IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF TEXAS
CORPUS CHRISTI DIVISION

UNITED STATES OF AMERICA, *Plaintiff*, TEXAS LEAGUE OF YOUNG VOTERS EDUCATION FUND and IMANI CLARK, *Plaintiff-Intervenors*, v. STATE OF TEXAS; NANDITA BERRY, in her official capacity as Texas Secretary of State; and STEVE McCRAW, in his official capacity as Director of the Texas Department of Public Safety, *Defendants.*	)	Civ. No. 2:13-cv-00263

Third AMENDED EXPERT REPORT
OF
Coleman Bazelon

ON BEHALF OF PLAINTIFF-INTERVENORS TEXAS LEAGUE OF YOUNG VOTERS EDUCATION FUND AND IMANI CLARK

September 21, 2014

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I. Summary of Conclusions

1. I examined the distribution and racial composition of registered voters in Texas who, as a result of Texas Senate Bill 14 ("SB 14"), will not be able to vote without acquiring a form of photo ID permitted by SB 14. My analysis leads to three conclusions:

    - A disproportionate share of registered voters who will need a new ID to continue to be able to vote are African American.

    - Acquiring an ID for the purpose of voting, including a nominally free ID, comes with real economic costs. As an example, I have estimated that the average travel cost to obtain an Election Identification Certificate ("EIC") is $36.33.

    - The burden of the costs imposed by SB 14 is substantially higher for African-American Texans, who are disproportionately poorer, than for white Texans. For example, the share of wealth represented by the travel costs needed to acquire an EIC is more than four times higher for African-American Texans than they are for white Texans.

II. Qualifications

2. I am a principal in the Washington, DC office of The Brattle Group ("Brattle"), an economic consulting firm that provides litigation support in a wide variety of areas. Prior to joining Brattle, I was a vice president with Analysis Group, an economic and strategy consulting firm. I also served as a Principal Analyst in the Microeconomic and Financial Studies Division of the Congressional Budget Office.

3. I received a Ph.D. and M.S. in Agricultural and Resource Economics from the University of California at Berkeley, a Diploma in Economics from the London School of Economics and Political Science, and a B.A. from Wesleyan University.

4. For the past two decades, I have been a practicing economist applying economic principles to questions of valuation, regulation, policy and strategy. In doing so, I frequently provide testimony to federal and state courts and to arbitrators, as well as advise regulatory and legislative bodies, including the U.S. Federal Communications Commission and the U.S. Congress. In carrying out economic analysis, I regularly utilize statistical analysis and work with large datasets.

5. My CV is provided as Appendix A to this Expert Report. I am being compensated at my customary rate of $550 per hour for my work on this report, including any deposition

testimony or testimony in court; however, Brattle has agreed to limit total compensation in this matter.

III. Statement of Inquiry

III.A. ASSIGNMENT

6. I have been asked to evaluate the economic burden that SB 14 imposes on Texas voters and to assess whether that burden varies depending on the voter's race.

III.B. MATERIALS CONSIDERED

7. I relied on numerous documents produced in this matter and data and documents available from public sources. A full list of materials considered is provided in Appendix B.

IV. Case Background

8. In 2011, SB 14 was signed into law. In relevant part, SB 14 requires voters who vote in person to show proof of identity through the presentation of one of a specific set of state or federal issued IDs that include the voter's picture ("Required IDs").[1] The law requires would-be voters who do not have a Required ID to obtain one in order to vote. Plaintiff-Intervenors assert that this burden falls disproportionately and severely on voters in specific sub-groups, including racial sub-groups, in violation of the Voting Rights Act ("VRA") and the U.S. Constitution, and challenge SB 14 on that basis.

9. In 2012, the State of Texas sued the U.S. Department of Justice ("DOJ") in the United States District Court for the District of Columbia under Section 5 of the VRA to gain "preclearance" to allow SB 14 to go into effect. In blocking SB 14 from going into effect, the court found that Texas failed to meet its burden to show that the law would not be retrogressive to minority voters.[2] In 2013, the U.S. Supreme Court struck down Section

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[1] These IDs include a Texas driver's license, Texas personal identification card, United States military identification card, United States citizenship certificate that contains a photograph, United States passport, a Texas license to carry a concealed handgun, or a Texas Election Identification Certificate. *See*

http://votesmart.org/bill/12588/voter-identification-requirements#.U6Nunp3D8TQ. Except for the U.S. citizenship certificate, these IDs must either be current or expired for no more than 60 days.

[2] *Texas v. Holder*, 888 F.Supp.2d 113 (D.D.C. 2012).

