IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

FAIR FIGHT ACTION, *et al.*
 	
    Plaintiffs,
 	
    v.
 	
BRAD RAFFENSPERGER, *et al,*
 	
    Defendants.
	CIVIL ACTION
	
	FILE NO. 1:18-cv-05391-SCJ

Expert Report of Sean P. Trende

I, Sean P. Trende, do hereby declare the following:

1.   I am over 18 years of age and am competent to testify regarding the matters discussed in this declaration.

2.   My areas of expertise include political history, United States voting laws, redistricting, and the study of campaigns and elections.

3.   I have been retained in this matter to provide expert testimony responding to the report of Dr. Stephen C. Graves. All opinions contained in this declaration are offered to a reasonable degree of professional certainty.

4.   My *curriculum vitae* is attached to this declaration as **Exhibit 1.**

EXPERT CREDENTIALS

5.   I have studied and followed United States elections on both a part-time and full-time basis for almost two decades.

6.   I received a B.A. from Yale University in 1995, with a double major in history and political science.

7.   I received a J.D. from Duke University in 2001.

8.   I also received an M.A. from Duke University in 2001, in political science.

9.   I received a Master's in Applied Statistics from The Ohio State University in 2019.

10.   I am currently enrolled as a doctoral candidate in political science at The Ohio State University. I have completed all of my coursework and have passed comprehensive examinations in both methods and American Politics.

11.   I joined RealClearPolitics in January of 2009. I assumed a fulltime position with RealClearPolitics in March of 2010. My title is Senior Elections Analyst. RealClearPolitics is a company of around 40 employees, with offices in Washington D.C. It produces one of the most heavily trafficked political websites in the world, which serves as a one-stop shop for political analysis from all sides of the political spectrum and is recognized as a pioneer in the field of poll aggregation. It produces original content, including both data analysis and traditional reporting. It is routinely cited by the most influential voices in politics, including David Brooks of *The New York Times*, Brit Hume of *Fox News*, Michael Barone of *The Almanac of American Politics*, Paul Gigot of *The Wall Street Journal*, and Peter Beinart of *The Atlantic*.

12.   My main responsibilities with RealClearPolitics consist of tracking, analyzing, and writing about elections. I collaborate in rating the competitiveness of Presidential, Senate, House, and gubernatorial races. As a part of carrying out these responsibilities, I have studied and written

extensively about demographic trends in the country, exit poll data at the state and federal level, public opinion polling, and voter turnout and voting behavior.

13.   I am currently the Gerald R. Ford Visiting Scholar at the American Enterprise Institute, where my publications will focus on demographic changes and American elections.

14.   I served as a Senior Columnist for Dr. Larry Sabato's "Crystal Ball" from January 2014 through the end of 2016. I had to stop writing for the Crystal Ball because schoolwork was taking up too much of my time.

15.   I am the author of *The Lost Majority: Why the Future of Government is up For Grabs and Who Will Take It.* The book offers a revisionist take on realignment theory. It argues that realignments are a poor concept that should be abandoned. As part of this analysis, it conducts a thorough analysis of demographic and political trends beginning around 1920 and continuing through the modern times, and notes the effect that the Democrats' increasingly compact coalition has on their prospects for the House.

16.   I also authored a chapter in Dr. Larry Sabato's *Barack Obama and the New America: The 2012 Election and the Changing Face of Politics*, which discussed the demographic shifts accompanying the 2012 elections. I further authored a chapter in Dr. Sabato's *The Surge: 2014's Big GOP Win and What It Means for the Next Presidential Election*, which discusses demographics and Electoral College shifts. I authored a chapter in Dr. Sabato's *Trumped: The 2016 Election That Broke All The Rules.* I authored a chapter in David Schultz and Rafael Jacob's *Presidential Swing States*, covering Ohio politics and its political subdivisions. Finally, I have been asked to author a chapter for Dr. Sabato's forthcoming book on the 2018 elections.

