

**IN THE UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF ALABAMA  
SOUTHERN DIVISION**

KHADIDAH STONE, EVAN  
MILLIGAN, GREATER  
BIRMINGHAM MINISTRIES,  
and the ALABAMA STATE  
CONFERENCE OF THE NAACP,

*Plaintiffs,*

vs.

WES ALLEN, in his official capacity  
as Secretary of State of Alabama, and  
STEVE LIVINGSTON and CHRIS  
PRINGLE, in their official capacities  
as Co-Chairs of the Alabama  
Permanent Legislative Committee on  
Reapportionment,

*Defendants.*

No. 2:21-cv-01531-AMM

**Expert Report of Baodong Liu, Ph.D.**

**February 2, 2024**

**I. Introduction**

I have been retained as an expert by counsel for the Plaintiffs in the above captioned litigation. I have prepared this report pursuant to Federal Rule of Civil Procedure 26(1)(2)(B).

My role as an expert witness is twofold. 1) I have been asked to express opinions on whether racially polarized voting (RPV) exists in the Greater Huntsville and Montgomery regions of Alabama, and whether or not RPV has resulted in the defeats of Black-preferred candidates in these regions. 2) I have been asked to evaluate the effectiveness of the Illustrative Plan proposed by

the Plaintiffs in allowing Black voters in the two regions to participate fully in state senate elections and elect candidates of their choice, and compared to that of the Enacted Plan.

I am being compensated at \$300 per hour for my work on this case. My compensation is not contingent on or affected by the substance of my opinions or the outcome of this litigation. My work in this matter is ongoing, and I reserve the right to amend, modify, or supplement my analysis and opinions.

## II. Summary of Professional Qualifications

I am a Presidential Societal Impact Scholar, a tenured professor of political science and the Director of Graduate Studies in the Department of Political Science at the University of Utah. I have done extensive research regarding the relationship between election systems and the ability of minority voters to participate fully in the political process and to elect representatives of their choice.

My research has won the Byran Jackson Award for the best study/dissertation about racial voting from the Urban Politics Section of the American Political Science Association, and the Ted Robinson Award from the Southwest Political Science Association. The results of my research have been published in Social Science Quarterly, American Politics Research, Sociological Methods and Research, PS: Political Science and Politics, Urban Affairs Review, Political Behavior, Journal of Urban Affairs, Southeastern Political Review, and American Review of Politics, among other journals. I am also an author or editor of nine scholarly books including Political Volatility in the United States: How Racial and Religious Groups Win and Lose; Solving the Mystery of the Model Minority; The Election of Barack Obama: How He Won, and Race Rules: Electoral Politics in New Orleans, 1965-2006. I have also served as a member of the Board of Directors/Advisors on many national and international organizations such as the National Association for Ethnic Studies, Urban Affairs Review, Journal of Behavioral and Social Sciences, and International Encyclopedia of Political Science (CQ Press).

As an expert on RPV analysis, I have published peer-reviewed journal articles and books on the cutting-edge techniques used by academic professionals and supported by courts concerning voting rights cases and the electoral history in the South. I have served as an expert witness for minority plaintiffs in dilution cases in states such as Alabama, Arkansas, New York, Louisiana, Utah, South Carolina, and Tennessee. My opinions have been accepted by multiple federal courts (e.g., in New York, Louisiana, Alabama, South Carolina, and Tennessee) including in *Allen v. Milligan* that eventually was decided by the U.S. Supreme Court. Furthermore, I have provided my expertise to Native American Rights Fund, Navajo Nation, the US Department of Justice, and the Lawyers' Committee for Civil Rights Under Law in Washington D.C., and

NAACP LDF on census differential privacy policy and methodological issues concerning RPV. I have also been invited to be an instructor of RPV analysis in expert training programs, organized by such organizations as Native American Rights Fund, Ford Foundation and Southern Coalition for Social Justice, and LDF concerning both the 2010 and 2020 rounds of redistricting.

My applied research and grants have included analyses of ranked choice voting, economic development, racial voting patterns, public school science education, school districts' economic impact on local economy, and various citizen surveys. My grants have come from New America, the National Science Foundation, American Political Science Association, the National Humanities Center, Wisconsin Security Research Consortium, Fond du Lac School District, Johnson Controls, Inc, City of Waupaca (WI), the League of Women Voters, American Democracy Project, and Wisconsin Public Service. I also served as the editor of Urban News for the American Political Science Association's Urban Politics Section, and I was elected as a co-chair of the Asian Pacific American Caucus of the American Political Science Association.

