

EXHIBIT C

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF NORTH CAROLINA

UNITED STATES OF AMERICA,

Plaintiff,

v.

THE STATE OF NORTH CAROLINA, *et al.*,

Defendants.

Civil Action No. 1:13-CV-861

Declaration of Charles Stewart III, Ph.D. (Amended)

Pursuant to 28 U.S.C. § 1746, I, Charles Stewart III, make the following declaration:

1. I have been asked by the U.S. Department of Justice to provide a brief report on the following two topics:
 - 1) Information available to the North Carolina General Assembly before the passage of HB 589 that pertains to racial disparities in the possession of photo identification.
 - 2) The effect of Session Law 2015-103 on the no-match lists I calculated for previous reports.¹
2. My conclusion is simple: The North Carolina General Assembly had clear evidence at the time it passed HB 589 that North Carolina's African American registered voters possessed driver's licenses at a lower rate than white registered voters. After HB 589's passage,

¹ Session Law 2015-103 also authorizes voters who suffer from a reasonable impediment in complying with the photo identification requirement of HB 589 to complete a "reasonable impediment declaration" and then cast a provisional ballot. See SL 2015-103, § 8(d). I do not analyze the effects of the reasonable impediment provision in this report.

subsequent analysis confirmed that racial disparities existed, even when allowances were made for the use of federal identification cards (passports, military IDs, and veteran's IDs) as identification in North Carolina. The more recent change made to the original voter photo ID law, which allows certain expired licenses to be used to vote, reduces the number of voters without the requisite ID, but leaves the racial disparities produced by North Carolina's photo voter ID law virtually unchanged.

Information Available to the General Assembly upon the Passage of HB 589

3. Prior to the passage of HB 589 in 2013, the North Carolina State Board of Elections (NCSBOE) performed a series of investigations into the proportion of North Carolina's registered voters who could not be matched to the North Carolina Division of Motor Vehicles' (DMV) driver's license database, at least some of which were requested by members of the North Carolina General Assembly.² Although each investigation used different matching criteria — criteria that tended to reduce the number of “no-matches” with each succeeding iteration — they all revealed a large and statistically significant disparity in the “no-match rate” between white and black registered voters.

4. HB 589 was filed on April 4, 2013 and signed by the governor on August 12, 2013.³

5. Between February 2011 and April 2013, the North Carolina State Board of Elections undertook at least four analyses that matched registered voters against the DMV's driver's license database. The dates of these analyses and a summary of the matching methods used are

² For instance, in the memo dated March 21, 2013, from Gary O. Bartlett (then-executive director of the NCSBOE) to the North Carolina House Committee on Elections, Mr. Bartlett notes that the 2011 analysis “. . . was requested by legislative members . . . In December 2012, legislative staff asked for an update on the 2011 report. This agency updated its 2011 analysis on January 7, 2013 and supplemented its findings on March 5, 2013.” See SBE00010892; see also PX 534 at 1 (April 2013 NCSBOE matching report).

³ This legislative history is based on information contained on the North Carolina General Assembly online bill tracking Web site. See <http://www.ncleg.net/gascripts/BillLookUp/BillLookUp.pl?BillID=H589&Session=2013>.

reported in Table 1. With the exception of the April 17, 2013 report, all of these documents are available for public download at the NCSBOE ftp site.⁴

Table 1. NCSBOE driver's license analyses.

Report date	Size of no-match list	Summary of matching strategy
Feb. 9, 2011 ^a	1,005,581	Matched with valid license holders using <i>exact</i> matches involving the voter name combined with driver's license (d.l.) number, SSN4, and date of birth.
Jan. 7, 2013	612,955	Matched with complete DMV data records of customers using <i>exact</i> matches involving the voter name combined with d.l. number, SSN4, and date of birth.
Mar. 5, 2013	481,109	Supplement to Jan. 7, 2013 report. Match on d.l. number + DOB added.
Apr. 17, 2013	318,643	Supplants previous analysis by matching complete set of DMV customer records against 29 "sweeps" involving 9 different data elements.

^aMemo to file dated Feb. 16, 2011 indicates that further investigation revealed that of 334,651 records in the voter file with driver's license numbers that did not match any record in the DMV data, 329,017 were licenses that were revoked or expired and therefore did not appear in the DMV dataset used for the February 9, 2011 match.

6. Each of these analyses yielded a "no-match list"⁵ that was smaller than the one before. The reduction in the no-match list from over 1 million to over 600,000 between February 9, 2011 and January 7, 2013 appears to be primarily due to switching from matching voter records against *valid* licenses to matching against *all customers* in the DMV database, including those with invalid, revoked, and expired licenses.⁶ (In other words, there are more matches between the voter file and the DMV database in the latter analysis because the number of DMV records

⁴ As of November 21, 2015, these reports are available for download at the following URL: <ftp://alt.ncsbe.gov/Requests/Materials/>. See also PX58, PX59, PX70, PX73, PX534.

⁵ A "no-match list" is defined as a list of registered voters who are not matched to a database, or databases, of photo identification holders.

⁶ The change in matching criteria in the January 7, 2013 analysis represents a fundamental error on the part of the state in its matching analyses that has carried over into all subsequent reports. This change reflects an assumption that any registered voter who in the past had obtained a driver's license could presently obtain another license without any additional effort. This assumption begs the question of what circumstances would have transpired such that a North Carolina resident who had previously had a valid driver's license had allowed the license to lapse. It also commits the error of assuming that invalid and expired licenses might be used as valid identification for the purpose of voting. I discuss these methodological flaws in my surrebuttal report. See Surrebuttal Report of Charles Stewart III, Ph.D. in the case of *US v. NC* in the United States District Court for the Middle District of North Carolina (1:13-CV-861) (March 24, 2015) (PX 254), ¶¶ 8-11, 97-98.

available for matching grew tremendously.) The reduction in the no-match list down to 481,109 in the March 5, 2013 analysis is due primarily to the addition of one more matching sweep.⁷

Finally, the reduction in the no-match list down to 318,643 in the April 17, 2013 analysis is due to two factors: (1) a reduction in the number of registered voters, which reflects list maintenance between January and April 2013, and (2) increasing the number of matching sweeps from 4 to 29.