4(b), the provision of the VRA that applied Section 5 to Texas and other jurisdictions covered by that provision.[3] That decision allowed SB 14 to go into effect and led to the current litigation brought under Section 2 of the VRA.

10. My understanding from counsel is that, unlike Section 5 of the VRA, in which the burden is on the *jurisdiction itself* to demonstrate that the voting change at issue is not discriminatory, Section 2 of the VRA requires the *party challenging the law* at issue to show that the voting change at issue is discriminatory. In the current case filed under Section 2 of the VRA, the Plaintiffs are required to make a positive showing of, among other things, the burden imposed by SB 14. This report explains my analysis of the economic costs—one type of burden—imposed by SB 14. I find that these costs are meaningful and fall disproportionately on African Americans. Because African Americans in Texas generally have lower incomes and less wealth than white Texans, the impact of these costs is even more disproportionate than are the costs themselves.

V. Outline of Methodology

11. I examine the burden that SB 14 creates on Texans using three complementary analyses. In each case, I find that SB 14 burdens African-American Texans more heavily than white Texans. I find that:

    a. With regard to "Prevalence" — Registered voters in Texas who do not have a Required ID ("Affected Registered Voters")[4] are disproportionately African American.[5]

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[3] *Shelby County v. Holder*, 570 U.S. __, 133 S. Ct. 2612 (2013).

[4] I define "Affected Registered Voters" to be those registered voters whose only option is to obtain a Required ID in order to vote. Other registered voters may also be affected by SB 14. For example, individuals with a disability rating of 50% or higher with the U.S. Social Security Administration or the U.S. Department of Veterans Affairs may apply for exemption status from a Required ID. Until they apply for and receive the disability exemption, however, they will not be able to vote without a Required ID. As my analysis is restricted to only those individuals who must obtain a Required ID in order to vote, I exclude persons eligible for a disability exemption. *See*

http://votetexas.gov/register-to-vote/need-id/.

[5] By focusing on registered voters, I am ignoring some potential avenues that could cause SB 14 to impact African Americans differently from non-minorities. For example, I do not investigate issues related to eligible but unregistered voters, including whether or not *their* costs of acquiring a required photo ID exhibit disproportionate burdens associated with race. Voter integrity issues have been

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b. With regard to "Cost" — Acquiring a Required ID solely for the purpose of voting is costly, including for the nominally free EIC.

c. With regard to "Burden" — The burden of the economic costs imposed by SB 14 is higher for African Americans in Texas because they are disproportionately poor.

V.A. Methodology for Testing Whether SB 14 Has a Differential Impact By Race

12. I test to see whether the burden created by SB 14 has a disproportionate impact on minorities, specifically African Americans. General reliance on statistical analysis to detect the disproportionate impact of a government or business practice, process, or policy on minorities is well established. In response to courts and policymakers, a number of important and influential articles and books on the topic of differential impacts of various policies on minorities have been published.[6] Since those early studies, disparate treatment analyses have been applied in a variety of settings including housing, employment, lending, and education. In all of these settings, statistical analyses are employed to measure differences in observed outcomes from the application of a particular process or practice that appeared facially neutral.

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raised to support SB 14, but most of those issues are addressed by the voter registration process. For example, issues related to voter eligibility, such as age and citizenship, are directly addressed in the voter registration process. *See*

http://votetexas.gov/register-to-vote/register-to-vote.

Other voter eligibility issues, such as felony status, are addressed in the voter registration process and are not enhanced by voter picture ID requirements because the IDs do not require identification of felony status. Even residency, which is addressed at the voter registration stage, is only confirmed by some Required IDs. Even when the Required ID is one that has the voter's address, however, the confirmation is weak in that if an individual moves but retains her original voter registration, she may also easily keep a photo ID with the prior (previously valid) address.

6 David C. Baldus and James W.L. Cole, *Statistical Proof of Discrimination*, Colorado Springs: Shepard's McGraw Hill, 1980; Michael Fix and Raymond J. Struyk editors, *Clear and Convincing Evidence Measurement of Discrimination in America*, Washington D.C.: The Urban Institute Press, 1993 (hereinafter "Fix and Struyk"); and Alicia H. Munnell et.al. (1996) "Mortgage Lending in Boston: Interpreting HMDA Data." *The American Economic Review* 86:25-53 (hereinafter "Munnell et al. 1996").

