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U.S. DISTRICT COURT  
N.D. OF ALABAMA2021 Dec-27 PM 01:06  
U.S. DISTRICT COURT  
N.D. OF ALABAMA**Proposed Alabama Senate District 18 Functionality Examination****2020 Presidential Election**

Using a statistical method known as Ecological Inference we can derive vote estimates by racial group from precinct-level data. The estimates in Table 1 below for proposed Senate District 18 are based on the results from the 2020 presidential contest.

Table 1. Estimated Vote Share by Race, 2020 Presidential Election

Racial Group	Democratic Vote (Biden)	Republican Vote (Trump)	Independent Vote (Jorgenson)
Black	.9756 [.9630, .9851]	.0206 [.0112, .0330]	.0038 [.0017, .0066]
White	.5513 [.5281, .5742]	.4374 [.4144, .4607]	.0113 [.0060, .0178]
Other	.2204 [.0640, .4586]	.5689 [.3157, .7473]	.2107 [.1318, .3012]

Notes: Entries are EI point estimates with 95% confidence intervals in brackets.

**2018 Gubernatorial Election**

The estimates in Table 2 below for proposed House District 83 are based on the results from the 2018 gubernatorial contest.

Table 2. Estimated Vote Share by Race, 2018 Gubernatorial Election

Racial Group	Democratic Vote (Maddox)	Republican Vote (Ivey)
Black	.9690 [.9545, .9806]	.0310 [.0194, .0455]
White	.6618 [.6401, .6869]	.3382 [.3131, .3599]
Other	.3812 [.1097, .7060]	.6188 [.2940, .8903]

Notes: Entries are EI point estimates with 95% confidence intervals in brackets.

**Summary**

From the analyses run, there is no racially polarized voting present in proposed SD 18. A majority of both black and white voters supported Biden in 2020 and Maddox in 2018. Thus, there is no empirical support to substantiate the second prong of the *Gingles* test.

**Proposed Alabama House District 32 Functionality Examination**

**2020 Presidential Election**

Using a statistical method known as Ecological Inference we can derive vote estimates by racial group from precinct-level data. The estimates in Table 1 below for proposed House District 32 are based on the results from the 2020 presidential contest.

Table 1. Estimated Vote Share by Race, 2020 Presidential Election

Racial Group	Democratic Vote (Biden)	Republican Vote (Trump)	Independent Vote (Jorgenson)
Black	.9493 [.8923, .9839]	.0468 [.0124, .1035]	.0039 [.0010, .0086]
White	.1103 [.0793, .1468]	.8872 [.8509, .9183]	.0024 [.0007, .0050]
Other	.3415 [.0955, .5951]	.3077 [.0833, .5610]	.3508 [.2039, .5234]

Notes: Entries are EI point estimates with 95% confidence intervals in brackets.

As displayed in Table 2 below, the proposed HD 32 is 48.81% black voting age population; 46.04% white voting age population, and 5.15% other voting age population. These figures represent the potential voting electorate for HD 32.

Table 2. Racial Breakdown for Proposed HD 32

Racial Group	Percent	Number of Voters
Black VAP	48.81%	17,757
White VAP	46.04%	16,749
Other VAP	5.15%	1,874
Total		36,380

Next, I will make use of historical registration and turnout data from the Alabama Secretary of State in order to estimate the number of each racial group. Data in Table 3 below are from the 2020 general election. The table below indicates what the electorate in proposed HD 32 might resemble in a general election scenario.

Table 3. Turnout by Race for Proposed HD 32

Racial Group	Electorate	Turnout Percent	Number of Voters
Black VAP	17,757	53.75%	9,544
White VAP	16,749	62.51%	10,470
Other VAP	1,874	42.15%	790
Total	36,380		20,804

Having come up with an estimate of what the electorate for proposed HD 32 might resemble, one can now combine these data with the estimated vote percentages by race in Table 1 in order to estimate vote shares by party (see Table 4).