7. Each of these NCSBOE analyses reports the racial distribution of the resulting no-match list. Table 2 reports those distributions. (Appendices A–D provide more thorough summaries of these analyses.)

Table 2. Racial distributions of no-match lists in NCSBOE analyses.

a. Raw numbers				
Race	Date of analysis			
	Feb. 9, 2011	Jan. 7, 2013	Mar. 5, 2013	Apr. 17, 2013
American Indian	9,767	7,396	5,905	3,773
African American	267,396	191,104	158,685	107,681
White	665,421	348,141	265,870	172,613
All other	62,997	66,314	50,649	34,576
Total	1,005,581	612,955	481,109	318,643

b. Percentages				
Race	Date of analysis			
	Feb. 9, 2011	Jan. 7, 2013	Mar. 5, 2013	Apr. 17, 2013
American Indian	1.0	1.2	1.2	1.2
African American	26.6	31.2	33.0	33.8
White	66.2	56.8	55.3	54.2
All other	6.3	10.8	10.5	10.9
Total	100.1 ^a	100.0	100.0	100.1 ^a

^aPercentages do not sum to 100.0 because of rounding.

⁷ This is the addition of the driver's license number + date-of-birth criterion.

8. Unsurprisingly, because the no-match lists shrink with each succeeding analysis, the number of registered voters of each race on the no-match lists also drops with each analysis. (See Table 2a.) More importantly, however, as each succeeding analysis is done, the fraction of the no-match list that consists of African Americans grows — from 26.6% to 33.8% — while the percentage consisting of whites drops — from 66.2% to 54.2%.

9. The significance of the rise in the fraction of the no-match list that is African American is even greater when we compare these percentages with the racial distribution of North Carolina's registered voters at the time each analysis was run. These percentages are reported in Table 3.⁸

Table 3. Racial distribution of North Carolina registered voters as of dates corresponding with analyses of the no-match list.

a. Raw numbers				
Race	Date of analysis			
	Feb. 9, 2011	Jan. 7, 2013	Mar. 5, 2013	Apr. 17, 2013
American Indian	47,791	53,833	53,833	52,611
African American	1,320,822	1,489,771	1,489,771	1,446,054
White	4,459,149	4,698,878	4,698,878	4,561,375
All other	277,391	381,654	381,654	365,585
Total	6,105,153	6,624,136	6,624,136	6,425,625

b. Percentages				
Race	Date of analysis			
	Feb. 9, 2011	Jan. 7, 2013	Mar. 5, 2013	Apr. 17, 2013
American Indian	0.8	0.8	0.8	0.8
African American	21.6	22.5	22.5	22.5
White	73.0	70.9	70.9	71.0
All other	4.5	5.8	5.8	5.7
Total	99.9 ^a	100.0	100.0	100.0

^aPercentages do not sum to 100.0 because of rounding.

⁸ The racial distributions of the voter registration list are taken from voter registration reports available on the North Carolina State Board of Elections Web site, at the following URL: http://vt.ncsbe.gov/Voter_Stats/. This site essentially allows one to examine the racial distribution of the North Carolina voter registration list at weekly intervals from 2011 to 2013, the period covered in this report. The dates chosen for comparison with the NCSBOE analyses are those that are closest to the date of the matching analysis.

10. A comparison of Table 3 with Table 2 reveals that in the NCSBOE's first analysis (dated February 9, 2011), the fraction of registered voters on the no-match list that was African American was greater than the fraction of all registered voters who were African American, and that this deviation grew with each subsequent analysis. For instance 21.6% of registered voters were African American at the time of the February 9, 2011 analysis (Table 3b), compared to 26.6% of the corresponding no-match list that was African American (Table 2b). Furthermore, as the SBOE conducted additional analyses, the deviation grew even larger. So, for instance, 22.5% of registered voters were African American at the time of the April 17, 2013 analysis, compared to the no-match list, which was 33.8% African American.

11. The growing gap between the percentage of African Americans on the various no-match lists and the percentage of African Americans on the North Carolina voter rolls is summarized in Table 4. Here, I focus on the fraction of the no-match and voter registration lists in each analysis that is white and African American.

Table 4. Comparison of racial composition of no-match and voter registration lists.

		Date of analysis			
		Feb. 9, 2011	Jan. 7, 2013	Mar. 5, 2013	Apr. 17, 2013
White	No-match list	66.2%	56.8%	55.3%	54.2%
	Registered	73.0%	70.9%	70.9%	71.0%
	Difference	-6.8	-14.1	-15.6	-16.8
Black	No-match list	26.6%	31.2%	33.0%	33.8%
	Registered	21.6%	22.5%	22.5%	22.5%
	Difference	5.0	8.7	10.5	11.3
Black – white difference		11.8	22.8	26.1	28.1

12. In the first analysis, reported on February 9, 2011, 73.0% of North Carolina's registered voters were white, but only 66.2% of the no-match list was white; this is a difference of (negative) 6.8 percentage points. At the same time, although only 21.6% of registered voters

were black, 26.6% of the no-match list was black, for a difference of 5.0 percentage points. The black-white difference in this case was 11.8 percentage points.⁹ Two years later, after a series of “refinements” to the analysis, the racial composition of the voter registration list had changed only slightly, but the composition of the no-match list had shifted significantly. The black-white difference had more than doubled by then (compared to the February 9, 2011 analysis), to 28.1 percentage points.

13. Table 5 illustrates this growing racial disparity in a different way. Here, I have calculated the percentage of white and black registered voters who appeared on the no-match list in each round of analysis. For instance, in the February 9, 2011 analysis, 14.9% of white voters, but 20.2% of black voters, were on the no-match list. The arithmetic difference between these two percentages is 5.3 percentage points. In ratio terms, the fraction of blacks on the no-match list was 1.36 times greater than the fraction of white voters on the list. By the time of the last analysis, dated April 17, 2013, nearly twice as many blacks as whites were on the no-match list, when measured as a percentage of registered voters.

