshold in drawing each of the challenged districts," *Bethune-Hill v. Va. State Bd of Elections*, 326 F. Supp. 3d 128, 144 (E.D. Va. 2018) (three-judge court), which the court found was infirm because there was no "analysis of any kind to determine the percentage of black voters necessary to comply" with the VRA. *Id.* at 176. Similarly, any insistence that the BVAP of districts in the 2018 Remedial Plan not be lowered follows the flawed path rejected in *Alabama Legislative Black Caucus*, 575 U.S. at 277–78. And at least some of these parties' arguments impliedly invokes "a policy of maximizing the number of majority-black districts," which doomed redistricting plans in North Carolina and Georgia, *Shaw II*, 517 U.S. at 913, as well as Texas, *Bush*, 517 U.S. at 957.

In short, these parties' papers read like a roadmap to equal-protection quagmires. This Court should not enter that quagmire and should not select plans

that were intentionally drawn with racial goals but without a strong basis in evidence to draw them.

III. CONCLUSION

For all of these reasons, and those also stated in House Republican Legislative Intervenors' Opening Brief, this Court should select House Bill 2146 because it follows traditional redistricting criteria, is fair, and reflects the will of the people of Pennsylvania through their elected Representatives and Senators.

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Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

I hereby certify that this filing complies with the provisions of the Case Records Public Access Policy of the Unified Judicial System of Pennsylvania that require filing confidential information and documents differently than non-confidential information and documents.

/s/ Jeffry Duffy
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CERTIFICATE OF SERVICE

I hereby certify that on January 26, 2022, a copy of the foregoing filing was served on all counsel of record via PACFile.

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EXHIBIT A

Rebuttal Report on Proposed Congressional Redistricting Plans

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Contents

1 Summary of Conclusions

Based on the evidence and analysis presented below, my opinions regarding the HB2146 plan for congressional districts in Pennsylvania can be summarized as follows:

- Across a range of metrics, the HB2146 plan performs as well or better than all of the 14 proposed plans.
- Across the 14 plans I analyze, all perform well on county, municipal, precinct splits, and average compactness. There is variation on each metric and no plan stands out as better than the others across all of these measures.
- Six of the plans (Governor, Senate D1, Senate D2, CCFD, DTL, Ali) subvert the non-partisan criteria to avoid municipal splits unnecessarily by intentionally dividing Pittsburgh for partisan gain.
- The HB2146 plan generates the most competitive districts of the 14 proposed plans.
- Compared to the set of non-partisan simulations, nine of the plans are Democratic partisan outliers (Governor, Carter, Gressman, House D, Senate D1, Senate D2, CCFD, Citizen Voters, DTL). This occurs because in the most competitive districts these plans are extreme outliers in favor of the Democratic Party and are more favorable to Democrats than nearly 100% of the non-partisan simulation results.
- On other measures of partisan bias, there is variation across plans, but all share the common feature of being generally more favorable to Democrats than the non-partisan simulations.

2 Contemporary Political Geography of Pennsylvania Advantages Republicans

Many of the expert reports agree that the contemporary political geography of Pennsylvania affords Republicans a natural advantage in the redistricting process. This advantage stems from the dense clustering of Democratic voters in the largest cities of the state. Each expert states this in a slightly different way, but the larger point is the same.
For example, Professor Duchin states:

> HB-2146 can be seen to systematically advantage the candidates of one major party over the other, when overlaid with a range of recent elections in Pennsylvania. In large part this is due to the "political geography" of Pennsylvania, in which the current patterns of concentration in electoral preferences create a landscape that is tilted towards Republicans. My analysis leads me to conclude that the Citizens' Plan, and especially the Governor's Plan, overcome this structural tilt to make fairer maps for the people of Pennsylvania (Duchin Report, pg. 2).

Professor Rodden notes in his report:

> It is worth noting that Pennsylvania's demographic changes are highly correlated with partisanship. In Pennsylvania, as in the rest of the United States, population density is highly correlated with Democratic voting (Rodden Report, pg. 9).

I also discuss this in my original report:

> 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 margins, thus "wasting" many votes by running up large majorities far beyond 50%+1.[1] This occurs in Pennsylvania at the scale of congressional

[1]McGhee, E. (2017). Measuring Efficiency in Redistricting. Election Law Journal: Rules, Politics, and Policy, 16(4), 417–442. doi:10.1089/elj.2017.0453

> districts in the two largest cities of the state - Pittsburgh and Philadelphia. The overwhelming margins for the Democratic Party in these cities are what drives "wasted votes," which in turn translate to fewer seats than the statewide proportion of votes would suggest (Barber Report, pg. 9).

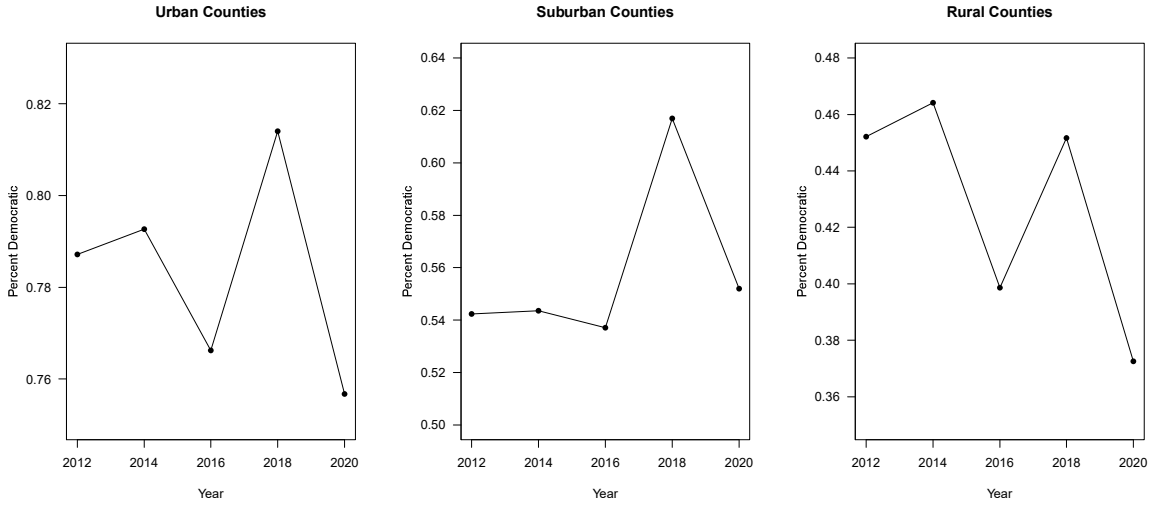
The current pattern of partisanship is, however, not static and has changed from the past and will likely change in the future. Professor Rodden notes this in his report when he discusses the changes in population that have occurred in Pennsylvania over the last decade. He states, "Moreover, another pronounced trend in Pennsylvania and the rest of the United States is that places that are gaining population are not only more Democratic to begin with, but are becoming more Democratic as they gain population. Likewise, places that are losing population are not only relatively Republican to begin with, but are becoming more Republican" (pg. 10). He further states, "Note that some of the growing places that are becoming more Democratic, like Montgomery, Chester, and Allegheny Counties, were already quite Democratic. But others, like Lancaster and Cumberland, started out with strong Republican majorities, meaning that they are becoming more competitive over time as they gain population" (pg. 10).

I agree with this assessment and present data from statewide elections over the last decade that are in line with the trends Dr. Rodden notes. Figure 1 below shows the average Democratic vote share in statewide elections in Pennsylvania from 2012-2020. This period of time represents one decade of elections, and is the same time that a districting plan would be in place.[2] The figure further divides the results by the population density of the counties across the state. The left panel shows results for the urban counties in the state (those with a population density greater than 3,000 people per square mile). The middle panel shows the results for suburban counties in the state (those with a population density between 500 and 3000 people per square mile). The right panel shows the results for rural counties in the state (those with a population density less than 500 people per square mile).

[2]Barring some unusual mid-decade redistricting, e.g., a court-ordered redraw of districts.

A few trends stand out here. First, over the last decade rural counties have trended towards voting more and more Republican. This concentration of Republican voters works against the current geographic advantage the party currently maintains as their voters are living in more and more homogenous areas. Recall the geographic problem a party faces is when their voters are geographically clustered in politically homogenous areas, not necessarily that those areas are densely populated. Second, urban counties in the state have seen, if anything, a slight decline in Democratic support. Across all three areas 2018 was an especially good year for Democrats, but the general trend in Urban areas is either flat or a slight decline in Democratic support. This would also work against the current geographic disadvantage the Democratic party currently maintains as their voters are living in more and more heterogeneous areas. Third, the trend in suburban counties is either flat or slightly increasing Democratic support. Finally, 2016, 2018, and 2020 show that there can be very large swings in support depending on national electoral trends.

Figure 1: **Partisan Trends in Pennsylvania by Geography**



Note: Partisan Preferences in Pennsylvania based on the average of statewide partisan elections from 2012-2020, separated by county population density.

The upshot of these patterns is that if a map drawer is using contemporary partisan trends to guide their decision-making, we have no way of knowing if the geographic patterns

they are trying to "correct" for will 1.) remain the same, 2.) perhaps become more pronounced, or 3.) reverse in direction. It very well could be the case that over the next 10 years Democratic voters start to win more in suburban and rural areas while Republicans begin to make inroads in the cities. In fact, recent research shows that the issues that divide the parties are shifting from economic to social and educational-based, which could easily lead to a shift in the partisan coalitions that looks very different than it does today.

As a result, an attempt to "overcome this structural tilt to make fairer maps for the people of Pennsylvania (Duchin Report, pg. 2)" is misguided for two reasons. First, it is explicitly considering partisanship in the creation of districts. This is as close as one can come to the definition of gerrymandering - the drawing of maps to obtain a partisan advantage. Second, even if the effort is to undue a naturally occurring disadvantage to a party that is due to the contemporary geographic distribution of voters, there is no reason to believe that the particular arrangement of voters will persist into the future, even the near future. The previous decade shows us that partisan preferences can be dynamic and will likely be so in the future as well. A better approach to redistricting would be to not consider partisanship when drawing the boundaries and let the chips fall where they may as the geography of politics shifts and changes over time.

3 Comparing Metrics

In this section I compare many of the plans to one another on measures of splits of political subdivisions, the particular types of divisions, and political compactness of the maps. The overall takeaway is that no map stands out as the objectively best performer on all of these metrics. Each map is better or worse on a few metrics. However, some areas stand out as especially egregious violations of traditional non-partisan redistricting standards, which I note below. Table 1 below summarizes the results. I bold a cell if it is the "best" or tied with another plan as being the "best" on that metric. HB2146 is bolded in three of the six categories. No other plan performs as well on as many metrics in the table.

Table 1: Comparison of Plans on Boundary Splits and Compactness

	Boundary Splits				Compactness	# Competitive
	County	Municipal	Precinct	Pittsburgh	Polsby-Popper	Districts
HB2146	15	16	**9**	**No**	0.32	**5**
Governor	16	18	17	Yes	0.38	1
Carter	**13**	19	14	**No**	0.32	2
Gressman	15	16	17	**No**	0.35	1
House D	16	18	16	No*	0.28	1
Senate D1	17	19	16	Yes	0.32	2
Senate D2	16	16	16	Yes	0.34	0
CCFD	16	**14**	16	Yes	0.36	3
Citizen Voters	14	16	26	**No**	0.35	2
DTL	14	16	23	Yes	0.38	2
Ali	16	18	27	Yes	0.36	3
Voters of PA	15	18	38	**No**	**0.40**	4
Reschenthaler1	**13**	16	31	**No**	0.37	3
Reschenthaler2	**13**	16	30	**No**	0.36	3

Note: Compactness is measured using the Polsby-Popper measure of compactness, which ranges between 0-1, and higher values are more compact. "House D" refers to House Democratic Caucus. "Senate D1" and "Senate D2" refer to the Senate Democratic Caucus first and second proposals. "CCFD" refers to Concerned Citizens for Democracy. DTL" refers to the Draw the Lines organization. The '*' next to the Pittsburgh Split in the House Democratic Caucus indicates that while Pittsburgh is not split across districts, it is combined with other parts of the state in a very unusual way, which I discuss later in the report.

3.1 Political Splits

All of the plans do a reasonably good job with regards to boundary splits, with some notable exceptions. No plan splits more than 17 counties, 20 municipalities, or 38 precincts. The Carter, Reschenthaler1 and Reschenthaler2 Plans split the fewest counties (13). The CCFD plan splits the fewest municipalities (14) and the HB2146 plan has the fewest number of precinct divisions (9).