1 Table 4. Estimated Vote by Party for Proposed HD 32

	(D)	(R)	(I)
Black	9,061	447	37
White	1,155	9,288	25
Other	270	243	277
Total	10,485	9,978	339
Vote Percentage	50.40%	47.96%	1.63%

2  
3 Having produced an estimate of the number of Democratic votes, the last step in the process  
4 would be to simply divide this number by the size of the estimated electorate (10,485/20,804) in  
5 order to determine the percentage of votes a Democratic candidate would receive in proposed  
6 HD 32. At 48.81% BVAP, proposed HD 32 would yield an estimated Democratic vote  
7 percentage of **50.40%** based on the results of the 2020 presidential election.

8

9 **2018 Gubernatorial Election**

10 The estimates in Table 5 below for proposed House District 32 are based on the results from the  
11 2018 gubernatorial contest.

12

13 Table 5. Estimated Vote Share by Race, 2018 Gubernatorial Election

Racial Group	Democratic Vote (Maddox)	Republican Vote (Ivey)
Black	.9386 [.8800, .9805]	.0614 [.0195, .1200]
White	.1922 [.1655, .252]	.8078 [.7748, .8345]
Other	.5202 [.1672, .8753]	.4798 [.1247, .8328]

14 Notes: Entries are EI point estimates with 95% confidence intervals in brackets.

15

16 As displayed in Table 6 below, the proposed HD 32 is 48.81% black voting age population;  
17 46.04% white voting age population, and 5.15% other voting age population. These figures  
18 represent the potential voting electorate for HD 32.

19

20 Table 6. Racial Breakdown for Proposed HD 32

Racial Group	Percent	Number of Voters
Black VAP	48.81%	17,757
White VAP	46.04%	16,749
Other VAP	5.15%	1,874
Total		36,380

21

22 Next, I will make use of historical registration and turnout data from the Alabama Secretary of  
23 State in order to estimate the number of each racial group. Data in Table 7 below are from the  
24 2018 general election. The table below indicates what the electorate in proposed HD 32 might  
25 resemble in a general election scenario.

26

Table 7. Turnout by Race for Proposed HD 32

Racial Group	Electorate	Turnout Percent	Number of Voters
Black VAP	17,757	0.4397	7,808
White VAP	16,749	0.4834	8,097
Other VAP	1,874	0.3007	563
Total	36,380		16,468

Having come up with an estimate of what the electorate for proposed HD 32 might resemble, one can now combine these data with the estimated vote percentages by race in Table 5 in order to estimate vote shares by party (see Table 8).

Table 8. Estimated Vote by Party for Proposed HD 32

	(D)	(R)
Black	7,328	479
White	1,556	6540
Other	293	270
Total	9,178	7,290
Vote Percentage	55.73%	44.27%

Having produced an estimate of the number of Democratic votes, the last step in the process would be to simply divide this number by the size of the estimated electorate (9,178/16,468) in order to determine the percentage of votes a Democratic candidate would receive in proposed HD 32. At 48.81% BVAP, proposed HD 32 would yield an estimated Democratic vote percentage of **55.73%** based on the results of the 2018 gubernatorial election.

### Summary

EI point estimates do come with a degree of uncertainty. Knowing this, a 95% confidence interval can be calculated (the assumption being that one can be 95% certain that the true value of the point estimate lies within the range of the confidence interval). If we recalculate the Democratic vote share for proposed HD 32 using the lower bounds for the Democratic vote share estimates by racial group (see Tables 1 and 5), then the estimated Democratic vote in the district drops to 45.29% using 2020 election data or 50.43% using 2018 election data.

If the Black VAP percentage of HD 32 is increased to 51.00% (and the white VAP concomitantly lowered to 43.85%), using the 2020 presidential election as an example, the estimated Democratic vote share in proposed HD 32 would increase to 52.09%.

**Proposed Alabama House District 68 Functionality Examination****2020 Presidential Election**

Using a statistical method known as Ecological Inference we can derive vote estimates by racial group from precinct-level data. The estimates in Table 1 below for proposed House District 68 are based on the results from the 2020 presidential contest.