Table 5. Percentage of registered voters on no-match list, by race.

	Date of analysis			
	Feb. 9, 2011	Jan. 7, 2013	Mar. 5, 2013	Apr. 17, 2013
White	14.9%	7.4	5.8	3.8
Black	20.2	12.8	11.0	7.4
Black-white difference	5.3	5.4	5.2	3.6
Black/white ratio	1.36	1.73	1.90	1.95

⁹ The difference is 11.8 because 5.0 minus negative 6.8 equals 11.8. (Arithmetically, $5.0 - (-6.8) = 11.8$.) The calculation performed here produces what is called a “difference in differences” measure. In this particular case, the larger the magnitude of the differences-in-differences measure in the last row of Table 4, the greater the gap in the deviation of the racial gap between registered voters and those on the no-match list, comparing blacks and whites. Additionally, in this particular case, when the differences-in-differences measure is positive, that means that blacks are more likely to be on the no-match list than whites. On the issue of differences-in-differences estimation more generally, see Joshua D. Angrist and Jörn-Steffen Pischke, *Mostly Harmless Econometrics: An Empiricist’s Companion*, Princeton, Princeton University Press, 2009, chap. 5.

Evidence from other states before the passage of HB 589

14. Before the passage of HB 589, other states passed strict photo voter ID laws. The passage of these laws drew scrutiny for evidence of racial disparities in the possession of the IDs required for voting. Analyses of many of these laws — which appeared both in reports prepared for court proceedings and in widely available academic journals — demonstrated significant racial disparities in the possession of the requisite photo IDs.

15. For instance, South Carolina passed a photo voter ID law, “Act R54,” in May 2011. South Carolina sought Section 5 preclearance for this law in the U.S. District Court for the District of Columbia. In my declaration for the trial in that case, which occurred in the summer of 2012, I estimated that 8.3% of black voters, but only 3.9% of white voters, failed to possess one of three forms of photo identification under the state’s law, including military IDs and passports.¹⁰ South Carolina’s own expert, Dr. M.V. Hood, who used a different matching procedure, estimated that 6.8% of African Americans failed to possess a valid ID under that state’s photo voter ID law, compared to 4.7% of whites.¹¹

16. Georgia had passed a strict photo voter ID law in 2005. In an analysis published in *American Politics Research* in 2008, Dr. Hood and Dr. Charles Bullock III performed a multivariate statistical analysis on a “no-match list” between the state’s voter list and the state’s driver’s license database.¹² Based on the results of their multivariate statistical analysis, Drs. Hood and Bullock reported the following:

Non-White registrants are less likely to possess a driver’s license compared with White registrants. For example, the probability of a Black registrant not possessing a license is

¹⁰ Rebuttal Declaration of Dr. Charles Stewart III, Ph.D. in the case of *SC v US* in the United States District Court for the District of Columbia (1:12-CV-203-CKK-BMK-JDB) (August 6, 2012) (DX 311), Table 11, p. 33.

¹¹ Supplemental Declaration of M.V. Hood III in the case of *SC v US* in the United States District Court for the District of Columbia (1:12-CV-203-CKK-BMK-JDB) (July 28, 2012), Table 10, p. 14.

¹² M.V. Hood and Charles S. Bullock, “Worth a Thousand Words? An Analysis of Georgia’s Voter Identification Statute.” *American Politics Research* vol. 36, no. 4 (2008), pp 555-579.

.070, a difference of .033 from that of a White registrant at .037. The probability differences between White registrants and all other racial or ethnic groups are statistically significant.¹³

17. Finally, at the time of the passage of HB 589, the scholarly literature, which was readily available to the general public, had established the general finding that African Americans possess driver's licenses and other forms of identification that tend to appear in photo voter ID laws at a significantly lower rate than whites. In research I presented to a symposium at the University of Oklahoma College of Law in February 2013, which was published in the Fall 2013 edition of the *Oklahoma Law Review*, I reported results from the 2012 Survey of the Performance of American Elections about self-reported possession of driver's licenses and other forms of identification.¹⁴ In that research, I reported that an estimated 79% of African Americans nationwide possessed a driver's license, compared to 93% of whites, and that 28% of African Americans possessed a passport, compared to 41% of whites.¹⁵

18. In the research published in the *Oklahoma Law Review*, I reviewed the state of the scholarly research on the issue of photo voter ID possession as of early 2013 and noted that, "these reports generally reach the same conclusions: there are racial and income disparities in the possession of identification."¹⁶ In addition to the South Carolina and Georgia findings discussed in ¶¶15–16 above, I noted that as of early 2013, the following findings had already been published in journals or presented in expert reports in highly publicized court cases:

¹³ Hood and Bullock, p. 567. Note that these differences are *after* statistical controls have been applied that would reduce the raw difference in the possession of driver's licenses by whites and blacks. The failure to report the raw driver's license possession rates by race is an important shortcoming of the article.

¹⁴ The Survey of the Performance of American Elections has been described in my previous reports. See particularly Declaration of Charles Stewart III, Ph.D. in the case of *US v NC* in the United States District Court for the Middle District of North Carolina (1:13-CV-861) (April 11, 2014) (PX 42), Exhibit 19.

¹⁵ Charles Stewart III, "Voter ID: Who Has Them? Who Shows Them?" *Oklahoma Law Review* vol. 66, no. 1 (2013), pp. 21-52. The percentages are lower, and the racial disparities are greater, when I analyze the possession of *valid* (i.e., unexpired with the current name and address) licenses and passports. Viewed this way, 63% of blacks possess a *valid* driver's license, compared to 84% of whites; 25% of blacks possess a *valid* passport, compared to 35% of whites.

¹⁶ *Ibid*, p. 25.