13. The general approach to determining the existence of a differential impact or burden of a policy or practice involves first establishing a benchmark—an expected outcome absent discrimination.

    a. In the case of housing, this may be a distribution of rental agreement outcomes based on the distribution of applicants possibly controlling for decision factors such as income.[7] These outcomes are compared statistically to actual acceptance rates or expected acceptance rates while controlling for other decision factors.

    b. In the case of mortgage lending, statistical analysis is used to establish whether a facially neutral lending decision process results in disparate results for similarly situated applicants across race and ethnic groups.[8] Again, actual rates are compared to expected rates based on application distributions and decision factors such as income or credit score.

    c. A similar approach is taken in the employment context to review hiring and promotion decisions.[9] Actual rates are compared to expected rates controlling for job qualifications such as education, test scores, and experience.

14. Traditional differential impact analysis that distinguishes between acceptable and unacceptable causes of variation in impacts is not applied here. The current analysis, however, is analogous to those analyses in that it posits that, absent a difference in impact based on race, the burden of SB 14 would be the same for African Americans as for all other Texas voters. Empirical evidence sufficient to reject this hypothesis therefore would imply a differential impact and that SB 14 imposes a greater burden on African Americans.

V.B. Prevalence: Racial Composition of Affected Registered Voters

15. An analysis of differential impact begins with an expectation about what various data would show absent any differential impacts. In the current case, that baseline expectation regarding the racial composition of Affected Registered Voters is that it is proportional to the racial composition of all registered voters in Texas. To test this expectation, I examine whether African-American registered voters are more likely than other Texan registered

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[7] John Yinger, "Access Denied, Access Constrained: Results and Implications of the 1989 Housing Discrimination Study," in Fix and Struyk, 1993, pp. 69-112.

[8] Munnell et.al, 1996.

[9] Glen Cain (1986), "The Economic Analysis of Labor Market Discrimination," in O. Ashenfelter and R. Layards editors, *Handbook of Labor Economics* 1: 693-785.

voters to need to obtain a Required ID in order to vote. For my analysis, the association of race with Affected Registered Voters relies on two separate algorithms:

a. Matching Texas' registered voters to various state and federal ID databases to identify the registered voters who would need to obtain a Required ID to retain their ability to vote.[10]

b. Assigning these Affected Registered Voters to Census Block Groups based on their geocoded addresses, and inferring racial composition based on the racial composition of the Census Block Groups. As further explained in Section VI.C, my method is conservative in that by focusing on geographic variation at the Block Group level, I do not capture all of the expected racial variation in Affected Registered Voters.

16. I find that the proportion of Affected Registered Voters who are African American is greater than if SB 14 were race neutral. In other words, if all one knows about a registered voter is her race, then it is more likely that SB 14 imposes a burden on her if she is African American than if she is not.

V.C. The Economic Costs Imposed by SB 14

17. But for the passage of SB 14, Affected Registered Voters still would be able to vote without incurring any additional expenses.[11] Using standard economic and statistical methods, I estimate the additional economic costs due to the passage of SB 14 that these voters would face if they wish to vote.[12]

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[10] The matching of registered voters with state and federal ID databases was performed by DOJ.

[11] Prior to the passage of SB 14, Texas had a voter ID law, but photo IDs were not required. The previous law allowed voters to establish identity with items such as "official mail addressed to the person by name from a governmental entity" or "a copy of a current utility bill, bank statement, government check, paycheck, or other government document that shows the name and address of the voter," which would create much less of a burden than a photo ID requirement. Tex. Elec. Code Ann. § 63.0101 (valid through December 31, 2011).

[12] This approach is consistent with the test set out in *Frank v. Walker*, 2014 WL 1775432, at *25 (E.D.Wis. Apr. 29, 2014) (hereinafter "Wisconsin Decision"): "Based on the text, then, I conclude that Section 2 protects against a voting practice that creates a barrier to voting that is more likely to appear in the path of a voter if that voter is a member of a minority group than if he or she is not."

The current analysis does not measure burden based on the outcome of voting. There is a rich literature on the determinants of voting, beginning with Anthony Downs, AN ECONOMIC THEORY OF DEMOCRACY, (New York: Harper & Brothers, 1957). Recent scholarship finds that, "Under [the

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18. This analysis is similar to those I use to estimate economic damages in other matters: I estimate the "compensating variation," which is the amount of money an individual would have to be compensated to be economically[13] as well off under SB 14 as she would have been but for the enactment of SB 14. In a damages case, the damages would be this compensation.

19. Economic damages are actual (sometimes called "out-of-pocket") cash expenses plus opportunity costs. In the current case, the opportunity cost is the value of time spent acquiring a Required ID. These costs can be direct—such as the time spent waiting to acquire an EIC at a Department of Public Safety ("DPS") office—or indirect—such as the value of time and monetary costs of acquiring documents needed to acquire an EIC, such as a birth certificate. For avoidance of doubt, I estimate the economic costs for purposes of assessing the burden they create, not for purposes of providing compensation.