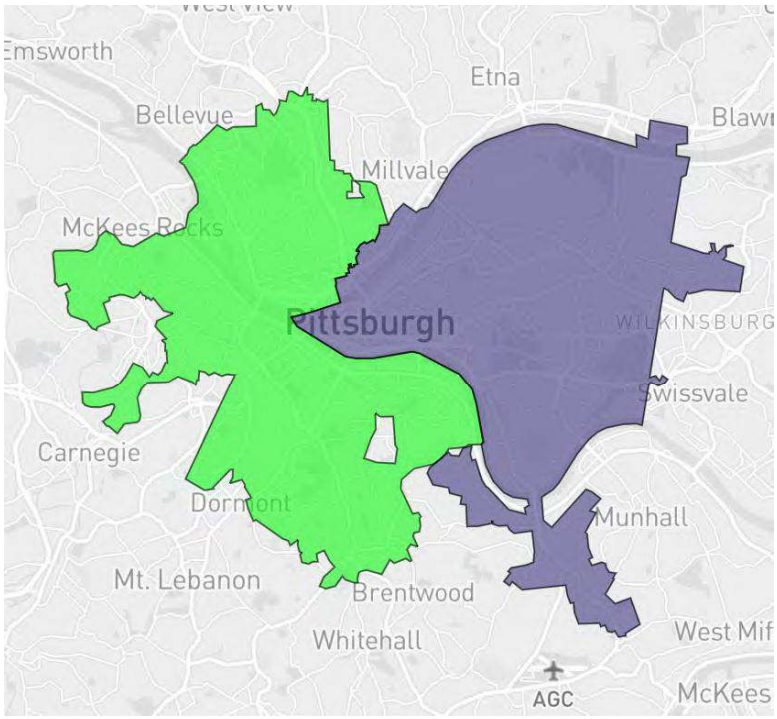
Across all of the plans, aside from necessary divisions of Philadelphia and unnecessary divisions of Pittsburgh, which I describe later, all of the remaining municipal splits are of very small municipalities and townships across the state that shift only a small population.

3.2 Treatment of Pittsburgh

I specifically consider the division of the city of Pittsburgh because it presents an exceptional example of the subversion of non-partisan districting criteria to achieve a partisan objective. Pittsburgh has a 2020 Census population of 302,971, which is less than one half of a congressional district. Thus, the city does not need to be divided and can easily fit into a complete district. This is the case in the HB2146, Carter, Gressman, Citizen Voters, Voters of PA, Reschenthaler1, and Reschenthaler2 plans. However, the Governor, Senate D1, Senate D2, CCFD, and DTL plans all divide Pittsburgh nearly in half. As an example, Figure 4 shows how this is accomplished in the Governor's plan and Table 2 below notes the population of the city placed into each of the two districts for all of the plans that divide the city. Because the district numbers are different across plans, I simply label the districts as District A and District B, with District B being the portion of the city with the lower population split.

There is no apparent reason other than partisan gain for the division of the city. Pittsburgh is very Democratic leaning. In the 2020 presidential election, the city supported Joe Biden by a 78% to 20.9% margin. Thus, a plan that keeps the city intact will contain a heavily Democratic district that contains Pittsburgh. A plan that divides Pittsburgh

Figure 2: **Division of Pittsburgh in Governor's Plan**



Note: This figure shows how Pittsburgh is divided into two districts in the Governor's plan despite the city having a population smaller than a congressional district.

Table 2: Division of Pittsburgh Across Different Plans

	Division of Pittsburgh	
	District A	District B
HB2146	302,971	0
Governor	126,546	176,425
Carter	302,971	0
Gressman	302,971	0
House D	302,971	0
Senate D1	162,087	140,884
Senate D2	162,087	140,884
CCFD	206,245	96,726
Citizen Voters	302,971	0
DTL	206,142	96,829
Ali	264,451	38,520
Voters of PA	302,971	0
Reschenthaler1	302,971	0
Reschenthaler2	302,971	0

can create two less Democratic, but still Democratic-leaning districts. In fact, the pattern of dividing up cities, where Democratic voters are heavily concentrated, to create more Democratic leaning districts is a well-known tactic for increasing Democratic representation. 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).[3] The Governor's plan and the other plans that divide Pittsburgh are textbook examples of this strategy in action.

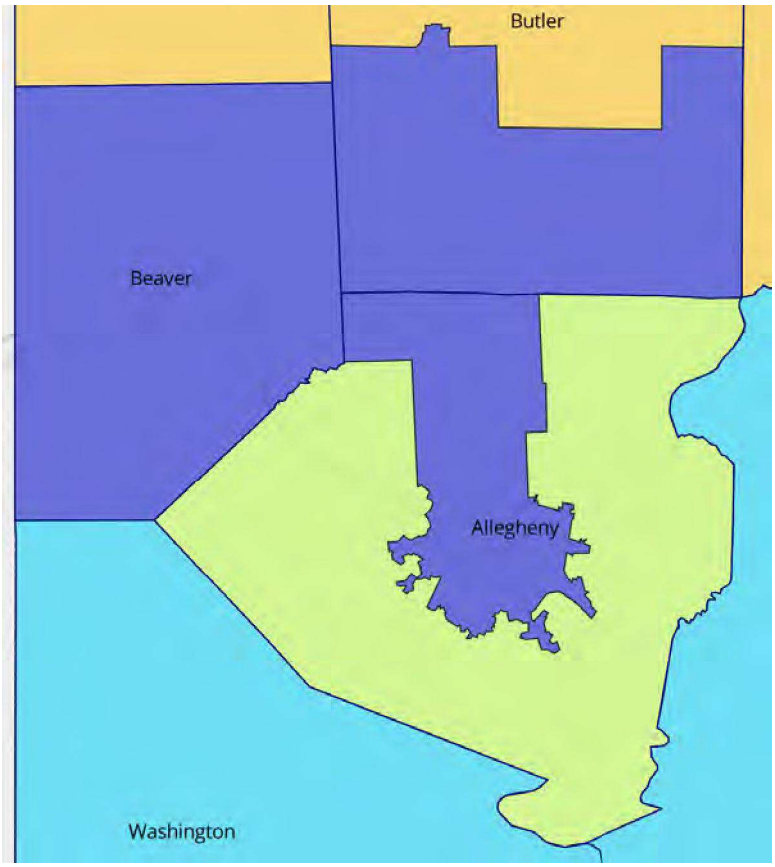
The House Democratic plan does not divide Pittsburgh. However, it uses another well-established tactic of gerrymandering by joining the Democratic voters of the city with rural Republican voters in Beaver and Butler in order to dilute the influence of Republican voters and create a Democratic-leaning, but not overwhelmingly Democratic district. This then leaves the remainder of Allegheny County as a separate district that is also Democratic leaning. In this way, the plan can generate two Democratic-leaning districts rather than one heavily Democratic district that would naturally result from a district that contained Pittsburgh and its surrounding suburbs in Allegheny County. Figure 3 shows these districts in their plan. The plan creates a "claw" shaped district that is a clear effort to combine overwhelmingly Democratic Pittsburgh with rural and Republican Beaver and Butler Counties, leaving the non-Pittsburgh portions of Allegheny County in a separate Democratic-leaning district.

3.3 Compactness

There is a range of compactness scores for the different plans in Table 1. The House Democratic Caucus plan is the least compact with an average Polsby-Popper score of 0.28 and the Voters of PA plan is the most compact, with an average Polsby-Popper score of 0.40. HB-2146 is similar to many of the other plans, with an average Polsby-Popper score of 0.32.

[3]Rodden, Jonathan A. Why cities lose: The deep roots of the urban-rural political divide. Hachette UK, 2019.

Figure 3: **Gerrymander of Pittsburgh in House Democrat's Plan**



Note: This figure shows how the House Democratic Caucus plan combines Pittsburgh with rural, heavily Republican voters in Beaver and Butler Counties to create two Democratic leaning districts rather than one heavily Democratic district in Allegheny County.

3.4 Competitiveness

Electoral competitiveness is an essential component of a liberal democracy. The threat of electoral defeat is critical to creating a democratic government in which elected officials are responsive to public opinion and are held accountable for their decisions while in office.[4] In competitive districts incumbents must be constantly aware of the threat of

[4]Mayhew, David R., 1974. Congress: The Electoral Connection. New Haven, CT: Yale University Press.
Gordon, Sanford C., and Gregory Huber. "The effect of electoral competitiveness on incumbent behavior." Quarterly Journal of Political Science 2, no. 2 (2007): 107-138.
Ansolabehere, Stephen, David Brady, and Morris Fiorina. "The vanishing marginals and electoral responsiveness." British Journal of Political Science 22, no. 1 (1992): 21-38.
Dropp, Kyle, and Zachary Peskowitz. "Electoral security and the provision of constituency service." The Journal of Politics 74, no. 1 (2012): 220-234.

electoral defeat and both parties regularly have a realistic possibility of winning the seat.

I consider a district to be competitive if the partisan index of the district using the average two-party vote share for statewide elections between 2012 and 2020 is within two percentage points of 50%.[5] Scholars have often used two percentage points as a heuristic for hyper-close races in which unforeseen or "knife-edge electoral shifts" can change election results.[6] Furthermore, recent studies of the legislative incumbency advantage have suggested a decline in the benefit afforded to incumbents by voters with more recent estimates being between 3 and 4 percentage points, which divided symmetrically would yield roughly 2 points on either side of the 50% vote margin.[7]

The HB2146 plan contains the largest number of competitive districts (5 competitive districts). The next largest plan is the Voters of PA plan (4). The remainder of the plans range from between 0 (Senate D2 plan) and 3 competitive districts.

4 Partisan Considerations

In my original report I presented the results of two sets of redistricting simulations that were drawn using a publicly available and peer-reviewed redistricting simulation algorithm. The first set of simulations contained 50,000 simulated district maps, each containing 17 congressional districts. This set of simulations generated a sample of districts by following neutral redistricting criteria without regard to racial or partisan data. The second set of simulations contained 5,000 simulated districts maps that were drawn without regards to partisan data but were instructed to draw three minority opportunity districts in each of the 5,000 sets of districts. In all other ways the two sets of simulations are identical. The results of those simulations are presented in detail in the original report. Below I present the

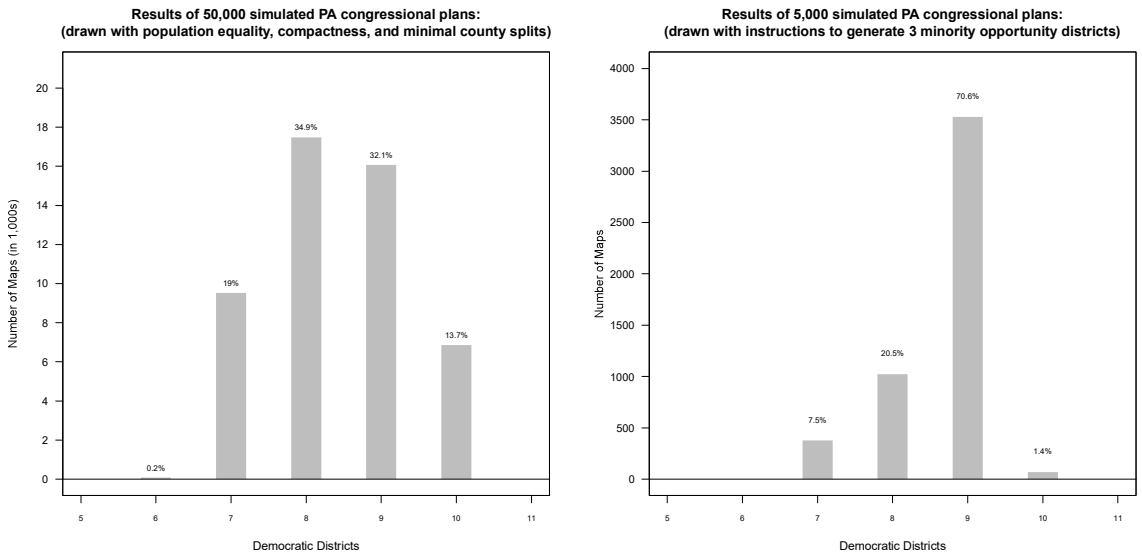
[5]The particular races used in the index are 2020: President, Auditor, Attorney General, Treasurer; 2018: Governor, US Senate; 2016: President, US Senate, Auditor, Attorney General, Treasurer; 2014: Governor; 2012: President, US Senate, Auditor, Attorney General, Treasurer.

[6]Erikson, Robert S., and Rocío Titiunik. "Using regression discontinuity to uncover the personal incumbency advantage." Quarterly Journal of Political Science 10, no. 1 (2015): 101-119.

[7]Jacobson, Gary C. "It's nothing personal: The decline of the incumbency advantage in US House elections." The Journal of Politics 77, no. 3 (2015): 861-873.

summary of those simulations when the partisan lean of districts in each of those simulations is calculated across the 17 districts in each of the simulated plans.