- Stephen Ansolabehere had shown that in Texas, 10.85% of white registered voters could not be matched to the driver's license or license-to-carry records, compared to rates of 20.71% and 17.49% for blacks and Hispanics, respectively.
- Professor Kenneth Mayer had reported that an earlier study by Professor John Pawasarat had concluded that in Wisconsin, 20% of males and 19% of females did not possess a driver's license; among African Americans the respective percentages were 55% and 49%.
- In 2007, Professor Matt Barreto and colleagues conducted a telephone survey in Indiana and discovered that 83.2% of white eligible voters had the requisite identification in order to vote in that state, compared to 71.7% of blacks.¹⁷

Analysis of Racial Disparities in Photo Voter ID Possession after the Passage of HB 589

19. Following North Carolina's passage of HB 589 in 2013 the U.S. Department of Justice filed a complaint under Section 2 of the Voting Rights Act, challenging HB 589. Among the provisions highlighted in this complaint was HB 589's photo voter ID requirement. As an expert witness in the matter, I performed an analysis to determine whether racial disparities would arise on account of the implementation of HB 589's photo voter ID requirement, reporting the results of that analysis in a declaration dated February 18, 2015.¹⁸ The analysis in my trial declaration confirmed the growing body of evidence that had accumulated before the passage of HB 589,

¹⁷ In addition, in 2012 Professor Barreto conducted a telephone survey in Pennsylvania and discovered several statistically significant differences in the possession rates of valid photo ID across various subgroups in that state's population. Among these was the finding that Latino eligible voters lack ID at higher rates (18.3%) than non-Hispanic Whites (14.0%). Professor Barreto found no disparities in valid driver's license possession between blacks and whites. See "Rates of Possession of Valid Photo Identification, and Public Knowledge of the Voter ID Law in Pennsylvania," Expert Report Submitted on Behalf of Plaintiffs in *Applewhite, et al v. Commonwealth of Pennsylvania, et al.* (No. 330 MD 2012) (July 16, 2012).

¹⁸ Declaration of Charles Stewart III, Ph.D. (Amended) in the case of *US v NC* in the United States District Court for the Middle District of North Carolina (1:13-CV-861) (February 18, 2015) (PX 242), hereinafter "Stewart trial Declaration."

which is that African Americans were less likely to possess forms of identification needed to vote under the new law than whites.

20. In my trial declaration, I concluded that under the most conservative assumptions about which driver's licenses to include in the matching, "African Americans are more than twice as likely to lack the requisite photo ID to vote as are whites (10.1% vs. 4.2%). Under alternative assumptions that take into account driver's licenses that have been surrendered[, or are suspended] or are inactive, the estimate rises to over 822,000 registered voters, including 25.0% of black and 8.4% of white voters."¹⁹

21. The analysis reported in my trial declaration went beyond the previous state exercises that had relied on matches with the DMV database, by including matches with federal databases that recorded individuals who possessed identification cards that could be used to vote under HB 589. In particular, the analysis in my trial declaration was based on matching the North Carolina voter registration file with the following datasets: (1) the North Carolina driver's license file (including non-operator's identification cards), (2) U.S. passports, (3) U.S. military identification cards, and (4) U.S. veteran's identification cards. The methodology I employed to prepare the datasets and perform the matching is described in detail in ¶¶26–98 and Appendices A–G of my trial declaration.²⁰

¹⁹ Stewart trial Declaration, ¶150.

²⁰ As I note in my trial declaration (¶77), the methodology of database matching I employed has been reliably implemented in other fields, such as public health, medicine, social service administration, and economics. As Ansolabehere and Hersh note in a recent working paper, a major difference between database matching in these other fields and election administration is that the former fields typically match databases that have hundreds or thousands of records, whereas voter files and identification databases have millions (or tens of millions) of records. This makes database matching involving voter files exponentially more computationally intensive than most other applications. Ansolabehere and Hersh provide evidence that the methodology I employed to match the North Carolina voter file with other identification databases produces results that are very close to those one would get if one were able to match using the full Social Security Number (SSN9), which is the closest thing Americans have to a unique national identification number. See Stephen Ansolabehere and Eitan Hersh, "ADGN: An Algorithm for Record Linkage Using Address, Date of Birth, Gender, and Name," paper prepared for presentation at the MIT Conference on Election Administration and Reform, June 8, 2015, Cambridge, Massachusetts," available for download at <https://electionconference2015.mit.edu/sites/default/files/images/hersh.pdf>.

22. My trial declaration analysis included two tables that described racial disparities in the possession of voter identification required under HB 589, using the most conservative assumptions about which driver's licenses would be allowed to be used as voter identification (that is, assuming that even surrendered, suspended, and inactive driver's licenses would be available for voting). I reproduce those tables below — Table 6 (Table 6 in my trial declaration), which reports the racial composition of voters on the no-match list, and Table 7 (Table 7 in my trial declaration), which reports the probability of being on the no-match list, by race.²¹

Table 6. Racial composition of voters on no-match list (from Stewart trial Declaration, Table 6.)

Race	All voters		No match	
	N	Pct.	N	Pct.
Asian	61,943	1.0	2,485	0.6
Black	1,456,471	22.5	147,111	37.0
Amer. Indian	53,081	0.8	4,873	1.2
Mixed	36,990	0.6	4,004	1.0
Other	135,395	2.1	10,606	2.7
Unknown	144,012	2.2	16,236	4.1
White	4,600,137	70.9	212,656	53.4
Total	6,488,029	100.1 ^a	397,971	100.0

^aPercentages do not add to 100.0% because of rounding.

²¹ In my trial declaration, I also analyzed the issue of accounting for suspended and inactive licenses in the driver's license file. See Stewart trial Declaration ¶¶124–129 and Appendix B, pp. 104-105. When I remove these licenses from the matching analysis — to account for the likelihood that they could not legally be used to comply with HB 589 — the size of the no-match list more than doubles and the relative black-white racial disparity on the no-match list grows. See Stewart trial Declaration, Table 11, p. 50; see also Addendum to the February 12, 2015 Declaration of Charles Stewart III, Ph.D. in the case of *US v. NC* in the United States District Court for the Middle District of North Carolina (1:13-CV-861) (April 2, 2015) (PX 256), Revised Table 11.