Table 1. Estimated Vote Share by Race, 2020 Presidential Election

Racial Group	Democratic Vote (Biden)	Republican Vote (Trump)	Independent Vote (Jorgenson)
Black	.9703 [.9459, .9865]	.0255 [.0092, .0500]	.0042 [.0023, .0066]
White	.0322 [.149, .0563]	.9652 [.9411, .9824]	.0026 [.0013, .0043]
Other	.4680 [.1909, .7229]	.3717 [.1313, .6484]	.1603 [.0786, .2751]

Notes: Entries are EI point estimates with 95% confidence intervals in brackets.

As displayed in Table 2 below, the proposed HD 68 is 48.30% black voting age population; 48.23% white voting age population, and 3.47% other voting age population. These figures represent the potential voting electorate for HD 68.

Table 2. Racial Breakdown for Proposed HD 68

Racial Group	Percent	Number of Voters
Black VAP	48.30%	18,311
White VAP	48.23%	18,285
Other VAP	3.47%	1,316
Total		37,912

Next, I will make use of historical registration and turnout data from the Alabama Secretary of State in order to estimate the number of each racial group. Data in Table 3 below are from the 2020 general election. The table below indicates what the electorate in proposed HD 68 might resemble in a general election scenario.

Table 3. Turnout by Race for Proposed HD 68

Racial Group	Electorate	Turnout Percent	Number of Voters
Black VAP	18,311	59.01%	10,806
White VAP	18,285	69.19%	12,651
Other VAP	1,316	40.99%	539
Total	37,912		23,996

Having come up with an estimate of what the electorate for proposed HD 68 might resemble, one can now combine these data with the estimated vote percentages by race in Table 1 in order to estimate vote shares by party (see Table 4).

1 Table 4. Estimated Vote by Party for Proposed HD 68

	(D)	(R)	(I)
Black	10,485	276	45
White	407	12,211	33
Other	252	200	86
Total	11,144	12,687	165
Vote Percentage	46.44%	52.87%	0.69%

2  
3 Having produced an estimate of the number of Democratic votes, the last step in the process  
4 would be to simply divide this number by the size of the estimated electorate (11,144/23,996) in  
5 order to determine the percentage of votes a Democratic candidate would receive in proposed  
6 HD 68. At 48.30% BVAP, proposed HD 68 would yield an estimated Democratic vote  
7 percentage of **46.44%** based on the results of the 2020 presidential election.

8

9 **2018 Gubernatorial Election**

10 The estimates in Table 5 below for proposed House District 68 are based on the results from the  
11 2018 gubernatorial contest.

12

13 Table 5. Estimated Vote Share by Race, 2018 Gubernatorial Election

Racial Group	Democratic Vote (Maddox)	Republican Vote (Ivey)
Black	.9665 [.9435, .9828]	.0335 [.0172, .0566]
White	.0827 [.0627, .1050]	.9173 [.8950, .9373]
Other	.5173 [.1890, .8307]	.4827 [.1693, .8110]

14 Notes: Entries are EI point estimates with 95% confidence intervals in brackets.

15

16 As displayed in Table 6 below, the proposed HD 68 is 48.30% black voting age population;  
17 48.23% white voting age population, and 3.47% other voting age population. These figures  
18 represent the potential voting electorate for HD 68.

19

20 Table 6. Racial Breakdown for Proposed HD 68

Racial Group	Percent	Number of Voters
Black VAP	48.30%	18,311
White VAP	48.23%	18,285
Other VAP	3.47%	1,316
Total		37,912

21

22 Next, I will make use of historical registration and turnout data from the Alabama Secretary of  
23 State in order to estimate the number of each racial group. Data in Table 7 below are from the  
24 2018 general election. The table below indicates what the electorate in proposed HD 68 might  
25 resemble in a general election scenario.