Attached as Appendix 1 is a curriculum vitae setting forth my professional background, which includes a list of all publications I have authored or co-authored, including forthcoming publications.

### III. Background on Racially Polarized Voting

In *Allen v. State Board of Education* (1969), the Supreme Court held that vote dilution could occur as a result of electoral devices such as at-large electoral systems. The court expanded the notion of vote dilution beyond previous reapportionment cases (e.g., the 1964 *Reynolds v. Sims*) on how an individual's vote was diluted by unequally populated voting districts to include the dilution of a group's voting strength. In the landmark *Thornburg v. Gingles* (1986), the Court provided the precise three-prong dilution test for litigations concerning Section 2 of the Voting Rights Act (VRA). To succeed in dilution cases, plaintiffs must demonstrate the existence of the three preconditions of the Gingles test: 1) the racial or language minority group is "sufficiently large and geographically compact to constitute a majority in a single-member district"; 2) the minority group is "politically cohesive" (meaning its members tend to vote for the same candidate); and 3) the "majority votes sufficiently as a bloc to enable it ... usually to defeat the minority's preferred candidate." The second and the third preconditions under the Gingles test have become the legal definition of RPV.

### IV. Measurement of RPV

Based on the second and third preconditions of the Gingles test that collectively make up the legal definition of RPV, I used the following two-

step operational rules to measure whether a particular election is racially polarized: 1) I first estimate the Black and white group support for the Black candidate in a biracial election; and 2) if in this biracial election the majority of Black voters cast their vote for the Black candidate, and only a minority of white voters cast their vote for the same Black candidate, then this election is racially polarized.

Since voting in the United States takes place in privacy, the only way to determine whether or not RPV existed in a given election is through statistical procedures. I analyzed the biracial elections based on the award-winning Ecological Inference (EI) method developed by Professor Gary King of Harvard University.<sup>1</sup> EI is a statistical procedure for estimating voting results of voter groups (in this case grouped by race), and it has been widely used as the most-advanced and reliable statistical procedure for RPV estimates in not only academic research but also voting rights cases in the last two decades. To run an EI operation, the specific election return data at the precinct level need to be matched with the voting-age population (VAP) data for the non-Hispanic white-majority, the non-Hispanic Black, and “all other” racial groups at the Voting Tabulation District (VTD) level based on the closest census regarding Alabama.

One of the main reasons to use the EI method in the estimation of single-member district elections, rather than the regression methods, is because it *always* generates realistic estimates.<sup>2</sup> The realistic estimation of group votes is guaranteed through EI’s method of bounds feature, which adopts the mathematical rule to determine the maximum and minimum number of votes cast by a racial group for a candidate. For example, if a precinct has only five Black registered voters and the total votes cast for the only Black candidate in the election is 10, then at least five of the total 10 votes are from non-Black registered voters, which is a mathematical necessity.

EI provides not only the point estimates for racial voting patterns as well as the standard errors (or 95% confidence interval) associated with these point estimates, which is to be understood as the uncertainty boundaries beyond the point estimates. The point estimates are to be considered as the most likely vote percentages cast for the Black candidate by different racial groups in a given election.<sup>3</sup>

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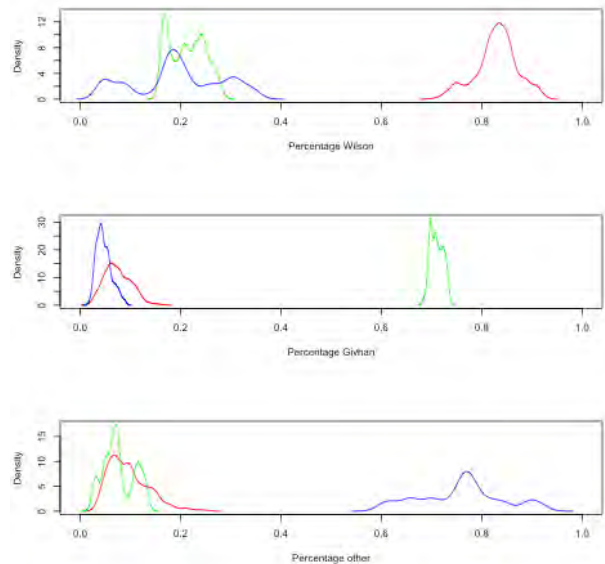
<sup>1</sup> See Gary King, A Solution to the Ecological Inference Problem: Reconstructing Individual Behavior from Aggregate Data (Princeton University Press, 1997).