Table 7. Probability of being on no-match list, by race (from Stewart trial Declaration, Table 7)

Race	Pct. on no-match list	Number on no-match list	Number of registered voters
Asian	4.0	2,485	61,943
Black	10.1	147,111	1,456,471
Amer. Indian	9.2	4,873	53,081
Mixed	10.8	4,004	36,990
Other	7.8	10,606	135,395
Unknown	11.3	16,236	144,012
White	4.6	212,656	4,600,137
Total	6.1	397,971	6,488,029

23. Further, I report that the racial disparities in the no-match list are greater when we confine the analysis to voters classified as “Active” status and/or to those who had voted in recent elections.²²

24. In addition to reporting the disparate racial composition of the no-match list, I performed a series of sensitivity analyses²³ to document that these results were robust in the face of alternative assumptions one could make about the matching. These sensitivity analyses cover (1) Native American voters with tribal IDs (§§112), (2) new registrants with out-of-state licenses (§§113–116), the timing of the voter registration snapshot (§§117–123), and the removal of suspended and inactive licenses (§§124–129). Taken together, these sensitivity analyses demonstrate that my original conclusions illustrated in Tables 6 and 7 of the trial report are conservative.

25. Finally, I conducted demographic and geographic analyses of the no-match list reflected in Tables 6 and 7 of my trial declaration (§§135–149). I conclude that the presence of voters on

²² Stewart trial declaration, §§105–111.

²³ Sensitivity analysis, which is commonly used in the social sciences, natural sciences, and engineering, can be defined as the practice of re-analyzing one’s results by systematically substituting alternative assumptions, decisions, measures, etc. for those that were actually employed. If the same conclusions can be reached when the alternatives are used instead, the validity of one’s original empirical findings are bolstered.

the no-match list is not uniformly distributed across the state. “The parts of the states that have higher African American populations, lower incomes, lower literacy, and less access to private automobiles have more voters on the no-match list.”²⁴ In addition, at virtually every level of geography I examine — counties and legislative districts — African Americans are more likely to be on the no-match list than whites.

The Effect of Session Law 2015-103 on the Composition of the No-Match List

26. On June 22, 2015, Governor Pat McCrory signed into law HB 836 (Session Law 2015-103),²⁵ which had the effect of allowing certain expired driver’s licenses and non-operator’s identification cards to be used to vote. In this section, I review the effect of this law on the composition of the no-match lists I analyzed in previous reports. My conclusion is that although SL 2015-103 reduces the overall size of the no-match list, the black-white racial disparity remains.

27. SL 2015-103 allows the use of driver’s licenses and non-operator’s identification cards, “provided that it shall be acceptable if it has a printed expiration date that is not more than four years before it is presented for voting.” The allowance of expired identification cards is not extended to other forms of identification with a printed expiration date, such as a passport.

28. After learning that HB 836 had been passed by the General Assembly, I updated the analysis I reported in my trial declaration.²⁶ Table 8, below, updates Table 6 from my trial declaration; Table 9, below, updates Table 7 from my trial declaration.

²⁴ Stewart trial declaration, ¶135.

²⁵ The legislative history of HB 836 represented here is based on information at the following URL: <http://www.ncleg.net/gascripts/BillLookUp/BillLookUp.pl?Session=2015&BillID=h836>

²⁶ In updating the analysis, I re-ran the full matching procedure I described in the original declaration. I altered that procedure by treating every driver’s license and non-operator’s ID that expired within four years of the analysis date (July 16, 2014) as valid for the purposes of voting. In addition, based on new information I received about the construction of the DMV data extract I used for the analysis, I was able to include DMV records I had previously excluded from the DMV portion of the match because they had missing expiration dates. I obtained these expiration

29. As Table 8 indicates, allowing additional expired driver's licenses and non-operator's ID cards reduces the number of registered voters on the no-match list by 31.5%, from 397,971 to 272,700. The overall racial composition of the new no-match list is qualitatively similar to that of the original analysis. The proportion that is white is virtually unchanged (53.3% now vs. 53.4% originally) while the proportion that is black is about one percentage point less (36.1% vs. 37.0%). The main effect is a slight increase in the proportions associated with the other racial groups. As before, the difference in the racial composition between the matched and the unmatched portions of the voter registration list is statistically significant at traditional levels used in social scientific analysis.²⁷

Table 8. Racial composition of voters on no-match list, updated to reflect SL 2015-103.

Race	All voters		No match			
	N	Pct.	Original report		Updated	
			N	Pct.	N	Pct.
Asian	61,943	1.0%	2,485	0.6%	1,882	0.7%
Black	1,456,471	22.5%	147,111	37.0%	98,458	36.1%
Amer. Indian	53,081	0.8%	4,873	1.2%	3,606	1.3%
Mixed	36,990	0.6%	4,004	1.0%	2,892	1.1%
Other	135,395	2.1%	10,606	2.7%	7,588	2.8%
Unknown	144,012	2.2%	16,236	4.1%	13,054	4.8%
White	4,600,137	70.9%	212,656	53.4%	145,220	53.3%
Total	6,488,029	100.0% ^a	397,971	100.0%	272,700	100.0%

^aPercentages do not add to 100.0% because of rounding.

Note: "Original report" numbers are taken from Stewart trial Declaration, Table 6, p. 37.

30. Table 9, below, presents the same raw figures contained in Table 8, this time expressed in terms of the percentages of registered voters in each racial category. With the shrinking of the overall size of the no-match list, the percentage of registered African American voters falls from 10.1% to 6.8%, while the percentage of registered white voters falls from 4.6% to 3.2%.

dates through the use of the DMV_Driver_Hist table that was described in an affidavit filed by Mr. Brian Neesby. See Affidavit of Brian Neesby in the case of *Currie v NC* in the General Court of Justice, Superior Court Division, County of Orange (13-CVS-1419) (June 8, 2015), ¶¶11–14. (Hereinafter "Neesby Affidavit.")