26

1 Table 7. Turnout by Race for Proposed HD 68

Racial Group	Electorate	Turnout Percent	Number of Voters
Black VAP	18,311	50.45%	9,239
White VAP	18,285	57.21%	10,461
Other VAP	1,316	32.44%	427
Total	37,912		20,127

2  
3 Having come up with an estimate of what the electorate for proposed HD 68 might resemble, one  
4 can now combine these data with the estimated vote percentages by race in Table 1 in order to  
5 estimate vote shares by party (see Table 8).  
6

7 Table 8. Estimated Vote by Party for Proposed HD 68

	(D)	(R)
Black	8,929	310
White	865	9,596
Other	221	206
Total	10,015	10,112
Vote Percentage	49.76%	50.24%

8  
9 Having produced an estimate of the number of Democratic votes, the last step in the process  
10 would be to simply divide this number by the size of the estimated electorate (10,015/20,127) in  
11 order to determine the percentage of votes a Democratic candidate would receive in proposed  
12 HD 68. At 48.30% BVAP, proposed HD 68 would yield an estimated Democratic vote  
13 percentage of 49.76% based on the results of the 2018 gubernatorial election.  
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#### 16 Summary

17 Extremely high levels of racially polarized voting are present in proposed HD 68. In addition,  
18 analysis using turnout data indicate that using the 2020 presidential returns or the 2018  
19 gubernatorial returns would result in a Democratic vote share of less than 50.01%.  
20

21 One additional point to mention concerns the Census Bureau's use of differential privacy as  
22 related to various types of data, including racial data. Due to the application of this technique, the  
23 actual racial makeup in a specific Census geography is not ascertainable. So, a district drawn to  
24 be 51.0% black voting age population may in reality fall above or below that figure. There is no  
25 margin of error for the Census Bureau's redistricting data, so it is impossible to know the  
26 precision of these data.  
27

28 If the Black VAP percentage is increased to 54.00% (and the white VAP concomitantly lowered  
29 to 42.53%), using the 2020 presidential election as an example, the estimated Democratic-vote  
30 share in proposed HD 68 would increase to 51.39%.



# Proposed Alabama House District 82 Functionality Examination

## 2020 Presidential Election

Using a statistical method known as Ecological Inference we can derive vote estimates by racial group from precinct-level data. The estimates in Table 1 below for proposed House District 82 are based on the results from the 2020 presidential contest.

Table 1. Estimated Vote Share by Race, 2020 Presidential Election

Racial Group	Democratic Vote (Biden)	Republican Vote (Trump)	Independent Vote (Jorgenson)
Black	.9495 [.8909, .9833]	.0450 [.0122, .1033]	.0054 [.0008, .0175]
White	.2321 [.1822, .2880]	.7634 [.7076, .8133]	.0045 [.0004, .0419]
Other	.3469 [.0703, .6552]	.3632 [.0808, .6700]	.2899 [.1052, .4935]

Notes: Entries are EI point estimates with 95% confidence intervals in brackets.

As displayed in Table 2 below, the proposed HD 82 is 50.85% black voting age population; 39.28% white voting age population, and 9.87% other voting age population. These figures represent the potential voting electorate for HD 82.

Table 2. Racial Breakdown for Proposed HD 82

Racial Group	Percent	Number of Voters
Black VAP	50.85%	19,609
White VAP	39.28%	15,148
Other VAP	9.87%	3,806
Total		38,563

Next, I will make use of historical registration and turnout data from the Alabama Secretary of State in order to estimate the number of each racial group. Data in Table 3 below are from the 2020 general election. The table below indicates what the electorate in proposed HD 82 might resemble in a general election scenario.

Table 3. Turnout by Race for Proposed HD 82

Racial Group	Electorate	Turnout Percent	Number of Voters
Black VAP	19,609	48.75%	9,560
White VAP	15,148	59.87%	9,069
Other VAP	3,806	40.38%	1,537
Total	38,563		20,166

Having come up with an estimate of what the electorate for proposed HD 82 might resemble, one can now combine these data with the estimated vote percentages by race in Table 1 in order to estimate vote shares by party (see Table 4).