<sup>2</sup> For detailed discussions of EI method, compared to previous statistical procedures, see my article: Liu, Baodong. (2007). “EI Extended Model and the Fear of Ecological Fallacy,” *Sociological Methods and Research* 36 (1): 3-25.

<sup>3</sup> In statistical analysis, point estimates are derived through the empirical data on which theorems (especially the central limit theorem) are applied. The point estimates are the exact numbers (for example, Black voters cast exact 86.3% of their vote for a Black candidate) which are “the best” estimation, given the data, but also are “uncertain” in that the reality may be “off” from this best estimation. The extent to which the reality may deviate from it is known as standard errors. Scholars accept conventionally a 95%

The point estimates and the uncertainty boundaries can be visually displayed by the EI technology. We can use the 2022 Alabama State Senate District 7 election as an example. The data at the precinct level for non-Hispanic Black, non-Hispanic white and other voting age population (VAP) and the votes cast for the Black Candidate, Korey Wilson, and his white opponent, Sam Givhan are available at the time of writing this report. Figure 1 is the Density Plot based on the EI estimations of data for multiple racial groups.<sup>4</sup>

Figure 1: Density Plot based on EI Operation



Note that there are three panels in Figure 1 that show graphically the racial vote distributions for Wilson, Givhan and the write-in (i.e., other) candidate. Focusing on the top panel for Wilson, the green curve on the left shows the boundary of the white vote for Wilson, and the red curve on the right displays that of the Black vote, which is a clear picture of RPV. Note that there is also the blue curve toward the left which showed the support for Wilson from other minority racial groups (such as Hispanics, Asians and American Indians).

## V. Elections Analyzed

confidence interval/boundary where the lowest possible value and the highest possible value around the best point estimate are specified based on the central limit theorem.

<sup>4</sup> I used the eiPack R-package to derive the racial estimates for multiple groups. All RPV estimations of this report are based on non-Hispanic white VAP, non-Hispanic Black VAP, and all other VAP from the 2020 census data. I also used any-part Black VAP data to verify the results shown in this report, and the statistical conclusions are the same.

In a case challenging a redistricting plan of State Senate districts under Section 2 of the Voting Rights Act, such as this one, state senate elections providing a choice between voting for a white candidate or voting for a minority (in this case, Black) candidate are generally considered the most probative for assessing RPV. These state senate elections concerning the electoral offices at issue in this matter are called endogenous elections. Plaintiffs provided me with the endogenous elections in which there were both a Black candidate and a white candidate (i.e., biracial elections) during the last 10 years. The reason to select only biracial elections is because these elections satisfy the necessary conditions on which Black voters and non-Black voters had an opportunity to compare white candidate(s) with Black candidate(s) and make their voting decision. Three endogenous biracial elections (the 2022 State Senate District 2 election, the 2018 and 2022 State Senate District 7 elections) were analyzed in this report.

Additionally, I analyzed 11 biracial elections for statewide elected offices in the same period. The elections that did not concern the electoral offices at issue in this matter are called exogenous elections which provide additional evidence to supplement that from endogenous elections, particularly because there is little data from endogenous recent elections. My exogenesis election analysis includes all biracial statewide general elections between 2014 and 2022, and they are the 2014 Secretary of State, the 2014 Lt. Governor, the 2014 State Auditor, the 2018 Lt. Governor, the 2018 State Auditor, the 2018 Public Service Commission election, the 2022 Gubernatorial election, the 2022 US Senate election, the 2022 Secretary of State election, the 2022 Attorney General election, and the 2022 Alabama Supreme Court election for Place 5 Associate Justice.

## VI. Opinions

Based on the data available at the time of writing this report, voting in the Greater Huntsville and Montgomery regions of Alabama during the last 10 years is “racially polarized” in that Black voters have expressed a clear preference for the same candidate, and in the elections analyzed the preferred candidate by Black voters was a Black candidate. Furthermore, this preference was not shared by the white voters who were the majority of the electorate. As a result, the Black preferred candidates were typically defeated in biracial elections in the Huntsville and Montgomery regions. Additionally, the Plaintiffs’ Illustrative Plan is more effective in providing Black voters opportunities to elect candidates of their choice than the Enacted Plan.