²⁷ The relevant chi-squared (χ^2) statistic is 48,000 ($p < 0.0005$) (d.f.=6).

Table 9. Probability of being on no-match list, by race, updated to reflect SL 2015-103.

Race	Number of registered voters	Number on no-match list		Pct. on no-match list	
		Original report	Update	Original report	Update
Asian	61,943	2,485	1,882	4.0%	3.0%
Black	1,456,471	147,111	98,458	10.1%	6.8%
Amer. Indian	53,081	4,873	3,606	9.2%	6.8%
Mixed	36,990	4,004	2,892	10.8%	7.8%
Other	135,395	10,606	7,588	7.8%	5.6%
Unknown	144,012	16,236	13,054	11.3%	9.1%
White	4,600,137	212,656	145,220	4.6%	3.2%
Total	6,488,029	397,971	272,700	6.1%	4.2%
Black/white ratio:				2.18	2.14

Note: "Original report" numbers are taken from Stewart trial Declaration, Table 7, p. 38.

31. The most important question answered by Table 9 is whether the resulting percentage differences — 6.8% for blacks and 3.2% for whites — are materially different than before. The answer is that they are not. In the original analysis, a black voter was 2.18 times more likely to be on the no-match list than a white voter. In the current analysis, updated to reflect SL 2015-103, black voters are 2.14 times more likely to be on the no-match list.

32. In summary, while the provision of SL 2015-103 that allows certain expired driver's licenses and non-operators IDs to be used for voting reduces the size of the no-match list, it does not materially affect the racial disparity among those who do not possess the requisite form of identification.

Further Refinements to the Matching Procedure

33. Subsequent to the filing of my original declaration in early 2015, I have been able to refine my matching procedure, in light of new information about the structure of the driver's license and voter registration databases that has been revealed in later defendant reports and

deposition testimony.²⁸ In light of this new information, I have undertaken additional matching procedures to ensure that my conclusions are not affected by this new information. These additional matching procedures reduce the size of the estimated no-match list by about one-fifth, but also increase the racial disparity of that list significantly. In particular, under the analysis presented in this section, black voters are shown to be 2.27 times more likely to be on the no-match list than whites, in contrast to the 2.14 ratio shown in the previous section.

34. I undertake the following refinements to my previous matching procedure.²⁹ These refinements allow for more matches between the DMV database and the voter file, and thus a reduction in the overall size of the no-match list.

- I explicitly account for the possibility that a driver's license holder may have changed his or her name with the DMV without notifying election officials. I do this by performing additional matches that associate changed names in the driver's license database with the associated driver's license number.³⁰
- I explicitly account for the possibility that a driver's license holder may have changed his or her address with the DMV without notifying election officials. I do this by performing additional matches that associate changed addresses in the driver's license database with the associated driver's license number.³¹

²⁸ Second Declaration of Janet R. Thornton, Ph.D. in the case of *US v NC* in the United States District Court for the Middle District of North Carolina (1:13-CV-861) (March 16, 2015) (DX309) (hereinafter "Thornton 2nd Declaration"); Neesby Affidavit.

²⁹ The following is in addition to my updating expiration dates as discussed above in fn 26.

³⁰ To account for the possibility that a driver's license holder may have changed his or her name without notifying election officials, I use the name change file from the DMV to identify every recorded name change. I use this file to create cleaned versions of names and related variables (Soundex of the last name, first and middle initials) using the same procedures as for processing the original DMV file (and outlined in Stewart trial Declaration, Appendices A and B). I then merge the set of name changes to the full DMV file using the `dmv_id` variable, and replace the original names in the DMV file with the changed names when a name change exists. I then repeat all of the matches that use name-based variables with the changed names. For the identity of the DMV file that contains information about changed names in the driver's license files, see Thornton 2nd Declaration, fn 16, p. 15.

³¹ To account for the possibility that a driver's license holder may have changed his or her address without notifying election officials, I use the address change file from the DMV to identify every recorded address change. Using the

- I allow for the middle and last names in the voter and driver's license files to have been switched. I do this by creating additional matching sweeps that correspond with those described in my original declaration, only this time I swap the middle name and last name in the driver's license file before constructing the matching string.
- As noted in footnote 26 above, I amend how I handled situations in which a driver's license expiration date was missing from the original DMV file I analyzed. Instead of omitting these records from the DMV matching portion of the protocol,³² I was able to obtain the most recent expiration date for these DMV customers using the DMV_Driver_Hist table, and thus was able to include these records in the driver's license phase of the matching.³³

35. The following two tables report the results of this refined analysis. In each table, I have used the analysis reported in the previous section, which reflects license expiration changes in SL 2015-103, as the baseline.

36. Table 10 reports the racial distribution of the resulting no-match list. As always, adding more matching criteria reduces the size of the no-match list, this time by about 17.5%, from 272,700 to 224,863. However, and also as before, doing so does not change the outcome that the resulting no-match list is disproportionately African American. Indeed, in this case, compared to the previous section, the disproportionality is greater.

same procedure as defined in fn 30, above (except switching addresses for names), I create a new version of the DMV file that replaces the original addresses with the changed addresses, and then repeat the matching with this new file. For the identity of the DMV file that contains information about changed addresses in the driver's license files, see Thornton 2nd Declaration, fn 16, p. 15.

³² Recall that even if a voter is not matched against a driver's license record, it is still possible to match that voter with records in the three federal database files — passport, military, and veterans.

³³ Witnesses for the state have leveled a series of criticisms at my matching exercise. Among those criticisms are the Thornton 2nd Declaration and the Neesby Affidavit. I have incorporated the relevant new information that those reports contained (i.e., information regarding the structure of the DMV databases) into the analysis presented in this report. However, those reports also contain many other criticisms that are not relevant to my analysis, and do not undermine my conclusions. For these reasons I do not address those other criticisms here.