17.   I co-authored the 2014 *Almanac of American Politics*. The Almanac is considered the foundational text for understanding congressional districts and the representatives of those districts, as well as the dynamics in play behind the elections. PBS's Judy Woodruff described the book as "the oxygen of the political world," while NBC's Chuck Todd noted that "[r]eal political junkies get two *Almanacs*: one for the home and one for the office." My focus was researching the history of and writing descriptions for many of the newly-drawn districts.

18.   I have spoken on these subjects before audiences from across the political spectrum, including at the Heritage Foundation, the American Enterprise Institute, the CATO Institute, the Bipartisan Policy Center, and the Brookings Institution. In 2012, I was invited to Brussels to speak about American elections to the European External Action Service, which is the European Union's diplomatic corps. I was selected by the United States Embassy in Sweden to discuss the 2016 elections to a series of audiences there, and was selected by the United States Embassy in Spain to fulfil a similar mission this fall. I was invited to present by the United States Embassy in Italy, but was unable to do so because of my teaching schedule.

19.   In the winter of 2018, I taught American Politics and the Mass Media at Ohio Wesleyan University. I taught Introduction to American Politics at The Ohio State University for three semesters from Fall of 2018 to Fall of 2019. This semester I am teaching Political Participation and Voting Behavior at The Ohio State University.

20.   It is my policy to appear on any major news outlet that invites me, barring scheduling conflicts, and I have appeared on both Fox News and MSNBC to discuss electoral and demographic trends. I have been cited in major news publications, including *The New York Times*, *The Washington Post*, *The Los Angeles Times*, *The Wall Street Journal*, and *USA Today*.

21.   I sit on the advisory panel for the "States of Change: Demographics and Democracy" project. This project is sponsored by the Hewlett Foundation and involves three premier think tanks: The Brookings Institution, the Bipartisan Policy Center, and the Center for American Progress. The group takes a detailed look at trends among eligible voters and the overall population, both nationally and in key states, in an attempt to explain the impact of these changes on American politics, and to create population projections, which the Census Bureau abandoned in 1995. In 2018, I authored one of the lead papers for the project: "In the Long Run, We're All Wrong," available at https://bipartisanpolicy.org/wp-content/uploads/2018/04/BPC-Democracy-States-of-Change-Demographics-April-2018.pdf.

22.   I previously authored an expert report in *Dickson v. Rucho*, No. 11-CVS-16896 (N.C. Super Ct., Wake County), which involved North Carolina's 2012 General Assembly and Senate maps. Although I was not called to testify, it is my understanding that my expert report was accepted without objection. I also authored an expert report in *Covington v. North Carolina*, Case No. 1:15-CV-00399 (M.D.N.C.), which involved almost identical challenges in a different forum.

23.   I authored two expert reports in *NAACP v. McCrory*, No. 1:13CV658 (M.D.N.C.), which involved challenges to multiple changes to North Carolina's voter laws, including the elimination of a law allowing for the counting of ballots cast in the wrong precinct. I was allowed to testify at trial. My testimony was solely on the "effect" prong of the Voting Rights Act claim. I did not examine the issues relating to intent.

24.   I authored reports in *NAACP v. Husted*, No. 2:14-cv-404 (S.D. Ohio), and *Ohio Democratic Party v. Husted*, Case 15-cv-01802 (S.D. Ohio), which dealt with challenges to a

variety of Ohio voting laws. I was allowed to testify at trial. The judge in the latter case ultimately refused to consider one opinion, which is not relevant to this report.

25.   Although I do not testify in defense of voter identification laws, I served as a trial consultant in *Lee v. Virginia Board of Elections*, No. 3:15-cv-357.

26.   I authored an expert report in *Feldman v. Arizona*, No. CV-16-1065-PHX-DLR, which dealt with an attempt to ban the collection of absentee ballots by third parties in Arizona. I had an opinion struck in that case for reasons unrelated to the merits of the opinion; counsel for the state elicited it while I was on the witness stand.