## VII. The Findings

As explained above, the selection of the elections for my RPV analysis is based on three critical criteria: 1) biracial elections involving at least one Black candidate and one white candidate; 2) endogenous biracial elections

supplemented by exogenous biracial elections; and 3) elections during the last 10 years. My analysis focuses on elections in the last 10 years as more recent elections are most probative in identifying RPV.<sup>5</sup>

#### A) Endogenous Elections

Table 1: Estimated Racial Support for Black Candidate in Endogenous Elections

Election	Black Candidate(s)	White Candidate(s)	% vote cast for Black Cand	Black Support for Black Cand (95% CI) <sup>6</sup>	White Support for Black Cand (95% CI)	Black-Cand Won?	RPV?
2022 SD2	Kim Lewis	Tom Butler	44.4%	63.0% (.52-.75)	23.9% (.12-.38)	No	Yes
2022 SD7	Korey Wilson	Sam Givhan	37.2%	82.9% (.74-.91)	21.3% (.16, .27)	No	Yes
2018 SD7	Deborah Barros	Sam Givhan	44.7	85.7 (.78-.94)	27.9 (.25-.30)	No	Yes

Table 1 shows the results of EI operations on the three endogenous elections in the Greater Huntsville region. To be more specific, the Black candidate, Kim Lewis, received 63.0% of votes cast by the Black voters and 23.9% by the white voters in the 2022 State Senate District 2 (SD2) election, i.e., there is empirical evidence to conclude the majority of Black voters were supportive of Lewis. On the other hand, the white support for Lewis is less than 24%. In the 2022 State Senate District 7 election, Korey Wilson, the Black candidate, received 82.9% of the votes from the Black voters and 21.3% from the white voters. In short, there is statistically significant evidence to conclude that both the 2022 SD2 and the 2022 SD7 elections were racially polarized. In the 2018 SD7 election, the Black candidate, Deborah Barros, received more than 85% of the Black support and only about 28% of the white support. It was also a racially polarized election.

Finally, as shown in Table 1, as a result of the high level RPV the Black candidates in all three elections were defeated.

#### B) Exogeneous Elections

<sup>5</sup> As a statistical rule, more recent elections help us understand what just happened and predict what will happen in the near future.

<sup>6</sup> See footnote 3 for the explanation of uncertainty estimates (i.e., 95% confidence interval)



Table 2: RPV in Huntsville Region in the 11 Biracial Elections

Election	Black Pref-Cand	White Pref-Cand	% vote cast for BPC	Black Support for Black Cand (95% CI) <sup>7</sup>	White Support for Black Cand (95% CI)	BPC Won in Huntsville Region?	RPV?
2022 Governor	Yolanda Flowers	Kay Ivey	26.6%	89.7% (81-94)	10.2% (8-14)	No	Yes
2022 US Senate	Will Boyd	Katie Britt	28.7%	82.2% (76-88)	14.0% (12-16)	No	Yes
2022 Attorney General	Wendell Major	Steve Marshall	29.4%	84.7% (78-90)	13.8% (12-16)	No	Yes
2022 Secretary of State	Pamela Laffitte	Wes Allen	29.2%	86.5% (81-91)	13.3% (12-15)	No	Yes
2022 Supreme Court, Place 5	Anita Kelly	Bradley Byrne	30.0%	86.4% (77-93)	15.4% (13-19)	No	Yes
2018 Lt Governor	Will Boyd	Will Ainsworth	34.6%	91.1% (80-96)	17.9% (16-22)	No	Yes
2018 State Auditor	Miranda Joseph	Jim Zigler	35.8%	92.8% (88-96)	18.4 (16-20)	No	Yes
2018 Public Service Commission, Place 1	Cara McClure	Jeremy Oden	35.7%	93.6% (88-97)	18.2% (15-20)	No	Yes
2014 Secretary of State	Lula Albert-Kaigler	John Merrill	29.0%	82.8% (71-92)	11.2% (9-13)	No	Yes
2014 Lt Governor	James Fields	Kay Ivey	29.7%	84.5% (72-93)	16.5% (15-18)	No	Yes
2014 State Audit	Miranda Joseph	Jim Zigler	30.6%	89.9% (82-94)	17.7% (17-19)	No	Yes

Tables 2 and 3 show the RPV analysis of the 11 biracial statewide elections in the Greater Huntsville and Montgomery regions. With respect to Huntsville, I combine the State Senate Districts 2, 3, 7, 8 and 9 to form a new aggregate dataset geographically located in the Greater Huntsville region. All exogeneous elections analyzed in this report showed a high level of racial polarized voting in the Greater Huntsville region, as shown in Table 2.