Figure 4: **Distribution of Democratic-Leaning Districts in Simulations**



Note: These figures shows the number and frequency of Democratic-leaning districts in the race-blind (left panel) and race-conscious (right panel) simulations using the 2012-2020 index of statewide elections.

In the race-blind simulations 8 Democratic-leaning districts is the most common outcome (34.9% of the simulations), followed by 9 Democratic-leaning districts (32.1% of the simulations). In the race-conscious simulations the most common outcome by far is 9 Democratic-leaning districts (70.6% of the simulations). In both sets of simulations 10 Democratic-leaning districts is an unlikely outcomes (13.7% of the race-blind simulations and only 1.4% of the race-conscious simulations). Table 3 shows the number of Democratic-leaning districts for each of the plans using the same partisan index used to calculate the number of Democratic-leaning districts in the simulations. By comparing a proposed map to the set of simulated maps that are drawn using only the non-partisan districting criteria, we can identify if oddities or patterns in the proposed plan are due to the political geography of the state because the simulated maps are drawn *using the same political geography.* In other words, by comparing a proposed map to the simulated districts, we are comparing the

proposal to a set of alternative maps that we know to be unbiased and that were drawn using a pre-specified set of non-partisan districting criteria. This comparison holds constant the political geography of the state, which various experts have shown can have an impact on the partisanship of districting plans. If a proposed map produces a similar outcome as the alternative set of simulated maps, we may reasonably conclude that the plan is unbiased. Alternatively, if the proposed plan significantly diverges from the set of simulated maps, it suggests that some other criteria that were not used in drawing the comparison set of maps may have guided the decisions made in drawing the proposed map, including obtaining a particular partisan outcome.

Table 3: Number of Democratic-Leaning Districts in Each Proposed Plan

	D-Leaning Districts
HB2146	9
Governor	10
Carter	10
Gressman	10
House D	11
Senate D1	9
Senate D2	10
CCFD	10
Citizen Voters	10
DTL	10
Ali	10
Voters of PA	9
Reschenthaler1	9
Reschenthaler2	9

Note: If a district in a proposed plan has a partisan index based on the two-party vote share of statewide elections between 2012-2020 greater than 0.50, I call that a Democratic-leaning district. Likewise, if a district has a partisan index less than 0.50, I call that a Republican-leaning district.

The House Democrats plan is an extreme outlier with 11 Democratic-leaning districts. No simulations generate this outcome. Of note is that there are no plans with 8 Democratic-leaning districts, the most common outcome in the race-blind simulations. All of the plans are more Democratic-leaning. The HB2146 plan, the Senate D1 plan, Voters of PA plan,

and both Reschenthaler plans generate 9 Democratic-leaning districts. These plans are in line with the modal outcome in the race-conscious simulations and are within the central part of the distribution in the race-blind simulations. The remaining plans all generate 10 Democratic leaning districts, which is a much more uncommon outcome in the simulations. There is no universally agreed upon definition of a statistical outlier in this context, but the 10-D plans are certainly not in line with the most common outcomes in the non-partisan simulations.

4.1 District-by-District Comparison to Simulations

The fact that a proposed plan is an outlier when compared to the simulations does not immediately tell us the *reason* that the plan diverges, let alone identify if partisan gain is the main cause. However, with additional analysis we can see that partisan gain is certainly consistent with the patterns that I discuss in this section.

In this section I consider how the various plans align with the simulations on a district-by-district basis. Across the plans that generate 10 and 11 Democratic districts there is a similar pattern: in places where the simulations generate competitive districts (those with partisan indices close to 0.50), the plans consistently create districts that are at the extreme Democratic edge of the simulations so as to generate the most favorable (or nearly the most favorable) outcome for Democrats.

Figure 19 shows this for two of the proposed plans, the Governor's plan (left panel) and the Gressman plan (right panel). Similar figures for each plan are at the end of this report. The figure plots the partisan lean of each district across all of the simulations ordered from least Democratic at the top to most Democratic at the bottom of the figure. The simulation results are displayed in grey and generate a "cloud" or range of partisan outcomes for each district. The black dots in the figure show the partisan lean of each of the districts in the Governor's plan on the left and the Gressman plan on the right and their relative position within the simulations. Next to each district is text showing the position of

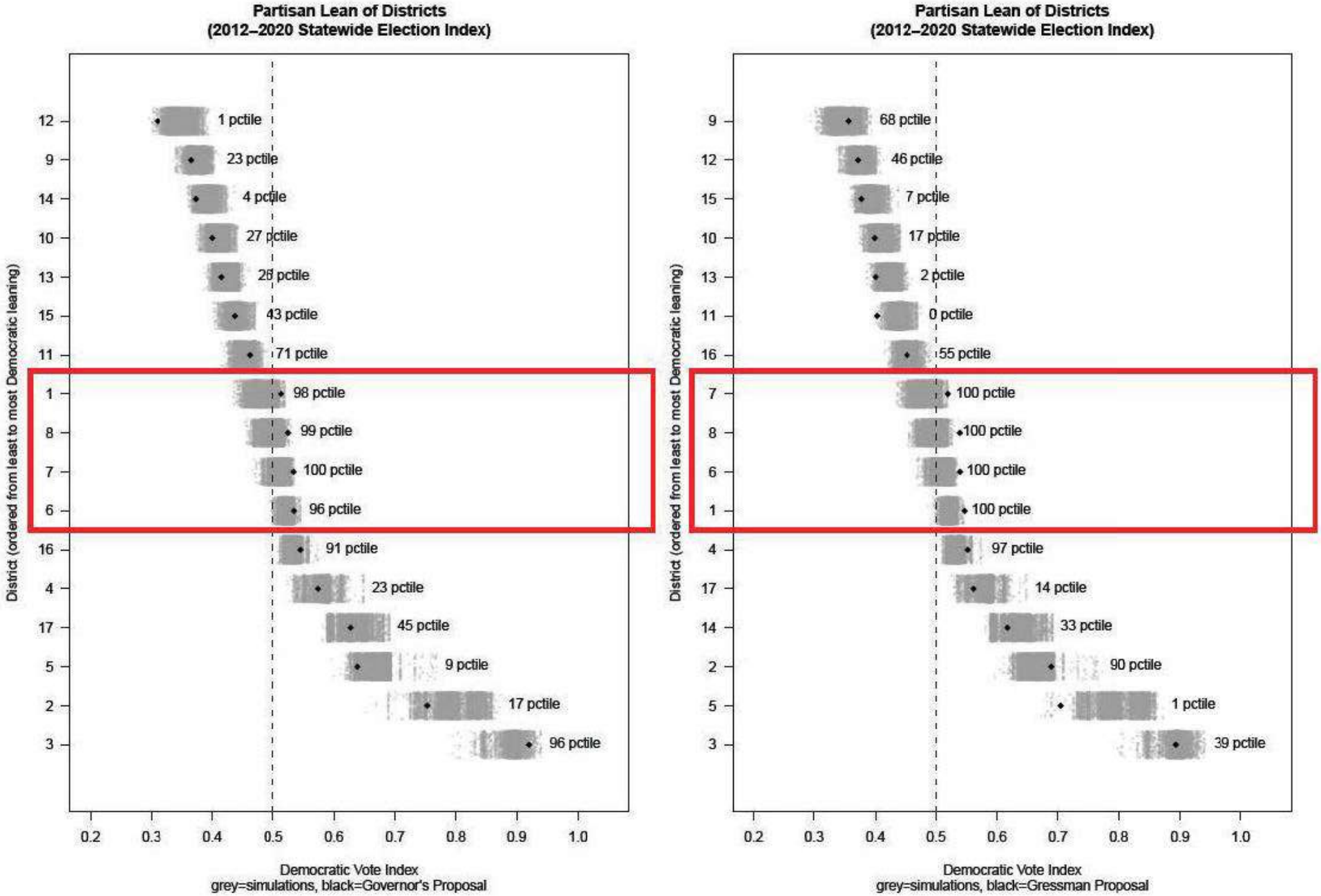
the plan in relation to the simulations. For example, in the most Democratic-leaning district (District 3) at the bottom of the figure, the Governor's plan and the Gressman plan are both more Democratic than 97% of the simulations in that district.

In the simulations there are four districts where the simulations generate both Republican and Democratic leaning districts. These are the most competitive districts and are shown in the middle of each figure. For ease of reference they are highlighted in Figure 19 by a red box in each panel. Notice how the grey dots (simulations results) cross the vertical line at 0.50, indicating that sometimes the simulations in that district generate a Republican-leaning seat and sometimes the simulations in that district generate a Democratic-leaning seat.

Both the Governor and Gressman plans systematically generate districts that are at the most Democratic edge of the simulations in these competitive districts (Districts 6, 7, 1, and 8 in these two plans). This ensures that there will be more Democratic-leaning seats in these plans than is typical in the simulations. Note how in these four districts the Governor's plan is at the 96th percentile, 100th percentile, 99th percentile, and the 98th percentile in these four competitive districts. This indicates that across these four districts where partisan control is most up for grabs the Governor's plan is more Democratic than the simulations in *nearly every case*. This is strong evidence that the Governor's plan is systematically biased in favor of Democrats, particularly in the districts where it matters most.

The same is true of the Gressman plan. In the four most competitive districts the Gressman plan is at the 100th percentile in *all four competitive districts*. This indicates that in nearly 100% of cases — in 49,983 of the 50,000 simulations — the districts where partisan control is most up for grabs were more Democratic in the Gressman plan than the simulations. Similar figures for all of the other plans are at the end of this report and in many cases show the same systematic bias for Democrats.

Figure 5: District-by-District Comparison to Simulations



Note: The grey 'clusters' show the range of vote margins for each district, ordered from least Democratic to most Democratic in the 50,000 simulations. The black dot inside of each cluster shows the partisan index for the proposed plan. Next to each cluster is the percentile, or relative position of the plan within each cluster of simulation results for each district. The Governor's plan is on the left and the Gressman plan is on the right. The middle four most competitive districts in the simulations are highlighted by the red box.

To summarize the results of the other plans, Table 4 reports the percentile of the districts in that plan compared to the simulations for the four most competitive districts. Across many of the plans we see the same pattern - systematic efforts to push these districts as far as possible in the Democratic direction. On the other hand, the HB2146 plan stands out as the least biased of all of the proposals across these districts. In no case does the plan create a district that is near the edge of the simulations in one direction or the other. The same cannot be said for any other plan in the table.

Table 4: Position of Plans Relative to Simulations in Four Most Competitive Districts

	Percentile			
	7th most Democratic District	8th	9th	10th
HB2146	17	17	49	81
Governor	96	100	99	98
Carter	99	100	98	98
Gressman	100	100	100	100
House D	96	100	100	100
Senate D1	99	99	99	98
Senate D2	99	100	100	100
CCFD	99	82	97	99
Citizen Voters	96	92	88	97
DTL	99	97	98	99
Ali	99	72	87	98
Voters of PA	22	59	90	79
Reschenthaler1	13	37	65	7
Reschenthaler2	35	37	65	7

Note: In the simulations there are four districts where the simulations generate both Republican and Democratic leaning districts. These are the most competitive districts and are shown in each column of the table. They represent the 7th-10th most Democratic districts (i.e. middle of the 17 total districts). Each number is the percent of simulation results that are less Democratic than the plan in that district. For example, in the HB2146 plan in the 7th most Democratic district the HB2146 plan is more Democratic than 17% of the simulations. In the 8th most Democratic district the HB2146 plan is also more Democratic than 17% of the simulations. However, in the 9th most Democratic district the HB2146 plan is more Democratic than 49% of the simulations. Many of the plans are more Democratic than nearly all of the simulations in these districts (i.e. numbers very close to 100).

5 Other Measures of Partisan Bias

In my original report I calculate a number of other measures of partisan bias for the HB2146 plan and compare those measures to the same measures calculated for the simulations results. Many of the reports attached to the various plans also calculate similar statistics for their own maps as well as compare them to the HB2146 map. In this section I make these comparisons across all of the proposed maps and compare these measures to the simulation results.

With one exception, the other expert reports do not compare the measures of partisan bias to any simulation results. This is problematic because if a proposed map contains apparent bias, we do not know if it is in fact biased until we compare it to a set of maps that we know were drawn using unbiased inputs. Without this benchmark, we cannot disentangle any measures of partisan bias from impacts due to the political geography of the state. As I noted at the beginning of this report, it is well known that the political geography of Pennsylvania is beneficial to Republicans. Thus, we need to know how much of bias is due, if at all, to geography, and how much is actually partisan bias from the map drawer.

Another problem with comparing across reports is that different reports use different sets of elections. Given that preferences shift across races and across time, it is possible that a plan might look especially biased using a single election or small set of elections. Furthermore, we cannot know if the particular set of elections was chosen to make a plan look especially good or bad. The solution to this is to use all statewide elections and to average them together into an index. As noted above, this provides the benefit of reducing the contribution of any particular election as well as giving a more complete and representative picture.