27.   I authored expert reports in *A. Philip Randolph Institute v. Smith*, No. 1:18-cv-00357-TSB, *Whitford v. Nichol*, No. 15-cv-421-bbc, and *Common Cause v. Rucho*, NO. 1:16-CV-1026-WO-JEP, which were efficiency gap-based redistricting cases filed in Ohio, Wisconsin and North Carolina.

28.   I authored an expert report in *Feldman v. Arizona*, No. CV-16-1065-PHX-DLR, which dealt with an attempt to ban the practice of "ballot harvesting" in Arizona.

I.   **Dr. Graves' Data Do Not Suggest An Association Between Race And Wait Times in Fulton County, Georgia in 2018.**

29.   Dr. Graves reports the results of two statistical inquiries. First, he conducts a regression analysis comparing estimated average wait times in Fulton County precincts versus the African American share of registered voters in precincts. He concludes that average wait times in precincts increase as the African American share of registered voters in the precincts increases. Second, he consolidates the data into precincts where a majority of the registered voters are African American and those that are not. He observes that the average of the estimated average wait times is higher in precincts where African Americans constitute a majority of the registered voters.

30.   For his first analysis, Dr. Graves utilizes the most common form of regression analysis, often referred to as Ordinary Least Squares regression (OLS). OLS posits that there is some relationship between an output variable **Y**, some predictor variables **X**, some "coefficients" for those predictors **β**, and a random error term **ε**. To express this formally, we write $Y = \beta_0 + \sum_{j=1}^{p} X_j\beta_j + \varepsilon$. *See, e.g.*, Trevor Hastie, Robert Tibshirani, & Jerome Friedman, *The Elements of Statistical Learning*: *Data Mining, Inference & Prediction*, 47 (2d ed. 2017). Since we only have one posited predictor here, we can simplify the expression to $Y = \beta_0 + \beta_1X + \varepsilon$.

31.   What we're really saying here is that there's an underlying "latent process" that produces wait times. Dr. Graves is hypothesizing that wait times in precincts are ultimately a function of the African American share of a precinct plus some random factors (there are specific assumptions about those random factors, but we will set them aside here). In other words, we can

further specify the formula from ¶ 30: [Estimated average wait time in precinct (i)] = [some constant] + [some constant] x [African American share] + [other random factors].

32.   One might recognize this as the famous equation for a line from algebra: $y = mx + b$, only with "b" rewritten as β_0 and "m" rewritten as β_1. This is precisely what OLS regression attempts to uncover. The intercept of the line – here, the wait time when the African American share of a precinct is equal to zero – is β_0, while the slope of the line – how much of a change in wait time results from a one-unit increase in African American share of a precinct – is written as β_1.

33.   If one looks at the chart on page three of Dr. Graves' report, you can imagine an infinite number of potential lines going through the data. The goal of OLS regression is to identify the one line that *best* fits the data ("best fit" can be defined multiple ways, but here it is defined as the line that minimizes the sum of squared distances from the datapoints to the line). To accomplish this, we (or more typically, a computer program) employ a set of equations known as the "normal" equations. Kevin P. Murphy, *Machine Learning: A Probabilistic Perspective* 222 (2012). These produce the best estimates for the intercept and slope of the lines, which are 16.2 and 4.3 here. This is the basis for Dr. Graves' claims that "[a]s an interpretation, it says that the average wait time for a polling site with 0% Black voters ($x = 0$) is 16.2 minutes ($y = 16.2$), whereas the average wait time for a polling site with 100% Black voters ($x = 1$) is 20.5 minutes ($y = 4.3 + 16.2 = 20.5$). And that between these two extremes, the wait time grows by 0.43 minutes for each increase of 10% in the percent of Black voters." Graves Report at 2. Using the helpfully provided data in Appendix 2 of Dr. Graves' Report, and dropping

observation number 11 (as he suggests), I have reproduced his analysis in the accompanying R Code.