Table 10. Racial composition of voters on no-match list, updated to reflect SL 2015-103 and refined matching criteria.

Race	No match					
	All voters		SL2015-103 update		Update + refined matching criteria	
	N	Pct.	N	Pct.	N	Pct.
Asian	61,943	1.0%	1,882	0.7%	1,716	0.8%
Black	1,456,471	22.5%	98,458	36.1%	83,470	37.1%
Amer. Indian	53,081	0.8%	3,606	1.3%	2,653	1.2%
Mixed	36,990	0.6%	2,892	1.1%	2,639	1.2%
Other	135,395	2.1%	7,588	2.8%	6,496	2.9%
Unknown	144,012	2.2%	13,054	4.8%	11,545	5.1%
White	4,600,137	70.9%	145,220	53.3%	116,344	51.7%
Total	6,488,029	100.1% ^a	272,700	100.1%	224,863	100.0%

^aPercentages do not add to 100.0% because of rounding.

37. The increased disproportionality is also illustrated below in Table 11. Here, we see that 5.7% of African American registrants, compared to 2.5% of white registrants, appear on the no-match list. The ratio of disproportionality has increased from the analysis reported in the previous section, from 2.14 to 2.27.

Table 11. Probability of being on no-match list, by race, updated to reflect SL 2015-103 and refined matching criteria.

Race	Number of registered voters	Number on no-match list		Pct. on no-match list	
		SL 2015-103 update	Update + refined matching criteria	SL 2015-103 update	Update + refined matching criteria
Asian	61,943	1,882	1,716	3.0%	2.8%
Black	1,456,471	98,458	83,470	6.8%	5.7%
Amer. Indian	53,081	3,606	2,653	6.8%	5.0%
Mixed	36,990	2,892	2,639	7.8%	7.1%
Other	135,395	7,588	6,496	5.6%	4.8%
Unknown	144,012	13,054	11,545	9.1%	8.0%
White	4,600,137	145,220	116,344	3.2%	2.5%
Total	6,488,029	272,700	224,863	4.2%	3.5%
Black/white ratio:				2.14	2.27

38. Thus, consistent with all past analyses, further refinements of the matching criteria only reinforce the conclusion that African Americans are disproportionately likely to lack the required identification to vote under HB 589 (as amended by SL 2015-103) compared to whites.

Conclusion

39. At the time HB 589 was passed and signed into law in August 2013, a large body of evidence had already established that in many states, African Americans possessed the types of identification required by strict photo voter ID laws at lower rates than whites. Analyses performed by the North Carolina State Board of Elections before the passage of HB 589 had already established that African American registered voters in North Carolina were less likely to possess a driver's license — the most commonly used form of photo voter ID — than whites. At least some of the matching analysis I reviewed in the first part of this report (¶¶3–13) was conducted at the request of members of the North Carolina General Assembly. Analysis performed after HB 589's passage that took into account other forms of photo ID that were allowed under the bill — namely, passports, military IDs, and veteran's IDs — only confirmed this disproportionate gap in the possession of the requisite ID to vote in North Carolina. The gap in the possession of the forms of identification necessary to vote in North Carolina has not been reduced by the provision in SL 2015-103 that allows certain expired driver's licenses to be used as voter identification.

I declare under penalty of perjury that the foregoing is true and correct. Executed this 10th day of December, 2015.



Charles Stewart III

Appendix A. Summary of Statistics Associated with SBOE February 2011 Matching Analysis

Source of state matching analysis: State FTP site (<ftp://alt.ncsbe.gov/Requests/Materials/>), file name Report_ID_2011 Analysis_Memo to File.doc.

Memo date: February 9, 2011

Date of DMV data described in memo: February 2, 2011

Date of registration list described in memo: February 5, 2011

a. No-match list from memo

Race	Number	Pct.
AMERICAN INDIAN or ALASKA NATIVE	9,767	1.0
ASIAN	8,908	0.9
BLACK or AFRICAN AMERICAN	267,396	26.6
OTHER	22,443	2.2
TWO or MORE RACES	6,273	0.6
UNDESIGNATED	25,373	2.5
WHITE	665,421	66.2
Grand Total	1,005,581	100.0

Number of registered voters reported in memo: 6,104,976.

b. Racial distribution of registered voters reported by NC Board of Elections Web site (Feb. 2, 2011)

Race	Number	Pct.
White	4,459,149	73.0%
Black	1,320,822	21.6%
American Indian	47,791	0.8%
Other (reported by NCBOE)	105,476	1.7%
Other (remainder calculated from report)	171,915	2.8%
Grand Total	6,105,153	100.0%

c. Percentage of unmatched and voter registration lists

Race	No-match list		Voter registration, Feb. 2, 2011		Pct. diff.
	Number	Pct.	Number	Pct.	
American Indian	9,767	1.0	47,791	0.8	0.2
African American	267,396	26.6	1,320,822	21.6	5.0
White	665,421	66.2	4,459,149	73.0	-6.8
All other	62,997	6.3	277,391	4.5	1.7
Grand Total	1,005,581	100.1 ^a	6,105,153	99.9 ^a	0.0

^aPercentages do not add to 100.0% because of rounding.

d. As a percentage of racial group on voter registration list

	No-match list	Voter registration, Feb. 2, 2011	
Race	Number	Number	Pct.
American Indian	9,767	47,791	20.4
African American	267,396	1,320,822	20.2
White	665,421	4,459,149	14.9
All other	62,997	277,391	22.7
Grand Total	1,005,581	6,105,093	16.5

Appendix B. Summary of Statistics Association with SBOE January 7, 2013 Matching Analysis

Source of state matching analysis: State FTP site (<ftp://alt.ncsbe.gov/Requests/Materials/>), file name Report_ID_DMV & SBOE ID Analysis_2013.pdf