With that in mind, Table 5 shows measures of the median-mean difference, efficiency gap, and expected seats from a uniform swing (all three measures are discussed at length in my original report) for each of the plans using the votes from statewide races from 2012-2020. Each column is a different measure of bias. Next to each column I report the percentile of

Table 5: Measures of Partisan Bias Across Plans

	Median-Mean		Efficiency Gap		Uniform Swing	
	Value	Percentile	Value	Pctile	Value	Pctile
HB2146	-0.015	85	-0.025	54	8.1	44
Governor	-0.0004	99	0.034	86	9.3	75
Carter	-0.006	98	0.034	86	9.3	75
Gressman	0.014	100	0.034	86	9.5	81
House D	0.007	100	0.093	100	10.1	88
Senate D1	-0.005	99	-0.025	54	9.1	71
Senate D2	-0.0003	100	0.034	86	9.5	81
CCFD	-0.007	97	0.034	86	9.1	71
Citizen Voters	-0.013	88	0.034	86	8.8	61
DTL	-0.006	98	0.034	86	9.2	73
Ali	-0.012	89	0.034	86	9.1	71
Voters of PA	-0.012	89	-0.025	54	8.5	54
Reschenthaler1	-0.021	69	-0.025	54	7.9	40
Reschenthaler2	-0.022	67	-0.025	54	7.9	40

Note: The first column in each measure is the value for that measure for each plan. The second column notes the percentile value for each plan in relation to the distribution of that measures in the simulations. For example, the HB2146 plan has a median-mean value of -0.015, which is more favorable to Democrats than 85% of the plans in the simulations.

the plan for that measure in comparison to the simulation results. This allows us to not only see the absolute measures, but also the more important measure of the relative position of that plan in relation to the set of non-partisan simulations.

Looking down the median-mean columns, most of the plans have a slight negative value, indicating a small bias in favor of Republicans. However, at the same time, *all* of the plans are more Democratic leaning than the non-partisan simulations. This is indicated by the fact that each plan is above the 50th percentile, indicating that more than half of the non-partisan simulations have a median-mean value that is more favorable to Republicans. In other words, all of the plans are more favorable to Democrats than a map drawn only using the non-partisan criteria of contiguity, compactness, equal population and minimal boundary splits. In many cases the plans are more favorable than any of the simulations, as indicated by the 100 in the percentile column. HB2146 is in the middle, with a median-mean

value of -0.015, which is more favorable to Democrats than 85% of the simulation results.

The Efficiency Gap shows a slightly different story. The plans that generated 9 Democratic-leaning districts have a value of -0.025, which is nearly in the middle of the simulations. This would make sense since 9 Democratic leaning districts was the second most common outcome in the simulations. Those plans that have 10 Democratic-leaning seats have an efficiency gap of 0.034, which is favorable to Democrats (positive numbers indicate bias for Democrats, negative numbers indicate bias for Republicans). Furthermore, it is larger in absolute value than the 9-D maps. This outcome is more Democratic than 86% of the simulation results. The House Democratic plan stands out as an extreme outlier with an efficiency gap value of 0.093, indicating significant bias for Democrats.

The uniform swing measure varies across the plans from 7.9 to 10.1 expected Democratic-leaning districts. The HB2146 plan is nearly in the middle of the simulation results at the 44th percentile. Looking down the column, there is significant variation in the number of Democratic-leaning seats generated, on average, from a uniform swing as well as where the plans sit in relation to the distribution of seats generated by the simulations.

6 Summary of Conclusions

Based on the evidence and analysis presented below, my opinions regarding the HB2146 plan for congressional districts in Pennsylvania can be summarized as follows:

- Across a range of metrics, the HB2146 plan performs as well or better than all of the 14 proposed plans.
- Across the 14 plans I analyze, all perform well on county, municipal, precinct splits, and average compactness. There is variation on each metric and no plan stands out as better than the others across all of these measures.
- Six of the plans (Governor, Senate D1, Senate D2, CCFD, DTL, Ali) subvert the

non-partisan criteria to avoid municipal splits unnecessarily by intentionally dividing Pittsburgh for partisan gain.

- The HB2146 plan generates the most competitive districts of the 14 proposed plans.
- Compared to the set of non-partisan simulations, nine of the plans are Democratic partisan outliers (Governor, Carter, Gressman, House D, Senate D1, Senate D2, CCFD, Citizen Voters, DTL). This occurs because in the most competitive districts these plans are extreme outliers in favor of the Democratic Party and are more favorable to Democrats than nearly 100% of the non-partisan simulation results.
- On other measures of partisan bias, there is variation across plans, but all share the common feature of being generally more favorable to Democrats than the non-partisan simulations.

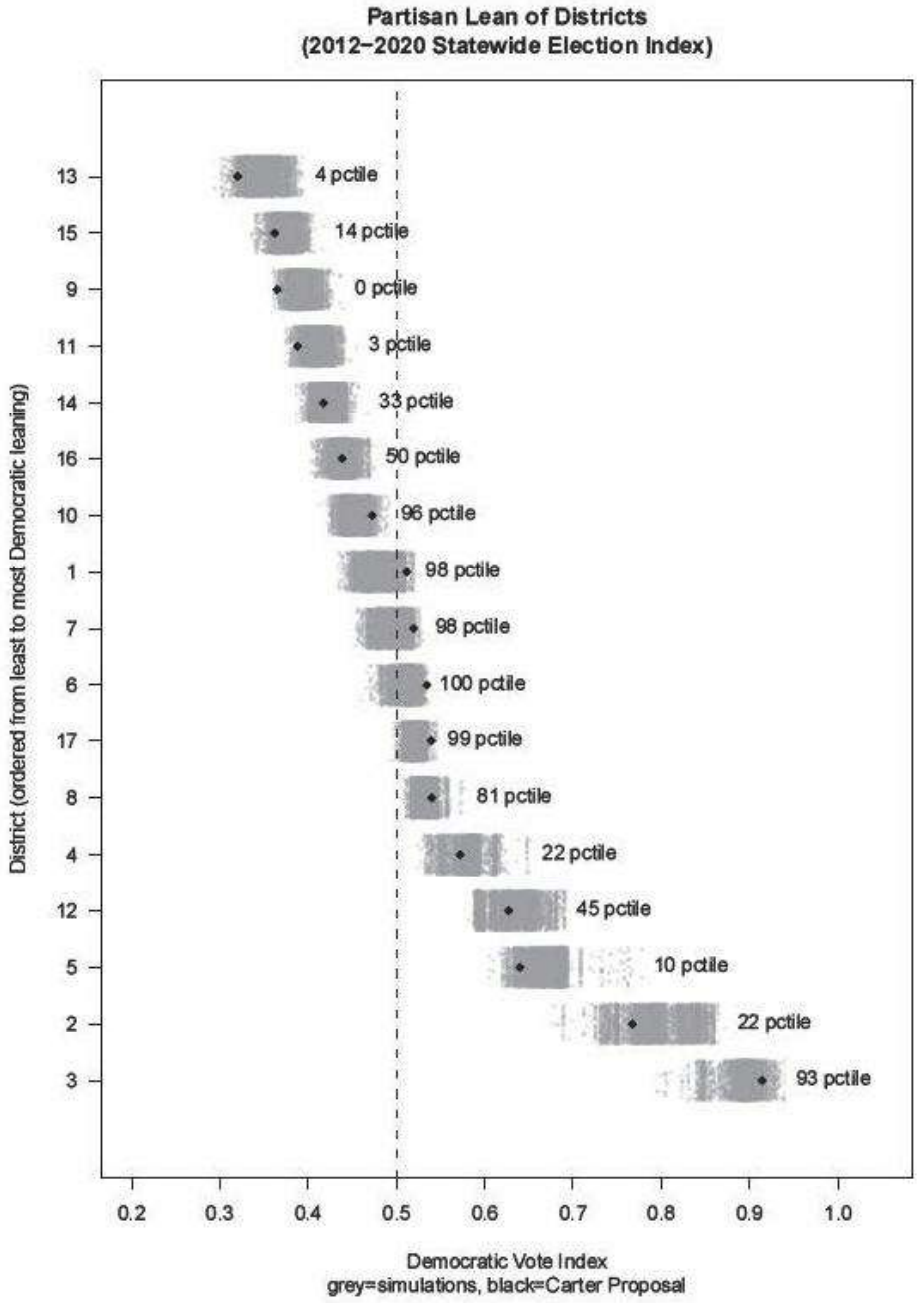
I am being compensated for my time in preparing this report at an hourly rate of $400/hour. My compensation is in no way contingent on the conclusions reached as a result of my analysis.

Michael Jay Barber

7 Appendix A: Additional Statistics

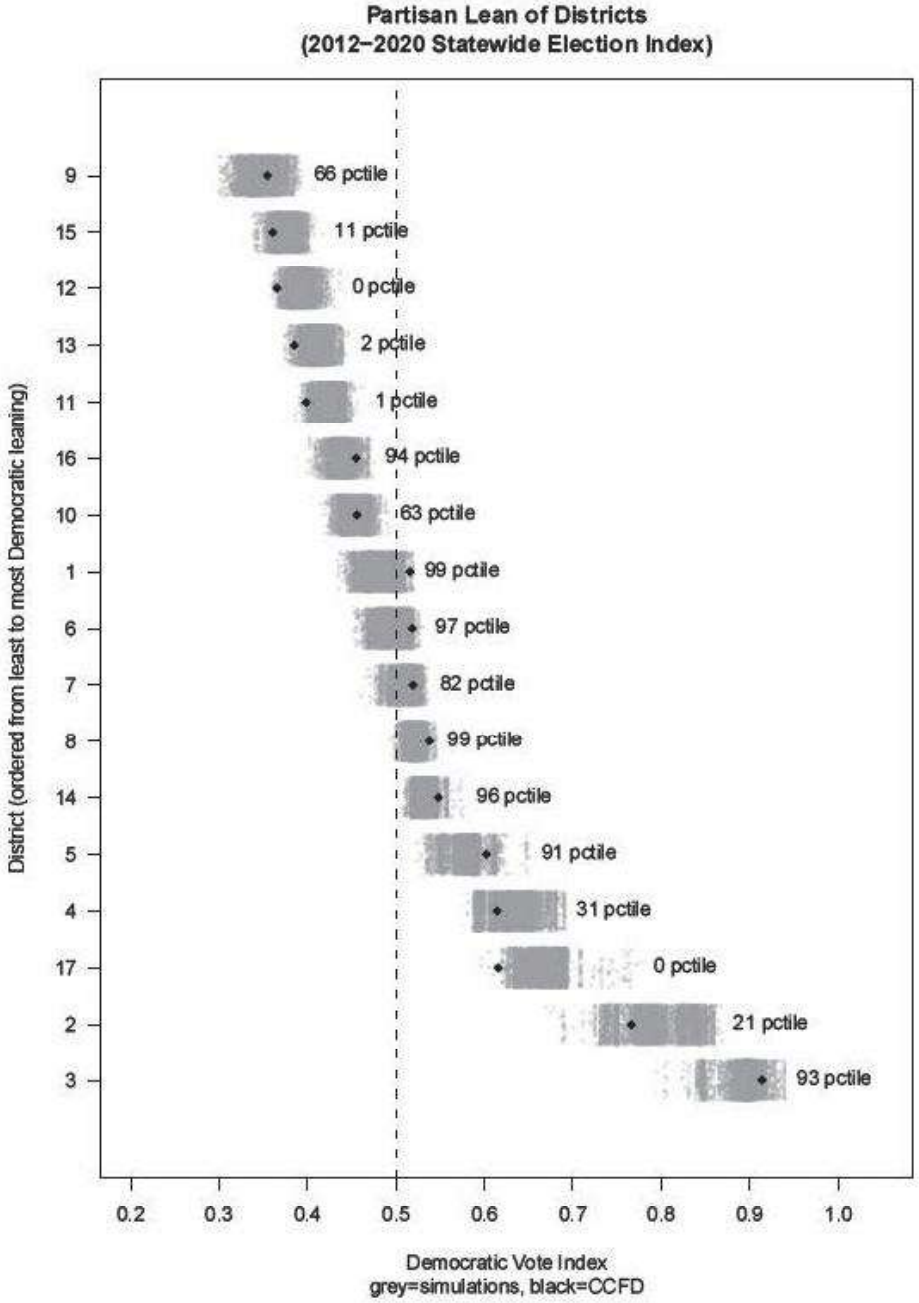
District-by-District Comparisons to Simulations