<sup>7</sup> The 95% confidence interval is shown in parenthesis.



Specifically, we see the three 2018 statewide elections with the Black voter support for the Black candidates as high as above 90% level whereas the white support for the Black candidates in those three elections was as low as below 20%. This level of RPV certainly shows that preferences of Black and white voters have been drastically different from each other. The Black-preferred-candidates (BPCs) have been uniformly Black candidates and the white-preferred-candidates (WPCs) have been consistently white candidates.

The other eight biracial elections were also highly racially polarized. Even in the 2022 US Senate election which had the lowest Black support for the Black candidate (Will Boyd) among all 11 elections, more than 80% of the Black voters voted for him whereas only 14% of the white voters cast their vote for him. Furthermore, all the BPCs lost in the Greater Huntsville region due to this high level of RPV. In sum, the above finding shows that there is a strong pattern of RPV in the Huntsville region that fits the requirements of Gingles II and III.

Table 3 shows the result of RPV analysis of the Greater Montgomery Area which contains State Senate Districts 25 and 26.

Table 3: RPV in Montgomery Region in the 11 Biracial Elections

Election	Black Pref-Cand	White Pref-Cand	% vote cast for BPC	Black Support for Black Cand (95% CI)	White Support for Black Cand (95% CI)	BPC Won in Montgomery Region?	RPV?
2022 Governor	Yolanda Flowers	Kay Ivey	46.3%	94.3% (91-97)	7.1% (5-10)	No	Yes
2022 US Senate	Will Boyd	Katie Britt	47.8%	95.0% (91-98)	9.2% (6-14)	No	Yes
2022 Attorney General	Wendell Major	Steve Marshall	48.1%	95.9% (92-98)	10.6% (6-15)	No	Yes
2022 Secretary of State	Pamela Laffitte	Wes Allen	48.6%	95.7% (92-97)	8.6% (6-13)	No	Yes
2022 Supreme Court, Place 5	Anita Kelly	Bradley Byrne	48.7%	95.6% (92-98)	7.6% (4-11)	No	Yes
2018 Lt Governor	Will Boyd	Will Ainsworth	53.7%	95.8% (94-97)	7.9% (5-1)	Yes	Yes

2018 State Auditor	Miranda Joseph	Jim Zigler	55.3%	92.8% (88-95)	8.3 (6-16)	Yes	Yes
2018 Public Service Commission, Place 1	Cara McClure	Jeremy Oden	54.9%	96.6% (94-98)	8.2% (5-13)	Yes	Yes
2014 Secretary of State	Lula Albert-Kaigler	John Merrill	49.2%	91.3% (87-95)	6.6% (4-10)	No	Yes
2014 Lt Governor	James Fields	Kay Ivey	49.9%	89.6% (81-95)	8.4% (4-12)	No	Yes
2014 State Audit	Miranda Joseph	Jim Zigler	50.3%	93.0% (90-96)	9.2% (6-14)	Yes	Yes

As shown in Table 3, all 11 biracial elections revealed a high level of RPV. The Black support for BPCs was more than 90% in all 11 elections except the 2014 Lt. Governor race, which saw the Black support for the BPC at 89.6%. On the contrary, white support for the BPCs was below 10% in all 11 biracial elections except for the 2022 Attorney General election which was only 10.06%.

BPCs lost 7 out of 11 times in these biracial elections in the Greater Montgomery Area due to the extremely high level of RPV. The four biracial elections in which the BPCs did win are the three 2018 elections and the 2014 State Auditor election. More specifically, the defeats of BPCs are all from SD25 where the non-Hispanic BVAP is only 28.2%.<sup>8</sup> On the other hand, the BPCs won all 11 biracial elections in SD26 where the non-Hispanic BVAP is 64.8%.