Report date: January 7, 2013

Date of DMV data described in memo: Late December 2012

Date of registration list described in memo: January 1, 2013

a. No-match list from memo

Race	Number	Pct.
AMERICAN INDIAN or ALASKA NATIVE	7,396	1.2
ASIAN	9,274	1.5
BLACK or AFRICAN AMERICAN	191,104	31.2
OTHER	16,695	2.7
TWO or MORE RACES	7,339	1.2
UNDESIGNATED	33,006	5.4
WHITE	348,141	56.8
Grand Total	612,955	100.0

Number of registered voters reported in memo: 6,624,672

b. Racial distribution of registered voters reported by NC Board of Elections Web site (Dec. 29, 2012)

Race	Number	Pct.
White	4,698,878	70.9%
Black	1,489,771	22.5%
American Indian	53,833	0.8%
Other (reported by NCBOE)	381,654	5.8%
Grand Total	6,624,136	100.0%

c. Percentage of unmatched and voter registration lists

Race	No-match list		Voter registration, Dec. 29, 2012		Pct. diff.
	Number	Pct.	Number	Pct.	
American Indian	7,396	1.2	53,833	0.8	0.4
African American	191,104	31.2	1,489,771	22.5	8.7
White	348,141	56.8	4,698,878	70.9	-14.1
All other	66,314	10.8	381,654	5.8	5.1
Grand Total	612,955	100.0	6,624,136	100.0	0.0

d. As a percentage of racial group on voter registration list

	No-match list	Voter registration, Dec. 29, 2012	
Race	Number	Number	Pct.
American Indian	7,396	53,833	13.7
African American	191,104	1,489,771	12.8
White	348,141	4,698,878	7.4
All other	66,314	381,654	17.4
Grand Total	612,955	6,624,136	9.3

Appendix C. Summary of Statistics Associated with SBOE March 5, 2013 Matching Analysis

Source of state matching analysis: State FTP site (<ftp://alt.ncsbe.gov/Requests/Materials/>), file name Report_ID_DMV & SBOE ID Analysis_2013_supplement.pdf

Report date: March 5, 2013

Date of DMV data described in memo: Late December 2012

Date of registration list described in memo: January 1, 2013

a. No-match list from memo

Race	Number	Pct.
AMERICAN INDIAN or ALASKA NATIVE	5,905	1.2
ASIAN	5,215	1.1
BLACK or AFRICAN AMERICAN	158,685	33.0
OTHER	11,485	2.4
TWO or MORE RACES	6,019	1.3
UNDESIGNATED	26,930	5.6
WHITE	265,870	55.3
Grand Total	481,109	100.1a

^aPercentages do not add to 100.0% because of rounding.

Number of registered voters reported in memo: 6,624,672

b. Racial distribution of registered voters reported by NC Board of Elections Web site (Dec. 29, 2012)

Race	Number	Pct.
White	4,698,878	70.9%
Black	1,489,771	22.5%
American Indian	53,833	0.8%
Other (reported by NCBOE)	381,654	5.8%
Grand Total	6,624,136	100.0%

c. Percentage of unmatched and voter registration lists

Race	No-match list		Voter registration, Dec. 29, 2012		Pct. diff.
	Number	Pct.	Number	Pct.	
American Indian	5,905	1.2	53,833	0.8	0.4
African American	158,685	33.0	1,489,771	22.5	10.5
White	265,870	55.3	4,698,878	70.9	-15.6
All other	50,649	10.5	381,654	5.8	4.7
Grand Total	481,109	100.0	6,624,136	100.0	0.0

d. As a percentage of racial group on voter registration list

	No-match list	Voter registration, Dec. 29, 2012	
Race	Number	Number	Pct.
American Indian	5,905	53,833	11.0
African American	158,685	1,489,771	10.7
White	265,870	4,698,878	5.7
All other	50,649	381,654	13.3
Grand Total	481,109	6,624,136	7.3

Appendix D. Summary of Statistics Associated with SBOE April 17, 2013 Matching Analysis

Source of state matching analysis: Democracy North Carolina web site: SBOE-DMVMatchMemoApril2013.pdf

Report date: April 17, 2013

Date of DMV data described in memo: March 22, 2013

Date of registration list described in memo: March 25, 2013

a. No-match list from memo

Race	Number	Pct.
AMERICAN INDIAN or ALASKA NATIVE	3,773	1.2
ASIAN	4,067	1.3
BLACK or AFRICAN AMERICAN	107,681	33.8
OTHER	7,663	2.4
TWO or MORE RACES	4,383	1.4
UNDESIGNATED	18,463	5.8
WHITE	172,613	54.2
Grand Total	318,643	100.1 ^a

^aPercentages do not add to 100.0% because of rounding.

Number of registered voters reported in memo: 5,425,820.

b. Racial distribution of registered voters reported by NC Board of Elections Web site (March 3, 2013)

Race	Number	Pct.
White	4,561,375	71.0
Black	1,446,054	22.5
American Indian	52,611	0.8
Other (reported by NCBOE)	365,585	5.7
Grand Total	6,425,625	100.0

c. Percentage of unmatched and voter registration lists

Race	No-match list		Voter registration, Mar. 3, 2013		Pct. diff.
	Number	Pct.	Number	Pct.	
American Indian	3,773	1.2	52,611	0.8	0.4
African American	107,681	33.8	1,446,054	22.5	11.3
White	172,613	54.2	4,561,375	71.0	-16.8
All other	34,576	10.9	365,585	5.7	5.2
Grand Total	318,643	100.1 ^a	6,425,625	100.0	0.0

^aPercentages do not add to 100.0% because of rounding.

d. As a percentage of racial group on voter registration list

	No-match list	Voter registration, Mar. 3, 2013	
Race	Number	Number	Pct.
American Indian	3,773	52,611	7.2
African American	107,681	1,446,054	7.4
White	172,613	4,561,375	3.8
All other	34,576	365,585	9.5
Grand Total	318,643	6,425,625	5.0