Figure 6: **District-by-District Comparison to Simulations - Carter Plan**



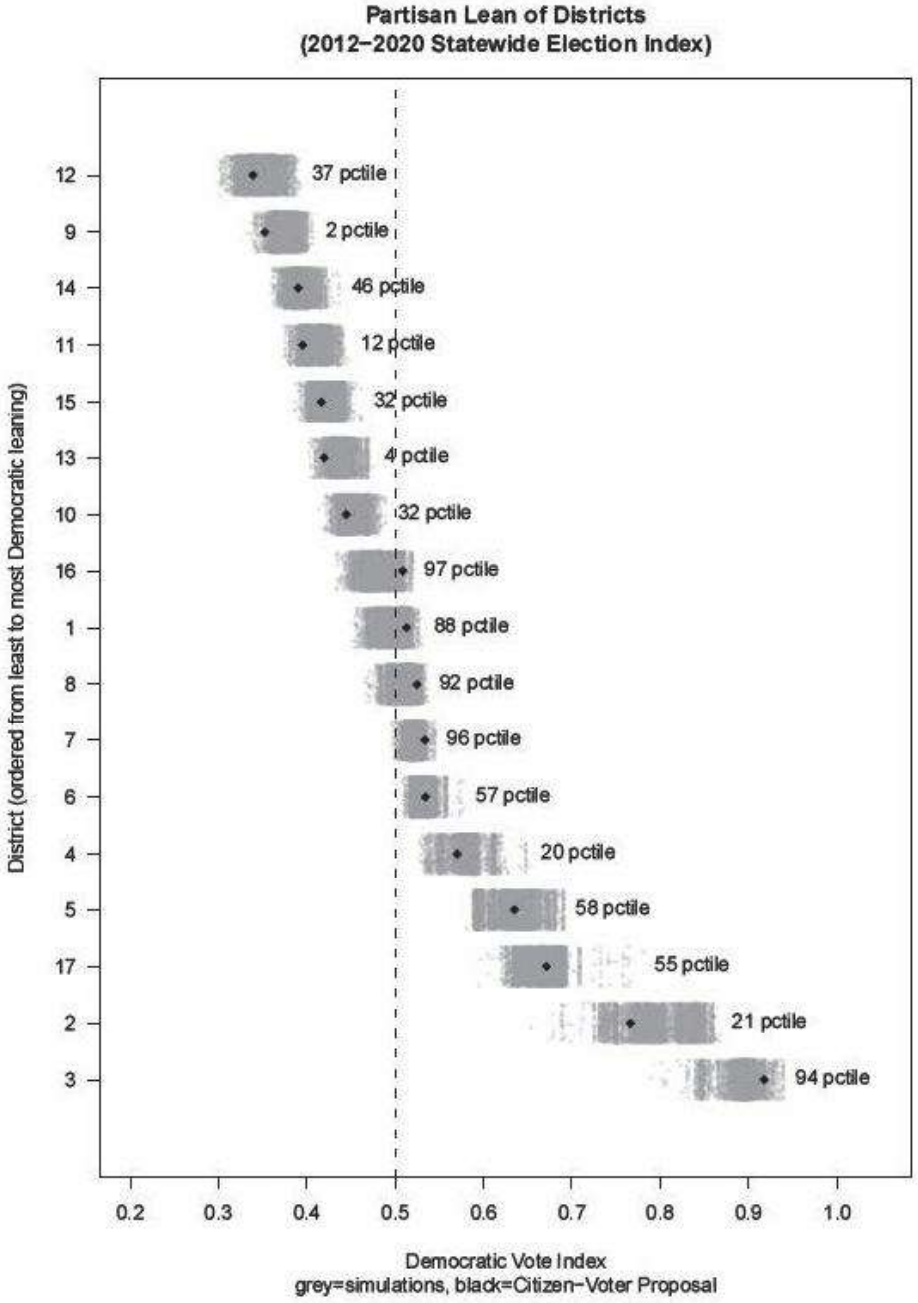
Note: The grey 'clusters' show the range of vote margins for each district, ordered from least Democratic to most Democratic in the 50,000 simulations. The black dot inside of each cluster shows the partisan index for the proposed plan. Next to each cluster is the percentile, or relative position of the plan within each cluster of simulation results for each district.

Figure 7: District-by-District Comparison to Simulations - CCFD Plan



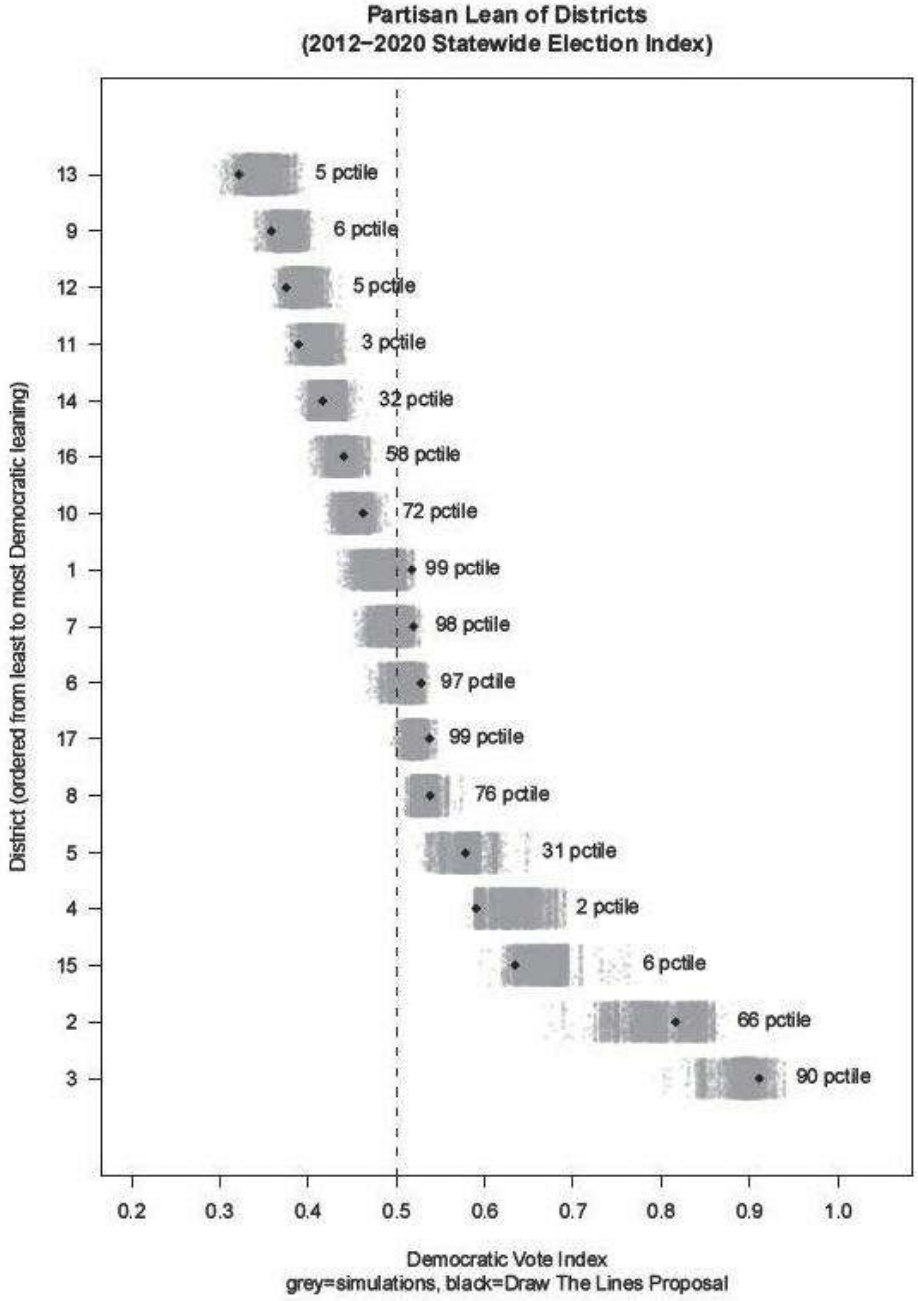
Note: The grey 'clusters' show the range of vote margins for each district, ordered from least Democratic to most Democratic in the 50,000 simulations. The black dot inside of each cluster shows the partisan index for the proposed plan. Next to each cluster is the percentile, or relative position of the plan within each cluster of simulation results for each district.

Figure 8: **District-by-District Comparison to Simulations - Citizen Voter Plan**



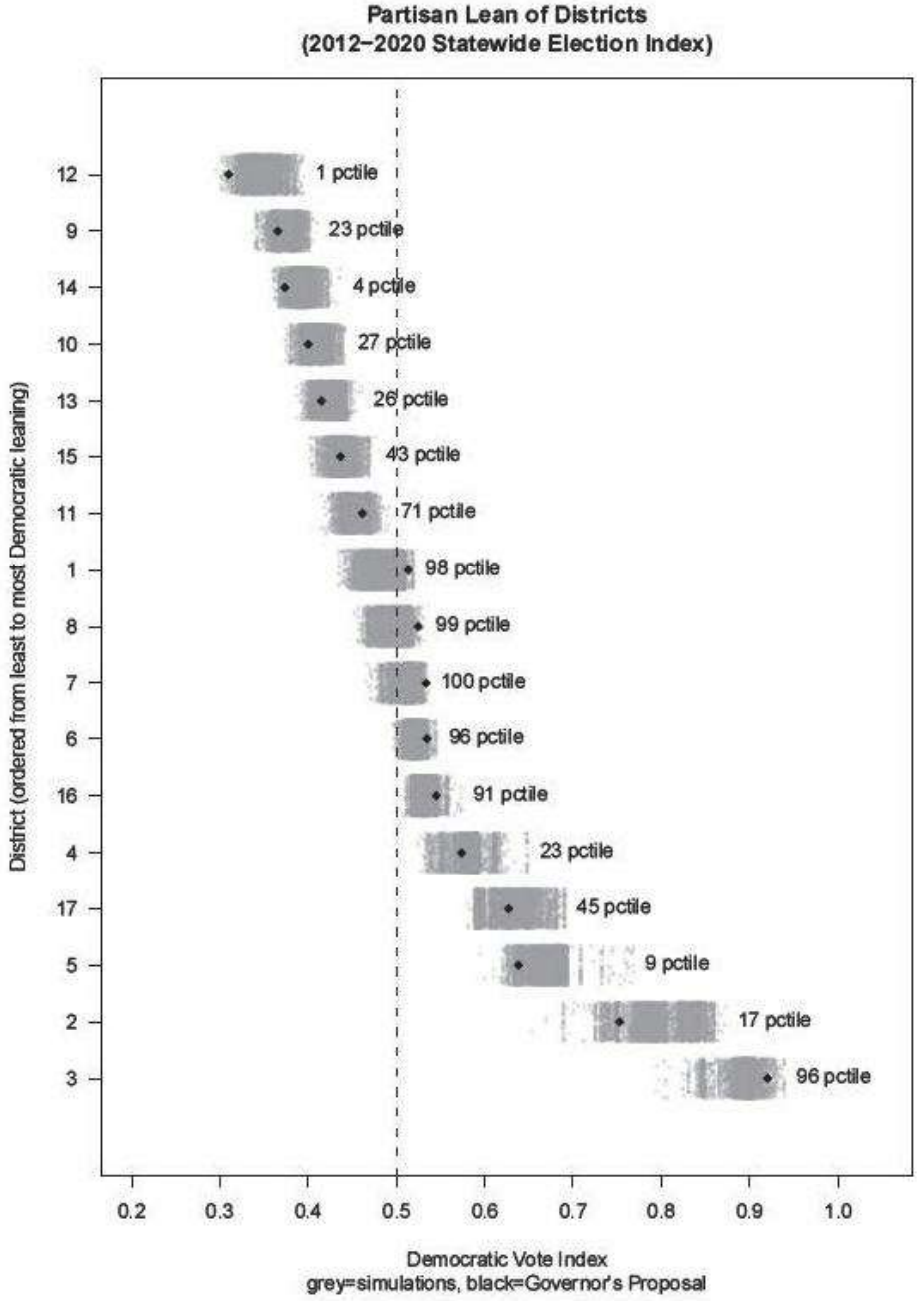
Note: The grey 'clusters' show the range of vote margins for each district, ordered from least Democratic to most Democratic in the 50,000 simulations. The black dot inside of each cluster shows the partisan index for the proposed plan. Next to each cluster is the percentile, or relative position of the plan within each cluster of simulation results for each district.