## VIII. Effectiveness Analysis

### 1. Background

An effectiveness analysis is a comparative study of two or more redistricting plans. This comparative study reports the different opportunities for racial minority voters (in this case, Black voters) to elect the candidates of their choice, given how the different redistricting plans have determined the racial configuration of a certain jurisdiction under legal dispute, and the extent to which RPV has affected the election outcomes in the given jurisdiction. My comparative study of the two redistricting plans is based on the same data from the eleven biracial statewide elections about which I presented my RPV findings above.

<sup>8</sup> To further examine the effect of RPV on SD25, I also ran the EI operations of all 11 biracial statewide elections inside SD25, and found that BPCs of those 11 elections were always defeated in SD25, a majority white district based on the Enacted Plan.

The above RPV analysis demonstrates that there is overwhelming Black unity in voting, whereas there is roughly 10-20% level of white crossover voting for Black candidates in biracial elections in the Huntsville region and less than 10% white crossover voting in the Montgomery region. Based on the extremely high level of RPV demonstrated above, it is more likely for white candidates to win in districts where they are the majority of the citizen VAP. Indeed, the Enacted State Senate map makes all five Huntsville districts (SDs 2, 3, 7, 8, and 9) contain a substantial white majority based on the 2022 Citizen Voting Age Population (CVAP) data.<sup>9</sup> In the Montgomery region, the Enacted State Senate map drew Black residents into SD26 to make it a 70.1% Black super majority in terms of CVAP, whereas the Black voters in the neighboring SD25 are only 29.2% of the CVAP. As a consequence, only one district in the two regions (SD26) provides a realistic chance to elect BPCs based on the Enacted map.

The Plaintiffs provided an alternative map that increased non-Hispanic Black CVAP in SD7 and SD25. To examine whether the changed racial configurations in the Plaintiffs' Proposed Plan concerning the Huntsville and Montgomery regions will improve the ability of Black voters to elect their candidates of choice, I provide the Effectiveness Analyses (EAs) below.

## 2. Effective Analysis Results

Table 4 compares the performance of the Enacted Plan with the Plaintiffs' Plan in SD2. With respect to the Enacted Plan, on average 29.3% of the white voters in the 11 elections voted for BPCs whereas 63.5% of the Black voters voted for the same BPCs. Thus, there is an overall RPV pattern in the Enacted Plan. A similar RPV pattern was present in the Plaintiffs' Plan, as 25.1% of the white voters, on average, voted for BPCs and 51.8% of the Black voters voted for them. The final row of Table 4 shows the total vote distributions. For example, BPCs won 42.5% of the total votes in the Enacted Plan which is certainly less than the vote share of the White-preferred-candidates (WPCs) at 56.5% level. In addition, Table 4 also reported that among 11 elections analyzed, the BPCs were defeated in 11 out of 11 elections in the Enacted Plan and 11 out of 11 times in the Plaintiffs' Plan. Clearly, BPCs essentially have no chance to win a biracial election in SD2, regardless of Enacted Plan or Plaintiffs' Plan.

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<sup>9</sup> My EA results are based on the 2022 CVAP data. I also verify my EA results by using the BVAP and any-part BVAP data from the 2020 census, and the conclusions are the same.

**Table 4: Overall Performance in SD2 based on 11 Elections, Compared**

<i>Enacted Plan</i>			
	Blk_pref_cand %	Wht_pref_cand %	BPC defeats
White	29.3	69.8	
Black	63.5	35.7	
Total	42.5	56.5	11/11

<i>Plaintiffs' Plan</i>			
	Blk_pref_cand %	Whte_pref_cand %	BPC defeats
White	25.1	73.9	
Black	51.8	47.3	
Total	36.1	63.2	11/11

Once I conducted EAs on all seven State Senate districts I analyzed (Tables 4 to 10), it became clear that the Plaintiffs' Plan is a much more effective plan at providing Black voters an opportunity to elect candidates of their choice than was the Enacted Plan. This is because the Enacted Plan provided Black voters a realistic chance to elect candidates of their choice in only one district (SD26) whereas the Plaintiffs' Plan will allow Black voters to realistically elect BPCs in two more districts, SDs 7 and 25, in addition to SD26. More specifically, BPCs won 11 out of 11 times in the Plaintiffs' Plan in SD7, and 0 out of 11 times in the Enacted Plan (see Table 6). The winning chance of BPCs is also 11 out of 11 times in SD25 in the Plaintiffs' Plan, and 0 out of 11 times according to the Enacted Plan for SD25 (see Table 9). In SD26, both Enacted and Plaintiffs' Plans elected BPCs 11 out of 11 times (see Table 10).