1 Table 4. Estimated Vote by Party for Proposed HD 82

	(D)	(R)	(I)
Black	9,077	430	52
White	2105	6,923	41
Other	533	558	446
Total	11,715	7,912	538
Vote Percentage	58.09%	39.23%	2.67%

2  
3 Having produced an estimate of the number of Democratic votes, the last step in the process  
4 would be to simply divide this number by the size of the estimated electorate (11,715/20,166) in  
5 order to determine the percentage of votes a Democratic candidate would receive in proposed  
6 HD 82. At 50.85% BVAP, proposed HD 82 would yield an estimated Democratic vote  
7 percentage of **58.09%** based on the results of the 2020 presidential election.

8

9 **2018 Gubernatorial Election**

10 The estimates in Table 5 below for proposed House District 82 are based on the results from the  
11 2018 gubernatorial contest.

12

13 Table 5. Estimated Vote Share by Race, 2018 Gubernatorial Election

Racial Group	Democratic Vote (Maddox)	Republican Vote (Ivey)
Black	.9221 [.8547, .9638]	.0779 [.0362, .1453]
White	.3260 [.2837, .3846]	.6740 [.6154, .7163]
Other	.5033 [.1154, .8904]	.4967 [.1096, .8846]

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Notes: Entries are EI point estimates with 95% confidence intervals in brackets.

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As displayed in Table 6 below, the proposed HD 82 is 50.85% black voting age population;  
39.28% white voting age population, and 9.87% other voting age population. These figures  
represent the potential voting electorate for HD 82.

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Table 6. Racial Breakdown for Proposed HD 82

Racial Group	Percent	Number of Voters
Black VAP	50.85%	19,609
White VAP	39.28%	15,148
Other VAP	9.87%	3,806
Total		38,563

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Next, I will make use of historical registration and turnout data from the Alabama Secretary of  
State in order to estimate the number of each racial group. Data in Table 7 below are from the  
2018 general election. The table below indicates what the electorate in proposed HD 82 might  
resemble in a general election scenario.

1 Table 7. Turnout by Race for Proposed HD 82

Racial Group	Electorate	Turnout Percent	Number of Voters
Black VAP	19,609	39.74%	7,793
White VAP	15,148	44.99%	6,815
Other VAP	3,806	29.53%	1,124
Total	38,563		15,732

2

3 Having come up with an estimate of what the electorate for proposed HD 82 might resemble, one  
 4 can now combine these data with the estimated vote percentages by race in Table 1 in order to  
 5 estimate vote shares by party (see Table 8).  
 6

7 Table 8. Estimated Vote by Party for Proposed HD 82

	(D)	(R)
Black	7,186	607
White	2,222	4,593
Other	566	558
Total	9,973	5,759
Vote Percentage	63.39%	36.61%

8

9 Having produced an estimate of the number of Democratic votes, the last step in the process.  
 10 would be to simply divide this number by the size of the estimated electorate (9,973/15,732) in  
 11 order to determine the percentage of votes a Democratic candidate would receive in proposed  
 12 HD 82. At 50.85% BVAP, proposed HD 82 would yield an estimated Democratic vote  
 13 percentage of **63.39%** based on the results of the 2018 gubernatorial election.  
 14

15 One additional point to mention concerns the Census Bureau's use of differential privacy as  
 16 related to various types of data, including racial data. Due to the application of this technique, the  
 17 actual racial makeup in a specific Census geography is not ascertainable. So, a district drawn to  
 18 be 51.0% black voting age population may in reality fall above or below that figure. There is no  
 19 margin of error for the Census Bureau's redistricting data, so it is impossible to know the  
 20 precision of these data.  
 21  
 22

23 **Summary**

24 Proposed HD 82, drawn race-blind, is 50.85% BVAP. Racially polarized voting patterns are  
 25 present in proposed HD82. Nevertheless, based on analyses of the 2020 presidential and the 2018  
 26 gubernatorial election, the estimated Democratic vote share ranged between 58.1% and 63.4%.

**Proposed Alabama House District 83 Functionality Examination**

**2020 Presidential Election**

Using a statistical method known as Ecological Inference we can derive vote estimates by racial group from precinct-level data. The estimates in Table 1 below for proposed House District 83 are based on the results from the 2020 presidential contest.