Figure 9: District-by-District Comparison to Simulations - DTL Plan



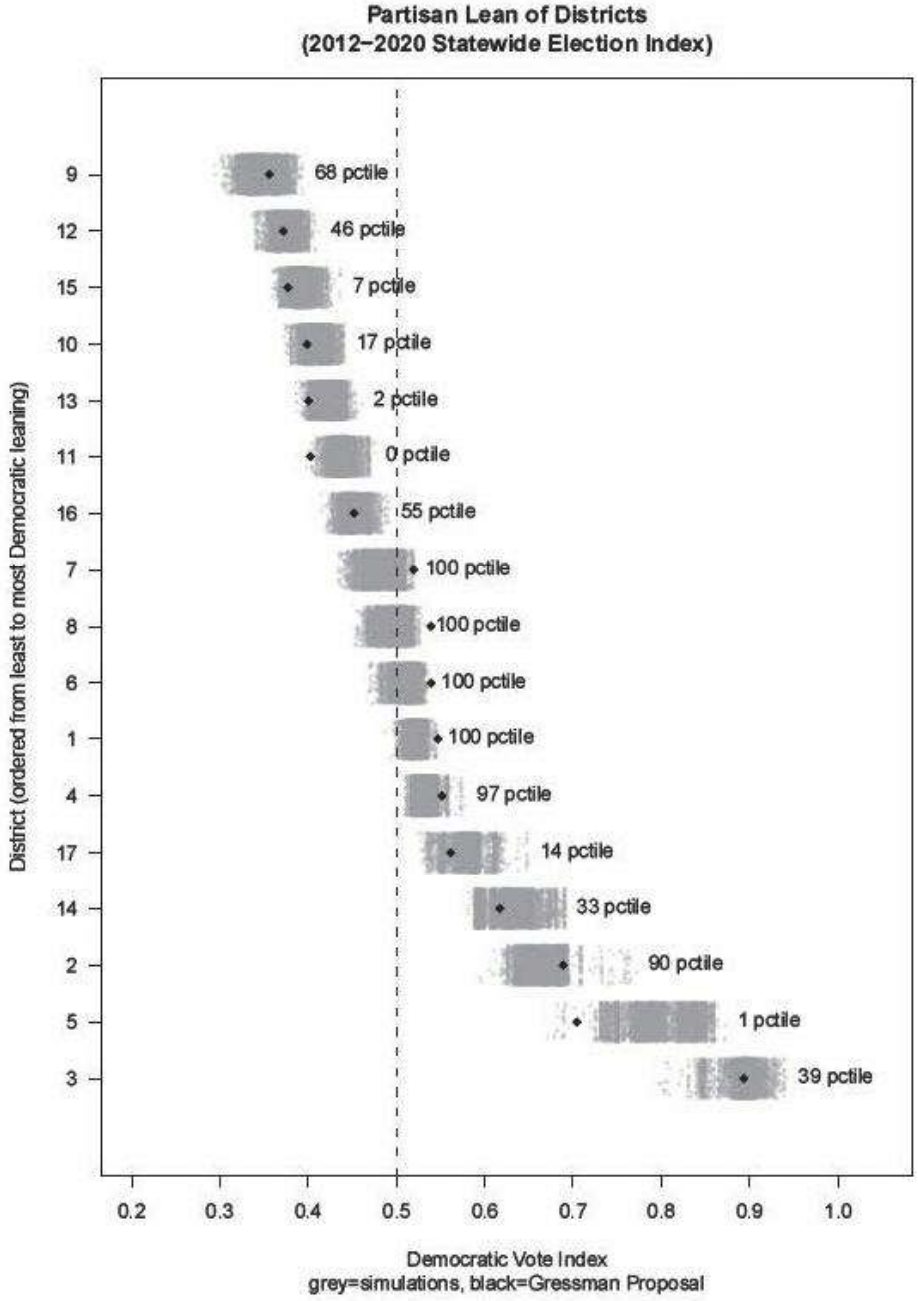
Note: The grey 'clusters' show the range of vote margins for each district, ordered from least Democratic to most Democratic in the 50,000 simulations. The black dot inside of each cluster shows the partisan index for the proposed plan. Next to each cluster is the percentile, or relative position of the plan within each cluster of simulation results for each district.

Figure 10: **District-by-District Comparison to Simulations - Governor Plan**



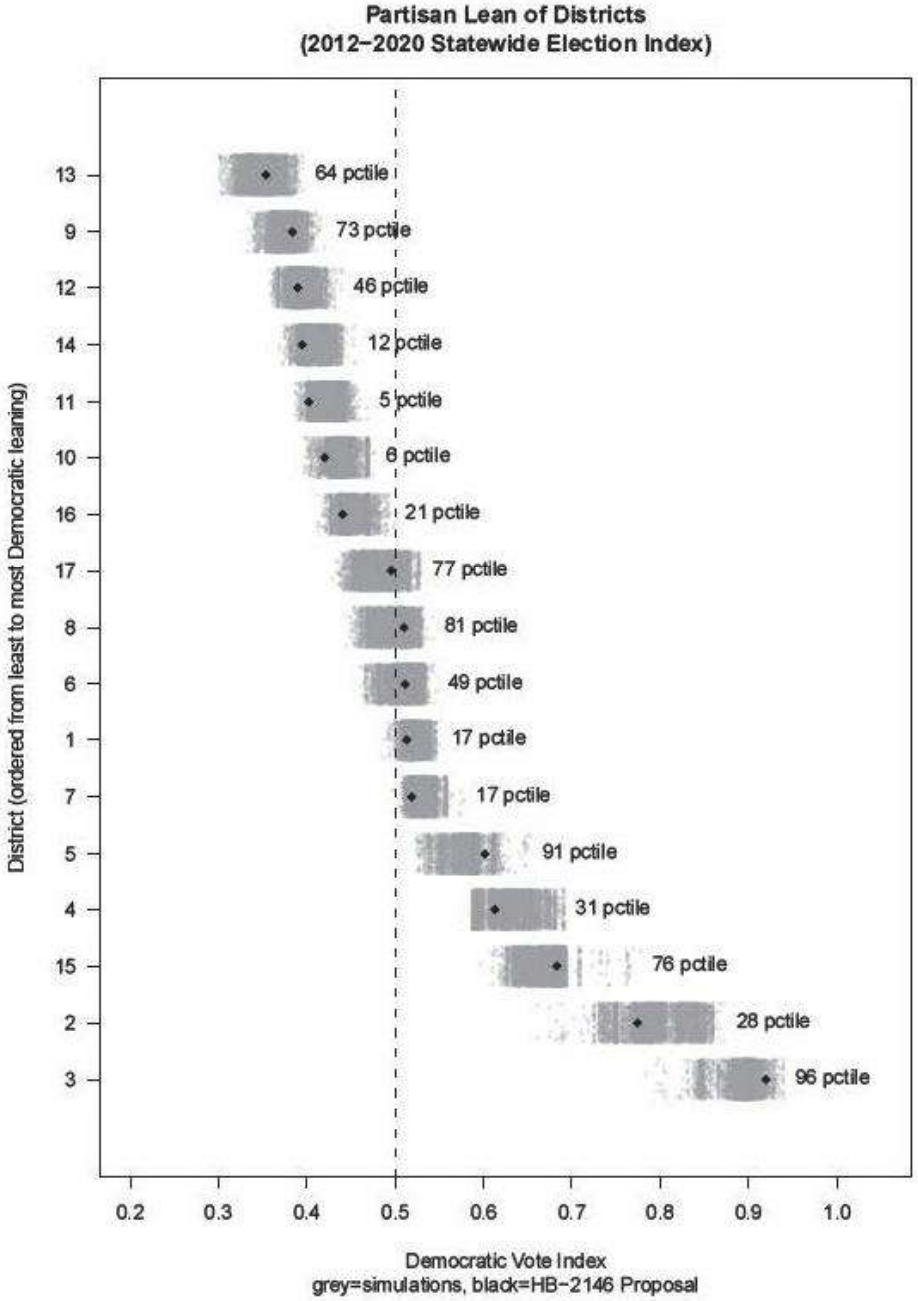
Note: The grey 'clusters' show the range of vote margins for each district, ordered from least Democratic to most Democratic in the 50,000 simulations. The black dot inside of each cluster shows the partisan index for the proposed plan. Next to each cluster is the percentile, or relative position of the plan within each cluster of simulation results for each district.

Figure 11: **District-by-District Comparison to Simulations - Gressman Plan**



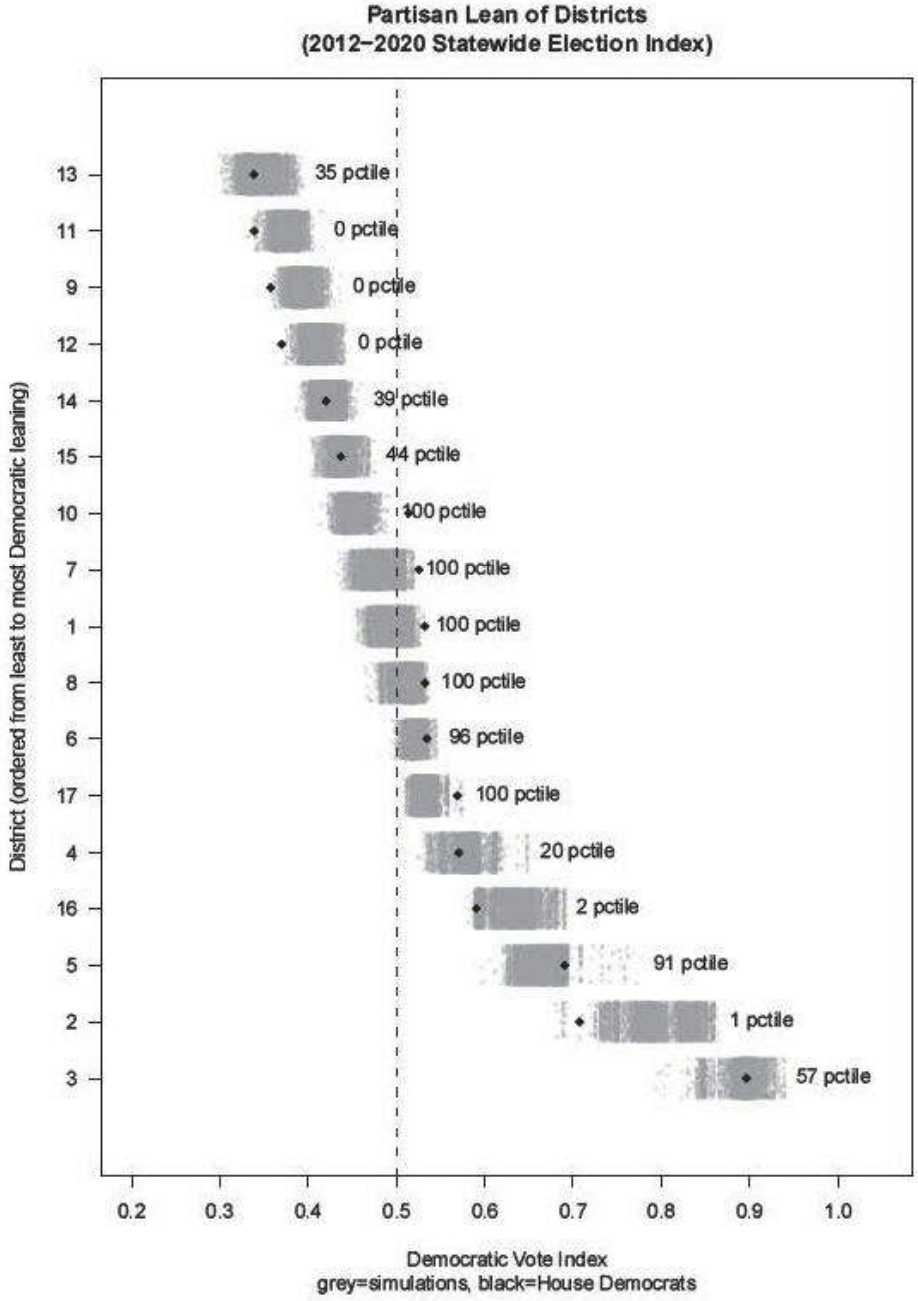
Note: The grey 'clusters' show the range of vote margins for each district, ordered from least Democratic to most Democratic in the 50,000 simulations. The black dot inside of each cluster shows the partisan index for the proposed plan. Next to each cluster is the percentile, or relative position of the plan within each cluster of simulation results for each district.