20. I focus my estimations on the costs of acquiring an EIC because it is the least costly alternative for most Affected Registered Voters who still wish to vote after the passage of SB 14. Although the DPS does not charge for an EIC, there are still significant economic costs to obtain one, including travel costs to get to the DPS.[14] These costs are the focus of much of my empirical analysis. In addition to these travel costs, the costs of acquiring required supporting documents (such as a birth certificate), if needed, and the time expended to get those supporting documents, as well as other costs such as day care or time off from work, add to the economic costs associated with acquiring an EIC. I do not

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'calculus of voting'], even small increases in the costs of voting can deter a person from voting, since the benefits of voting are slight." Wisconsin Decision at *17.

[13] I recognize that there may be non-economic harms placed on individuals, such as the social stigma of society creating a new barrier to voting, that are more analogous to pain and suffering. I do not attempt to quantify the amount of monetary compensation required to off-set these additional harms. Rather, I restrict my analysis to the more traditional areas of economic harm.

[14] For ease of exposition, I refer to "DPS" locations, although voters may go to fixed and mobile county EIC issuing locations in order to obtain a Required ID. My analysis accounts for both fixed and mobile EIC issuing locations. *See* "County Locations Issuing Election Identification certificates," available at

http://www.dps.texas.gov/DriverLicense/documents/EICCountyrun.pdf,

and "DPS Mobile Stations Issuing Election Identification Certificates," available at

http://www.dps.texas.gov/DriverLicense/documents/EICDPSrun.pdf.

estimate these additional costs of acquiring an EIC; rather, I focus on the travel costs of acquiring an EIC that will be borne by almost all Affected Registered Voters. The additional costs beyond travel costs, however, are among the economic costs created by SB 14. As a result, the costs estimated in this report are conservative; for many Affected Registered Voters, the total cost of obtaining an EIC will be higher than the costs estimated in this report.

21. I estimate travel costs separately for African-American and other Texan Affected Registered Voters. I find that the economic costs imposed on both African-American and other Texan Affected Registered Voters are meaningful, and average $36.33 for all registered voters in Texas.

V.D. The Burden Imposed by SB 14

22. Beyond the difference in prevalence of these costs for African-American and white Texans, the "burden" that the same economic cost imposes on different individuals varies as their ability to bear those costs varies: all else equal, a wealthy or high income individual will find a given economic cost less burdensome than a poor or low income individual. Economists explain this as stemming from the diminishing marginal utility of wealth. In layman's—or common sense—terms it means that an extra $100 to a wealthy individual adds less to her well-being than does an extra $100 to a poor individual. Similarly, losing $100 is a greater loss to someone with a low income compared to someone with a high income. The implication of this is that any cost, whether $25 or $50, impacts the well-being of lower income individuals more acutely than higher income individuals.

23. I evaluate SB 14's burden on African-American and other Texans using data on income, wealth, and other social measures. I find that the burden created by SB 14 is higher for African-American voters than for white voters in Texas because African Americans in Texas have disproportionately low incomes and are disproportionately poor.

VI. Prevalence: The Racial Composition of Affected Registered Voters

24. I estimate the racial composition of Affected Registered Voters by combining information from three sources.

    a. The Texas Election Administration Management ("TEAM") database lists all registered voters in Texas and provides their addresses, but does not provide information on race.

    b. DOJ has determined which registered voters lack a Required ID by matching individuals in the TEAM database to numerous other databases that list individuals who hold various Required IDs (the "ID databases"). Individuals in the TEAM

database who do not appear (do not "match") in any of the ID databases are considered to not possess a Required ID and are the Affected Registered Voters.

c. DOJ has also determined which registered voters may be eligible for disability exemption by matching individuals in the TEAM database to Social Security Administration and Veterans Affairs databases. Individuals in the TEAM database who appear in any of the disability exemption databases are considered not to be Affected Registered Voters.

d. The U.S. Census provides information on the racial composition of various geographical areas; I base my analysis on "Census Block Groups."[15] I estimate the racial composition of Affected Registered Voters by assigning to each Affected Registered Voter a probability of being African American or non–African American based on the racial proportion in that Affected Registered Voter's Census Block Group. Note that the use of Census Block Groups instead of Census Blocks biases downwards any racial differences that I find.