Table 1. Estimated Vote Share by Race, 2020 Presidential Election

Racial Group	Democratic Vote (Biden)	Republican Vote (Trump)	Independent Vote (Jorgenson)
Black	.9394 [.8648, .9844]	.0541 [.0098, .1290]	.0065 [.0012, .0150]
White	.2034 [.1373, .2728]	.7921 [.7228, .8577]	.0046 [.0007, .0107]
Other	.4136 [.1233, .7056]	.3761 [.1076, .6755]	.2103 [.0688, .3735]

Notes: Entries are EI point estimates with 95% confidence intervals in brackets.

As displayed in Table 2 below, the proposed HD 83 is 50.27% black voting age population; 40.31% white voting age population, and 9.42% other voting age population. These figures represent the potential voting electorate for HD 83.

Table 2. Racial Breakdown for Proposed HD 83

Racial Group	Percent	Number of Voters
Black VAP	50.27%	18,876
White VAP	40.31%	15,136
Other VAP	9.42%	3,537
Total		37,549

Next, I will make use of historical registration and turnout data from the Alabama Secretary of State in order to estimate the number of each racial group. Data in Table 3 below are from the 2020 general election. The table below indicates what the electorate in proposed HD 83 might resemble in a general election scenario.

Table 3. Turnout by Race for Proposed HD 83

Racial Group	Electorate	Turnout Percent	Number of Voters
Black VAP	18,876	49.67%	9,375
White VAP	15,136	59.92%	9,069
Other VAP	3,537	40.59%	1,436
Total	37,549		19,880

Having come up with an estimate of what the electorate for proposed HD 83 might resemble, one can now combine these data with the estimated vote percentages by race in Table 1 in order to estimate vote shares by party (see Table 4).

1 Table 4. Estimated Vote by Party for Proposed HD 83

	(D)	(R)	(I)
Black	8,807	507	61
White	1,845	7,184	42
Other	594	540	302
Total	11,245	8,231	405
Vote Percentage	56.57%	41.40%	2.04%

2  
3 Having produced an estimate of the number of Democratic votes, the last step in the process  
4 would be to simply divide this number by the size of the estimated electorate (11,245/19,880) in  
5 order to determine the percentage of votes a Democratic candidate would receive in proposed  
6 HD 83. At 50.27% BVAP, proposed HD 83 would yield an estimated Democratic vote  
7 percentage of **56.57%** based on the results of the 2020 presidential election.  
8

9 **2018 Gubernatorial Election**

10 The estimates in Table 5 below for proposed House District 83 are based on the results from the  
11 2018 gubernatorial contest.  
12

13 Table 5. Estimated Vote Share by Race, 2018 Gubernatorial Election

Racial Group	Democratic Vote (Maddox)	Republican Vote (Ivey)
Black	.9486 [.8910, .9848]	.0514 [.0152, .1090]
White	.2113 [.1679, .2702]	.7887 [.7298, .8321]
Other	.4914 [.1347, .8402]	.5086 [.1598, .8653]

14 Notes: Entries are EI point estimates with 95% confidence intervals in brackets.  
15

16 As displayed in Table 6 below, the proposed HD 83 is 50.27% black voting age population;  
17 40.31% white voting age population, and 9.42% other voting age population. These figures  
18 represent the potential voting electorate for HD 83.  
19

20 Table 6. Racial Breakdown for Proposed HD 83

Racial Group	Percent	Number of Voters
Black VAP	50.27%	18,876
White VAP	40.31%	15,136
Other VAP	9.42%	3,537
Total		37,549

21  
22 Next, I will make use of historical registration and turnout data from the Alabama Secretary of  
23 State in order to estimate the number of each racial group. Data in Table 7 below are from the  
24 2018 general election. The table below indicates what the electorate in proposed HD 83 might  
25 resemble in a general election scenario.  
26

1 Table 7. Turnout by Race for Proposed HD 83

Racial Group	Electorate	Turnout Percent	Number of Voters
Black VAP	18,876	39.62%	7,479
White VAP	15,136	47.07%	7,124
Other VAP	3,537	31.80%	1,125
Total	37,549		15,728