Figure 12: **District-by-District Comparison to Simulations - HB2146 Plan**



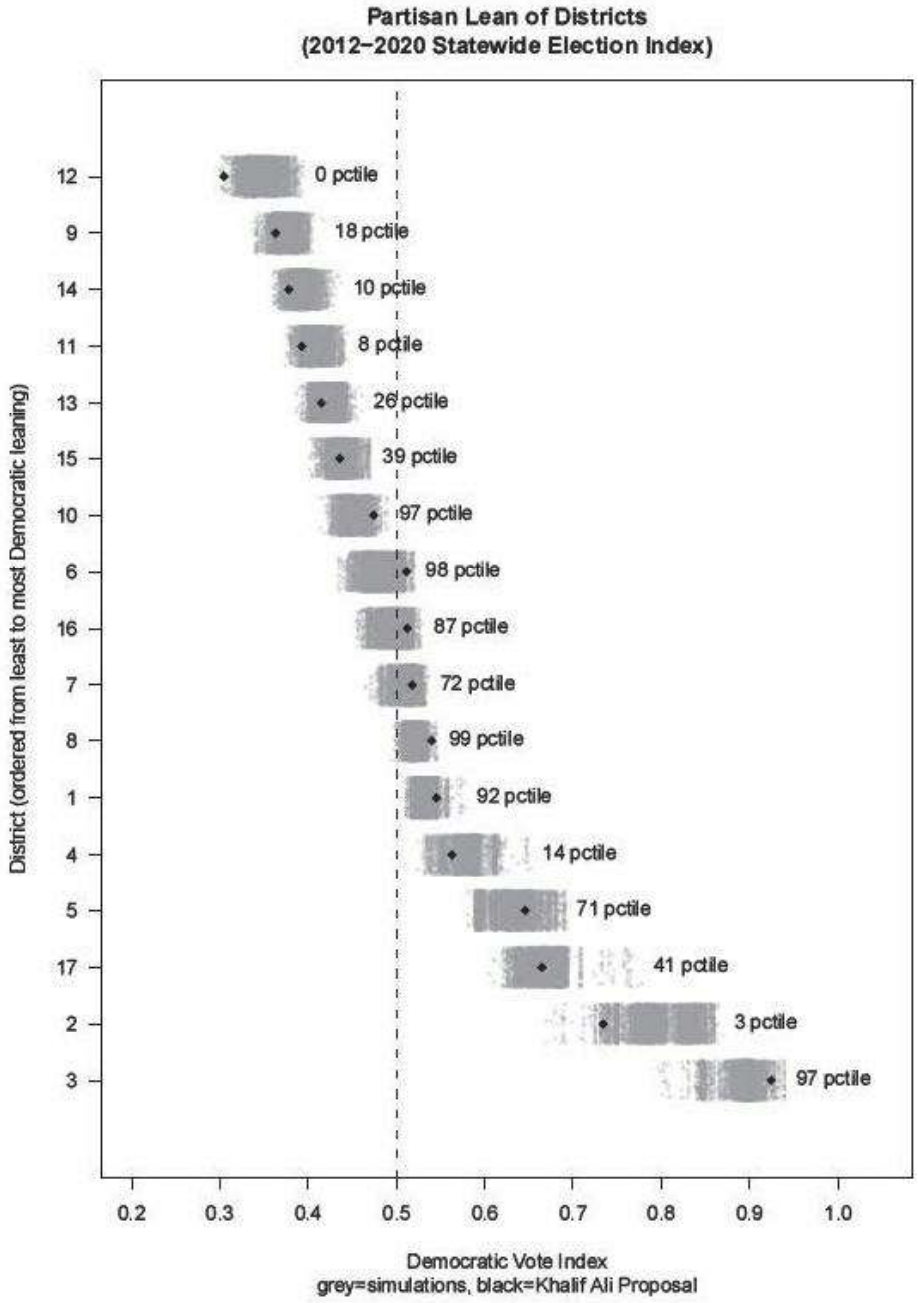
Note: The grey 'clusters' show the range of vote margins for each district, ordered from least Democratic to most Democratic in the 50,000 simulations. The black dot inside of each cluster shows the partisan index for the proposed plan. Next to each cluster is the percentile, or relative position of the plan within each cluster of simulation results for each district.

Figure 13: **District-by-District Comparison to Simulations - House Democrats Plan**



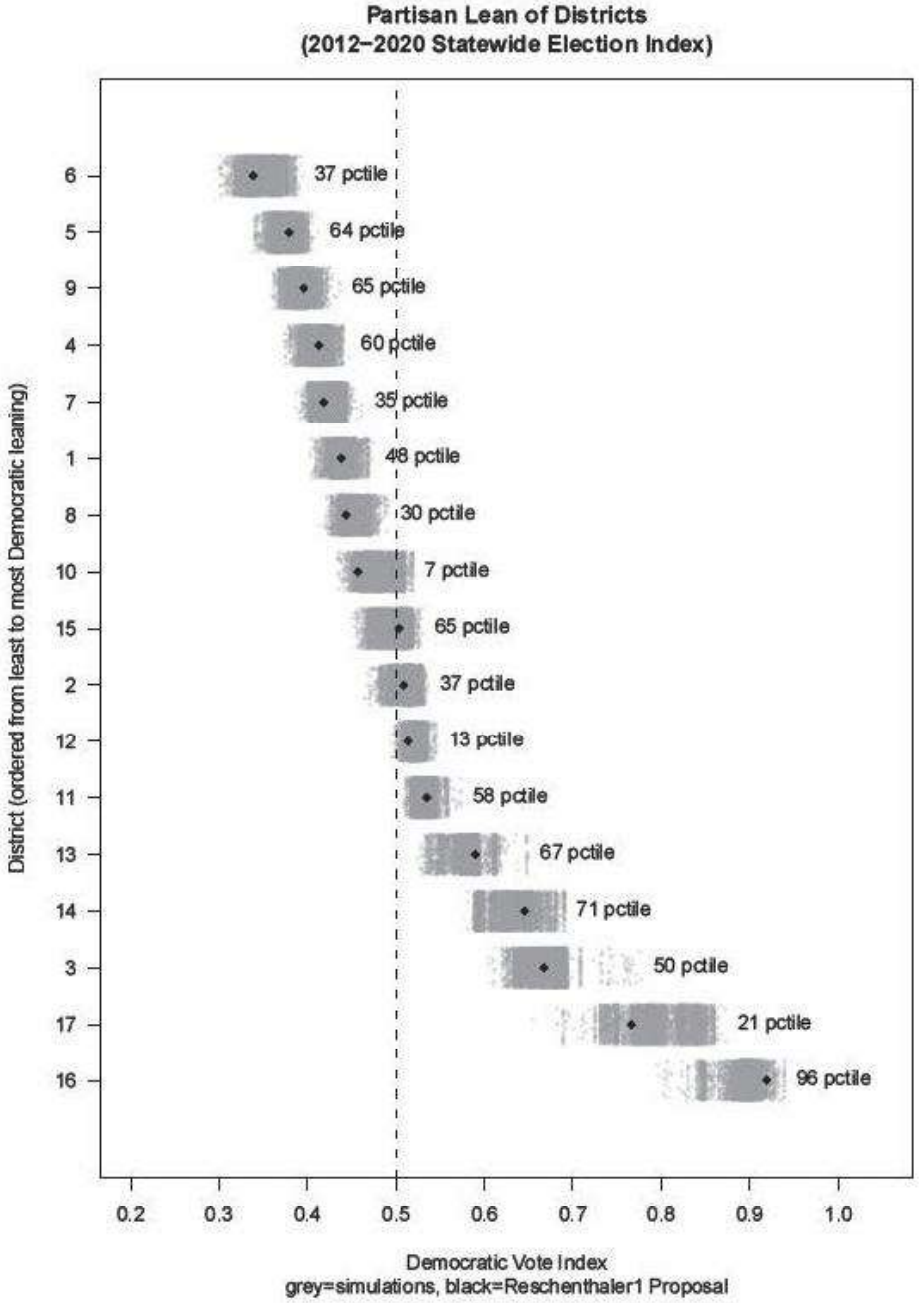
Note: The grey 'clusters' show the range of vote margins for each district, ordered from least Democratic to most Democratic in the 50,000 simulations. The black dot inside of each cluster shows the partisan index for the proposed plan. Next to each cluster is the percentile, or relative position of the plan within each cluster of simulation results for each district.

Figure 14: **District-by-District Comparison to Simulations - Ali Plan**



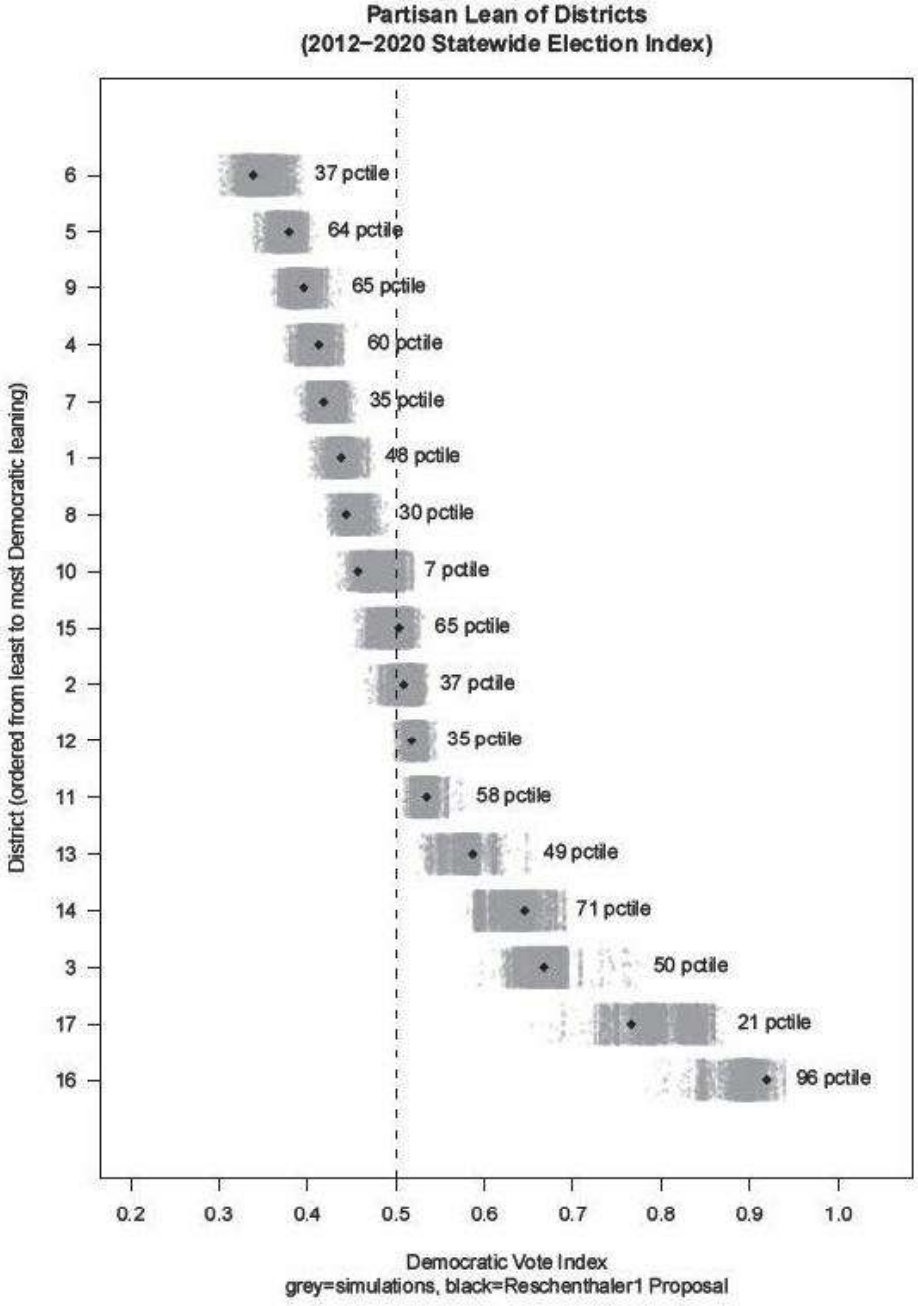
Note: The grey 'clusters' show the range of vote margins for each district, ordered from least Democratic to most Democratic in the 50,000 simulations. The black dot inside of each cluster shows the partisan index for the proposed plan. Next to each cluster is the percentile, or relative position of the plan within each cluster of simulation results for each district.