34.   If one examines Dr. Graves' chart on page 3, you will see that he reports the r^2 statistic of 0.0151. This statistic can be interpreted as the amount of variance explained by the best fit line. If all of our observation fall on the best-fit line, the r^2 is one; it fits the data perfectly. If the best-fit line doesn't explain anything, the r^2 is close to zero. What we can say from this is that, at best, the African American share of a precinct's registered voter population explains just 1.51 percent of the overall differences (variance) in wait times. There is a lot more at work than race here.

35.   Perhaps more importantly, after identifying the best fit line, we often want to be able to perform some sort of *inference*. The data we have are a sample of the precincts in Fulton County, and are a small sample of all the possible outcomes we *could* have had given the randomness of the error term. What we want to know is, assuming for the sake of argument that there was actually no relationship between the African American share of registered voters and wait times, how likely is it that we would we would see an outcome such we saw in 2018. If that probability is particularly low, we might be able to reject this claim. If, however, seeing the sorts of outcomes we saw in 2018 if there were, in fact, zero relationship between race and wait times would not be unusual, we would have no firm basis for rejecting such a claim.

36.   The statistic that is typically used for this sort of argument in a regression setting is the p-value. The p-value represents the probability that we would see the data we have if there were no relationship between the predictors and response (here, African American share of registered voters and wait times). Statisticians typically use the following guidelines regarding

interpretation of a p-value: "<.01: very strong evidence against H_0 [the null hypothesis, here, that there is no relationship between the African American share of registered voters and turnout]; .01 - .05: strong evidence against H_0; .05 - .1: weak evidence against H_0; > .1: little or no evidence against H_0." Wasserman, Larry, *All of Statistics: A Concise Course in Statistical Inference*, 157 (2004).

37.   After running the regression analysis, the reported p-value is 0.329. Thus, we would not reject the null hypothesis, and therefore would *not* conclude, based upon these data, that there is an association between the African American share of registered voters and wait times in Fulton County, Georgia.

38.   Dr. Graves' second test involves splitting the data into two groups: One contains precincts where African Americans constitute a majority of the registered voters, and one where they do not. He computes a weighted average of the wait times in these precincts and concludes that African American majority precincts experienced longer wait times than White majority precincts.

39.   Once again, we are confronted with the fact that the data we have are a sample generated from an underlying process. The way to test whether there is, in fact, a difference between these two groups is to perform a weighted t-test. This is a variant on the t-test (one of the earliest and most fundamental statistical tests) which seeks to determine whether there is sufficient evidence from a sample to claim that the averages between two groups are, in fact, different. The weighted variant of this utilizes the weighted means (and variances) following Dr. Graves' (likely correct) decision to weight the observations by the number of registered voters in each precinct.

40.   When we perform the weighted t-test, the p-value is 0.623, meaning that it would not be at all abnormal to see results such as these if the true difference between the means of the groups were zero. We would therefore have insufficient evidence, based upon these data, to reject a claim that there was a difference in wait times between majority-White precincts and majority-African American precincts in Fulton County in 2018.

41.   Because we do not know whether wait times follow a normal distribution (in fact, since they cannot be negative they almost certainly do not), we can also use a nonparametric test known as the unpaired Wilcoxon test to determine whether there really is a difference between wait times in precincts where registered voters are majority-White and precincts where registered voters are majority-African American.

42.   If we perform a Wilcoxon test, the p-value is 0.2266. The data therefore are insufficient to conclude that is any difference between wait times in the median majority-White precinct and the median majority-Black district.

43.   Therefore, the evidence from Fulton County, Georgia in 2018 is insufficient to support a conclusion that an increased African-American share of registered voters was associated with greater wait times. Nor is it sufficient to support a conclusion that the average (or median) African American-majority precinct, weighted by population, experienced a longer wait time than the average (or median) White-majority precinct.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury under the laws of the United States that the foregoing statements are true and correct.

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This the 15th day of January, 2020.

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Sean P. Trende