2  
3 Having come up with an estimate of what the electorate for proposed HD 83 might resemble, one  
4 can now combine these data with the estimated vote percentages by race in Table 1 in order to  
5 estimate vote shares by party (see Table 8).  
6

7 Table 8. Estimated Vote by Party for Proposed HD 83

	(D)	(R)
Black	7,095	384
White	1,505	5,619
Other	553	572
Total	9,153	6,575
Vote Percentage	58.19%	41.81%

8  
9 Having produced an estimate of the number of Democratic votes, the last step in the process  
10 would be to simply divide this number by the size of the estimated electorate (9,153/15,728) in  
11 order to determine the percentage of votes a Democratic candidate would receive in proposed  
12 HD 83. At 50.27% BVAP, proposed HD 83 would yield an estimated Democratic vote  
13 percentage of **58.19%** based on the results of the 2018 gubernatorial election.  
14

15 One additional point to mention concerns the Census Bureau's use of differential privacy as  
16 related to various types of data, including racial data. Due to the application of this technique, the  
17 actual racial makeup in a specific Census geography is not ascertainable. So, a district drawn to  
18 be 51.0% black voting age population may in reality fall above or below that figure. There is no  
19 margin of error for the Census Bureau's redistricting data, so it is impossible to know the  
20 precision of these data.  
21

## 22 Summary

23 Proposed HD 83, drawn race-blind, is 50.27% BVAP. Racially polarized voting patterns are  
24 present in proposed HD 83. Nevertheless, based on analyses of the 2020 presidential and the  
25 2018 gubernatorial election, the estimated Democratic vote share ranged between 56.6% and  
26 58.2%.

**Proposed Alabama SBOE District 4 Functionality Examination****2020 Presidential Election**

Using a statistical method known as Ecological Inference we can derive vote estimates by racial group from precinct-level data. The estimates in Table 1 below for proposed SBOE District 4 are based on the results from the 2020 presidential contest.

Table 1. Estimated Vote Share by Race, 2020 Presidential Election

Racial Group	Democratic Vote (Biden)	Republican Vote (Trump)	Independent Vote (Jorgenson)
Black	.9814 [.9749, .9866]	.0160 [.0108, .0225]	.0026 [.0018, .0035]
White	.2150 [.2014, .2288]	.7796 [.7659, .7934]	.0053 [.0039, .0068]
Other	.3328 [.1263, .5388]	.3493 [.1587, .5305]	.3179 [.2365, .4541]

Notes: Entries are EI point estimates with 95% confidence intervals in brackets.

As displayed in Table 2 below, the proposed SBOE 4 is 51.21% black voting age population; 41.03% white voting age population, and 7.76% other voting age population. These figures represent the potential voting electorate for SBOE 4.

Table 2. Racial Breakdown for Proposed SBOE 4

Racial Group	Percent	Number of Voters
Black VAP	51.21%	243,017
White VAP	41.03%	194,707
Other VAP	7.76%	36,825
Total		474,549

Next, I will make use of historical registration and turnout data from the Alabama Secretary of State in order to estimate the number of each racial group. Data in Table 3 below are from the 2020 general election. The table below indicates what the electorate in proposed SBOE 4 might resemble in a general election scenario.

Table 3. Turnout by Race for Proposed SBOE 4

Racial Group	Electorate	Turnout Percent	Number of Voters
Black VAP	243,017	60.50%	147,026
White VAP	194,707	61.72%	120,167
Other VAP	36,825	46.77%	17,223
Total	474,549		284,415

Having come up with an estimate of what the electorate for proposed SBOE 4 might resemble, one can now combine these data with the estimated vote percentages by race in Table 1 in order to estimate votes shares by party (see Table 4).