Figure 15: **District-by-District Comparison to Simulations - Reschenthaler 1 Plan**



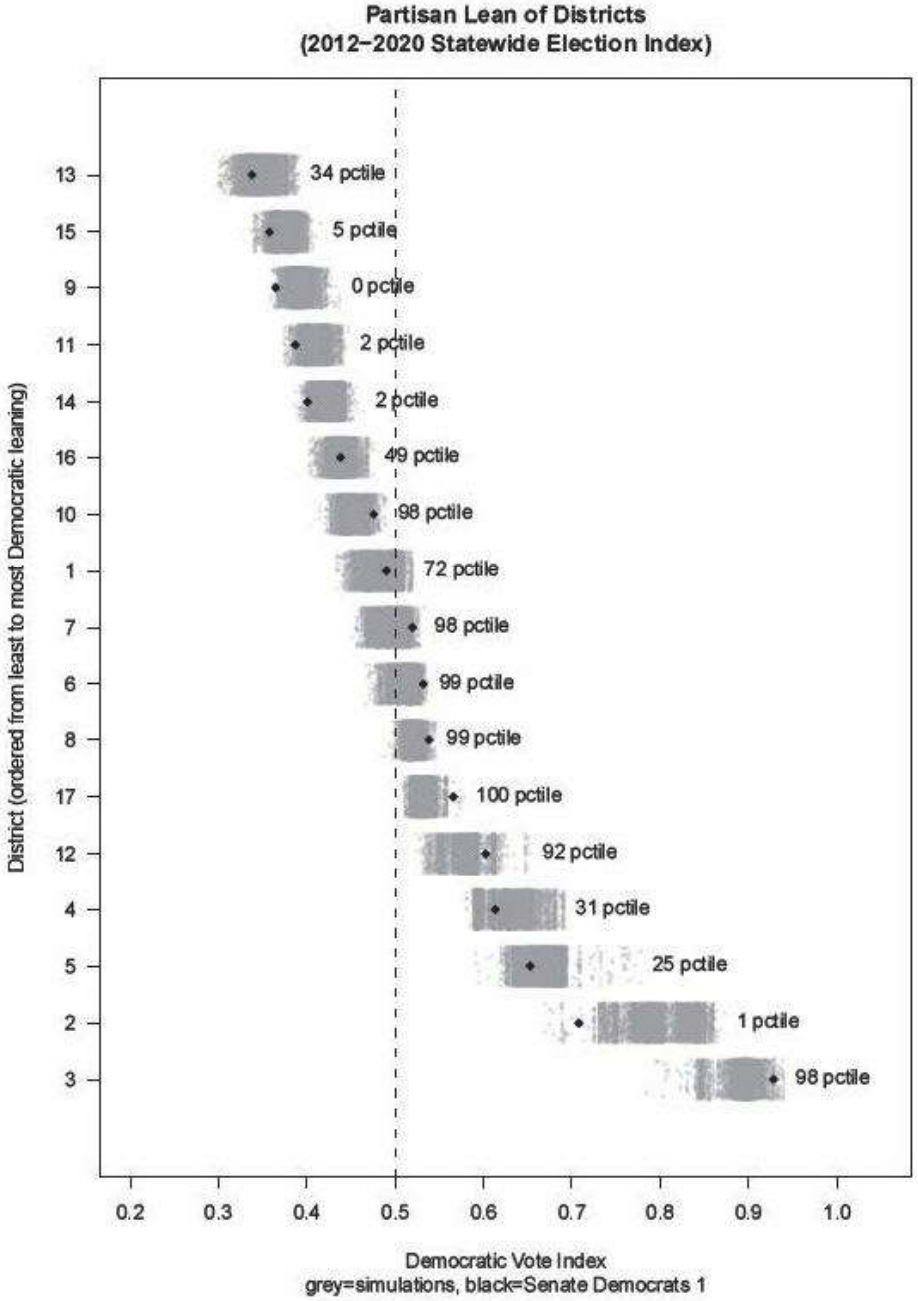
Note: The grey 'clusters' show the range of vote margins for each district, ordered from least Democratic to most Democratic in the 50,000 simulations. The black dot inside of each cluster shows the partisan index for the proposed plan. Next to each cluster is the percentile, or relative position of the plan within each cluster of simulation results for each district.

Figure 16: **District-by-District Comparison to Simulations - Reschenthaler 2 Plan**



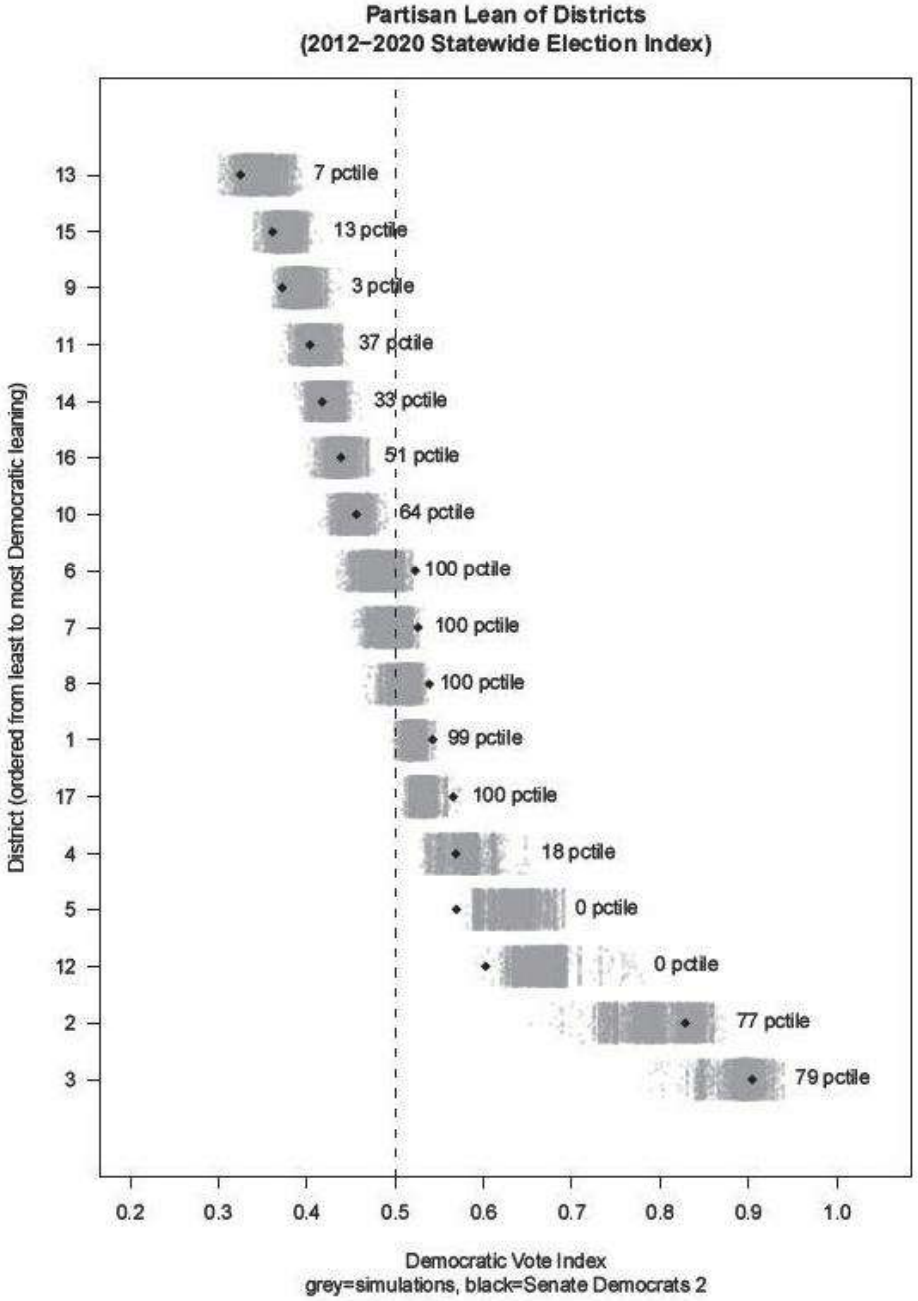
Note: The grey 'clusters' show the range of vote margins for each district, ordered from least Democratic to most Democratic in the 50,000 simulations. The black dot inside of each cluster shows the partisan index for the proposed plan. Next to each cluster is the percentile, or relative position of the plan within each cluster of simulation results for each district.

Figure 17: **District-by-District Comparison to Simulations - Senate Democrats 1 Plan**



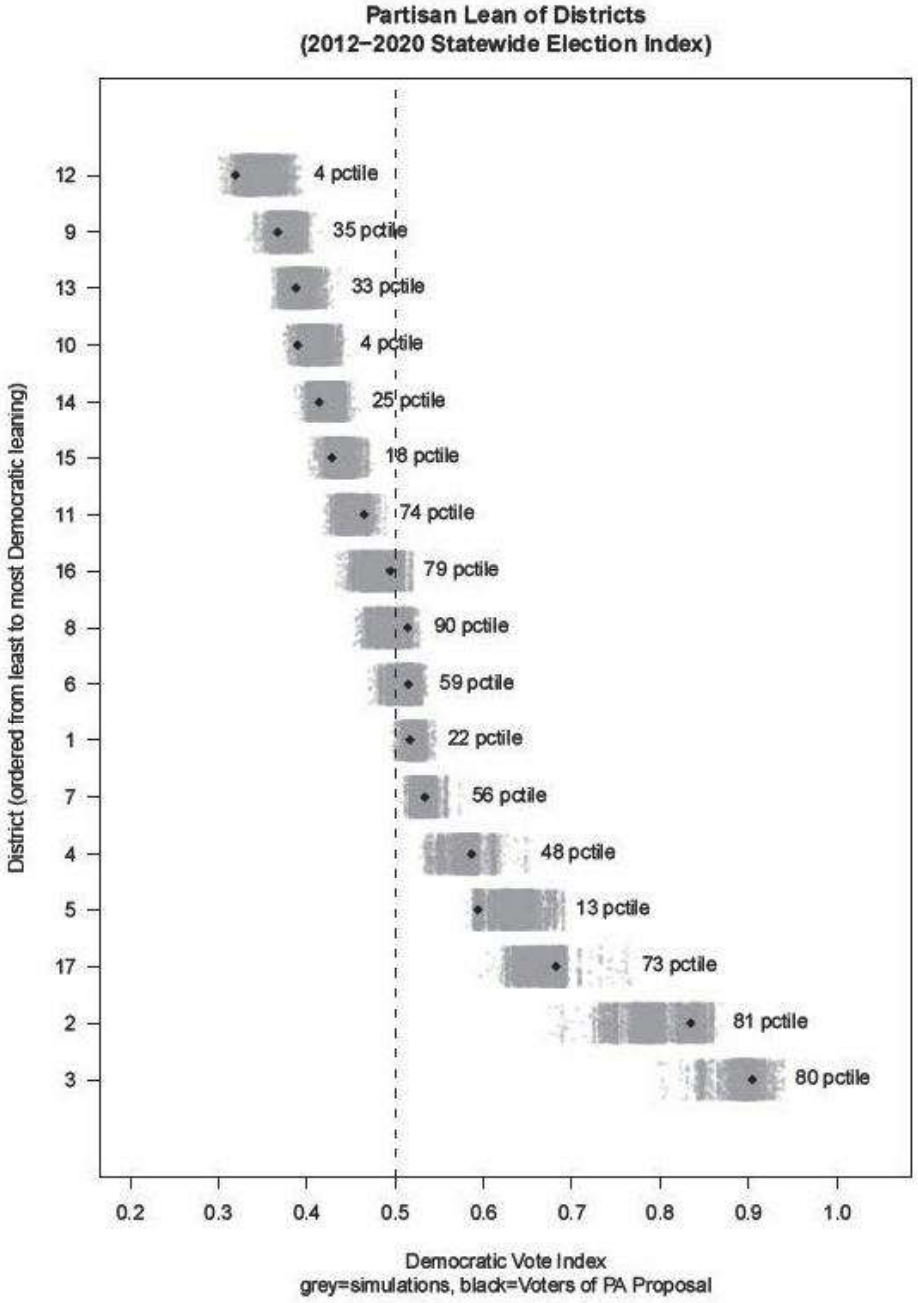
Note: The grey 'clusters' show the range of vote margins for each district, ordered from least Democratic to most Democratic in the 50,000 simulations. The black dot inside of each cluster shows the partisan index for the proposed plan. Next to each cluster is the percentile, or relative position of the plan within each cluster of simulation results for each district.

Figure 18: **District-by-District Comparison to Simulations - Senate Democrats 2 Plan**



Note: The grey 'clusters' show the range of vote margins for each district, ordered from least Democratic to most Democratic in the 50,000 simulations. The black dot inside of each cluster shows the partisan index for the proposed plan. Next to each cluster is the percentile, or relative position of the plan within each cluster of simulation results for each district.

Figure 19: **District-by-District Comparison to Simulations - Voters of PA Plan**



Note: The grey 'clusters' show the range of vote margins for each district, ordered from least Democratic to most Democratic in the 50,000 simulations. The black dot inside of each cluster shows the partisan index for the proposed plan. Next to each cluster is the percentile, or relative position of the plan within each cluster of simulation results for each district.

Appendix B: 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 *American Political Science Review*)

"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"

- Ivy League LDS Student Association Conference - Princeton University, November 2018, Princeton, NJ

"Issue Politicization and Access-Oriented Giving: A Theory of PAC Contribution Behavior"

- 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)

Expert Witness in Regina Adams, et al., Relators, v. Governor Mike DeWine, et al., Respondents. Case No. 2021-1428 (Supreme Court of Ohio)

Expert Witness in Rebecca Harper, et al., Plaintiffs, v. Representative Destin Hall, et al., Defendants (Consolidated Case). Case No. 21 CVS 500085 (Wake County, North Carolina)

Additional Training

EITM 2012 at Princeton University - Participant and Graduate Student Coordinator

Computer Skills

Statistical Programs: R, Stata, SPSS, parallel computing

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