**Table 5: Overall Performance in SD3 based on 11 Elections, Compared**

<i>Enacted Plan</i>			
	Blk_pref_cand %	Wht_pref_cand %	BPC defeats
White	12.3	86.7	
Black	81.5	17.5	
Total	26.8	72.2	11/11

<i>Plaintiffs' Plan</i>			
	Blk_pref_cand %	Whte_pref_cand %	BPC defeats
White	9.9	89.1	
Black	58.0	41.1	
Total	15.6	83.5	11/11

**Table 6: Overall Performance in SD7 based on 11 Elections, Compared**

<i>Enacted Plan</i>			
	Blk_pref_cand %	Wht_pref_cand %	BPC defeats
White	21.6	77.4	
Black	89.7	9.3	
Total	38.1	60.9	11/11

<i>Plaintiffs' Plan</i>			
	Blk_pref_cand %	Whte_pref_cand %	BPC defeats
White	35.9	63.2	
Black	85.5	13.5	
Total	62.8	36.3	0/11

**Table 7: Overall Performance in SD8 based on 11 Elections, Compared**

<i>Enacted Plan</i>			
	Blk_pref_cand %	Wht_pref_cand %	BPC defeats
White	13.6	85.5	
Black	73.0	26.0	
Total	23.3	75.8	11/11

<i>Plaintiffs' Plan</i>			
	Blk_pref_cand %	Whte_pref_cand %	BPC defeats
White	11.8	87.2	
Black	50.0	49.3	
Total	19.8	79.3	11/11

**Table 8: Overall Performance in SD9 based on 11 Elections, Compared**

<i>Enacted Plan</i>			
	Blk_pref_cand %	Wht_pref_cand %	BPC defeats
White	11.2	88.0	
Black	65.2	33.9	
Total	18.5	80.5	11/11

<i>Plaintiffs' Plan</i>			
	Blk_pref_cand %	Whte_pref_cand %	BPC defeats
White	11.9	76.1	
Black	56.5	48.5	
Total	28.0	71.5	11/11

**Table 9: Overall Performance in SD25 based on 11 Elections, Compared**

<i>Enacted Plan</i>			
	Blk_pref_cand %	Wht_pref_cand %	BPC defeats
White	16.8	82.3	
Black	63.5	35.6	
Total	30.8	68.3	11/11

<i>Plaintiffs' Plan</i>			
	Blk_pref_cand %	Whte_pref_cand %	BPC defeats
White	20.1	79.0	
Black	88.5	10.6	
Total	53.1	46.2	0/11

**Table 10: Overall Performance in SD26 based on 11 Elections, Compared**

<i>Enacted Plan</i>			
	Blk_pref_cand %	Wht_pref_cand %	BPC defeats
White	27.0	72.0	
Black	93.2	6.0	
Total	71.5	27.5	0/11

<i>Plaintiffs' Plan</i>			
	Blk_pref_cand %	Whte_pref_cand %	BPC defeats
White	18.4	80.6	
Black	86.8	12.3	
Total	56.3	42.8	0/11

## IX. Conclusion

My empirical analyses clearly revealed that in the three endogenous elections and 11 exogenous elections analyzed by this report Black voters expressed a preference for Black candidates, and that preference was not shared by white majority voters in the Greater Huntsville and Montgomery regions. Despite the highly cohesive BVAP uniting behind the BPCs, the white majority voters formed as a voting bloc to typically defeat the BPCs in these elections.

Thus, my empirical analysis demonstrates that the characteristics of “racial polarization,” meaning Black voters tend to vote for the same candidate and the white majority votes as a block to usually defeat the BPCs, have

been met by Alabama's recent endogenous and exogenous elections in the Greater Huntsville and Montgomery regions.

Furthermore, my EA demonstrates that the Plaintiffs' Plan provides Black voters a realistic chance to elect candidate of their choice in two more State Senate districts (SD7 and SD25), in addition to SD26 where the Enacted Plan already allows the election of BPCs through packing Black voters in just one district.

X. Appendix

Appendix 1 is my curriculum vita.

Appendix 2 is the list of voting-rights cases for which I served as an expert witness.



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



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Dr. Baodong Liu

Executed on: February 2, 2024