1 Table 4. Estimated Vote by Party for Proposed SBOE 4

	(D)	(R)	(I)
Black	144,292	2,352	382
White	25,836	93,682	637
Other	5,732	6,016	5,475
Total	175,859	102,050	6,494
Vote Percentage	61.83%	35.88%	2.28%

2  
3 Having produced an estimate of the number of Democratic votes, the last step in the process  
4 would be to simply divide this number by the size of the estimated electorate (175,859/284,415)  
5 in order to determine the percentage of votes a Democratic candidate would receive in proposed  
6 SBOE 4. At 51.21% BVAP, proposed SBOE 4 would yield an estimated Democratic vote  
7 percentage of **61.83%** based on the results of the 2020 presidential election.  
8

9 **Summary**

10 Proposed SBOE 4, drawn race-blind, is 51.21% BVAP. Racially polarized voting patterns are  
11 present in proposed SBOE 4. Based on the analysis of the 2020 presidential election, the  
12 estimated Democratic vote share is 61.83%.  
13



**Proposed Alabama SBOE District 5 Functionality Examination****2020 Presidential Election**

Using a statistical method known as Ecological Inference we can derive vote estimates by racial group from precinct-level data. The estimates in Table 1 below for proposed SBOE District 5 are based on the results from the 2020 presidential contest.<sup>1</sup>

Table 1. Estimated Vote Share by Race, 2020 Presidential Election

Racial Group	Democratic Vote (Biden)	Republican Vote (Trump)	Independent Vote (Jorgenson)
Black	.9844 [.9809, .9874]	.0119 [.0092, .0154]	.0036 [.0028, .0046]
White	.0775 [.0680, .0880]	.9185 [.9080, .9280]	.0040 [.0030, .0051]
Other	.5175 [.3277, .6669]	.2032 [.0626, .3858]	.2792 [.2368, .3325]

Notes: Entries are EI point estimates with 95% confidence intervals in brackets.

As displayed in Table 2 below, the proposed SBOE 5 is 51.27% black voting age population; 42.70% white voting age population, and 6.03% other voting age population. These figures represent the potential voting electorate for SBOE 5.

Table 2. Racial Breakdown for Proposed SBOE 5

Racial Group	Percent	Number of Voters
Black VAP	51.27%	247,203
White VAP	42.70%	205,882
Other VAP	6.03%	29,074
Total		482,159

Next, I will make use of historical registration and turnout data from the Alabama Secretary of State in order to estimate the number of each racial group. Data in Table 3 below are from the 2020 general election. The table below indicates what the electorate in proposed SBOE 5 might resemble in a general election scenario.

Table 3. Turnout by Race for Proposed SBOE 5

Racial Group	Electorate	Turnout Percent	Number of Voters
Black VAP	247,203	54.70%	135,208
White VAP	205,882	65.00%	133,827
Other VAP	29,074	44.13%	12,830
Total	482,159		281,866

Having come up with an estimate of what the electorate for proposed SBOE 5 might resemble, one can now combine these data with the estimated vote percentages by race in Table 1 in order to estimate votes shares by party (see Table 4).

<sup>1</sup>Due to data limitations, Washington County was included in the analysis as a pseudo-precinct.

1  
2 Table 4. Estimated Vote by Party for Proposed SBOE 5

	(D)	(R)	(I)
Black	133,099	1,609	487
White	10,372	122,921	535
Other	6,640	2,607	3,582
Total	150,110	127,137	4,604
Vote Percentage	53.26%	45.11%	1.63%

3  
4 Having produced an estimate of the number of Democratic votes, the last step in the process  
5 would be to simply divide this number by the size of the estimated electorate (150,110/281,866)  
6 in order to determine the percentage of votes a Democratic candidate would receive in proposed  
7 SBOE 5. At 51.27% BVAP, proposed SBOE 5 would yield an estimated Democratic vote  
8 percentage of **53.26%** based on the results of the 2020 presidential election.

9  
10 **Summary**

11 Proposed SBOE 5, drawn race-blind, is 51.21% BVAP. Extremely high levels of racially  
12 polarized voting are present in proposed SBOE 5. Based on the analysis of the 2020 presidential  
13 election, the estimated Democratic vote share is 53.26%.<sup>2</sup>  
14

<sup>2</sup>If we recalculate the Democratic vote share for proposed SBOE 5 using the lower bounds for the Democratic vote share estimates by racial group (see Tables 1 and 5), then the estimated Democratic vote in the district still constitutes a majority (51.76%) using 2020 election data.