25. I explain each database and how I use it in my analysis below.

VI.A. THE TEAM DATABASE

26. The publicly available TEAM database contains the name, voter ID number, address (residential and mailing), and party affiliation of each registered voter in Texas. Appendices C & D provide further details on my data manipulations with the TEAM data.

27. The geographic distribution of registered voters in the TEAM database is shown in Figure 1. In subsequent steps of my analysis, I combine the geographic distribution of voters with information from the U.S. Census on the racial and economic characteristics of geographical areas to estimate the racial and geographic characteristics of the Affected Registered Voters.

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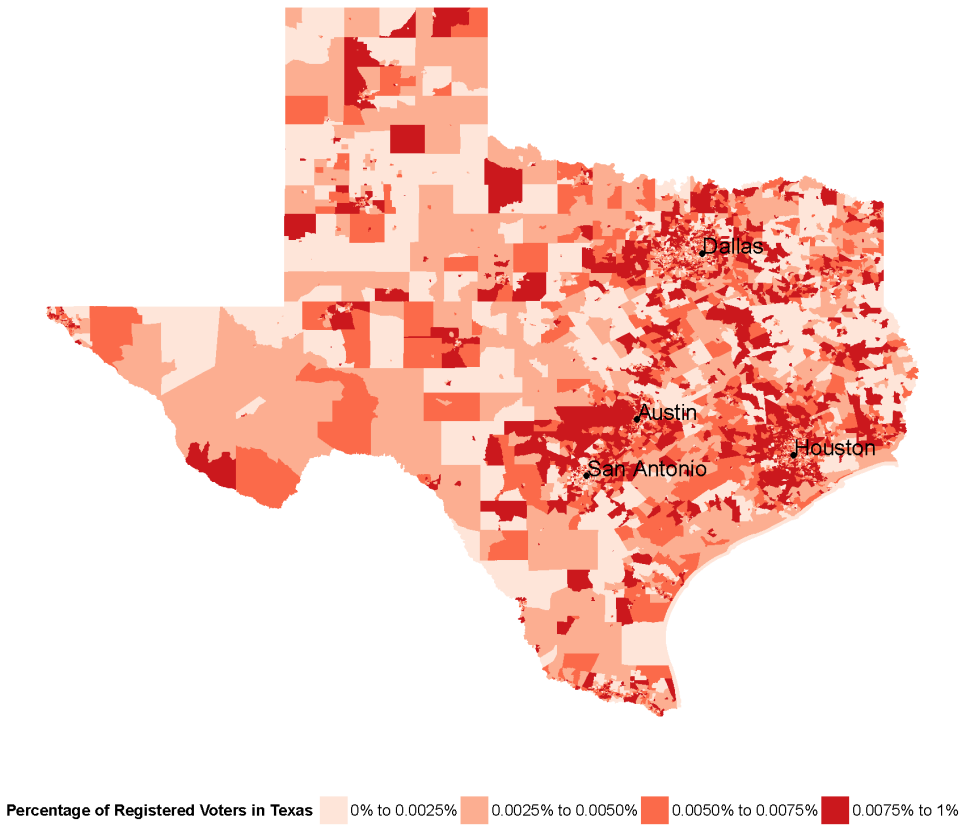
[15] Census Blocks are the smallest geographic unit used for Census data. Blocks are aggregated into Census Block Groups, which in turn are aggregated into Census Tracts. The state of Texas is divided into 914,231 Census Blocks, 15,811 Census Block Groups and 5,265 Census Tracts. *See* https://www.census.gov/geo/maps-data/data/tallies/tractblock.html.

Figure 1: Geographic Distribution of Registered Voters in Texas



VI.B. THE ID DATABASES AND IDENTIFYING AFFECTED REGISTERED VOTERS

28. I used the outputs of DOJ's database matching analysis to identify the Texas registered voters who must obtain a Required ID. Appendices C & D contain further details on the integration of this data with the TEAM and U.S. Census data. 4.1% of registered voters in Texas would need to obtain a Required ID in order to vote.[16] Figure 2 is identical to Figure 1 except that it shows the geographic distribution of Affected Registered Voters.

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[16] The ID Databases indicate that approximately 5% of registered voters in Texas lack a Required ID. However, just under 100,000 of these individuals, or 1% of the registered voter population, are eligible for a disability exemption as identified in the DOJ-provided U.S. Social Security Administration and U.S. Department of Veterans Affairs databases. I conservatively restrict my analysis to just those registered voters who, strictly speaking, *must* obtain a Required ID in order to vote and who wouldn't be able to avoid the burden of obtaining a Required ID by virtue of applying instead for a disability

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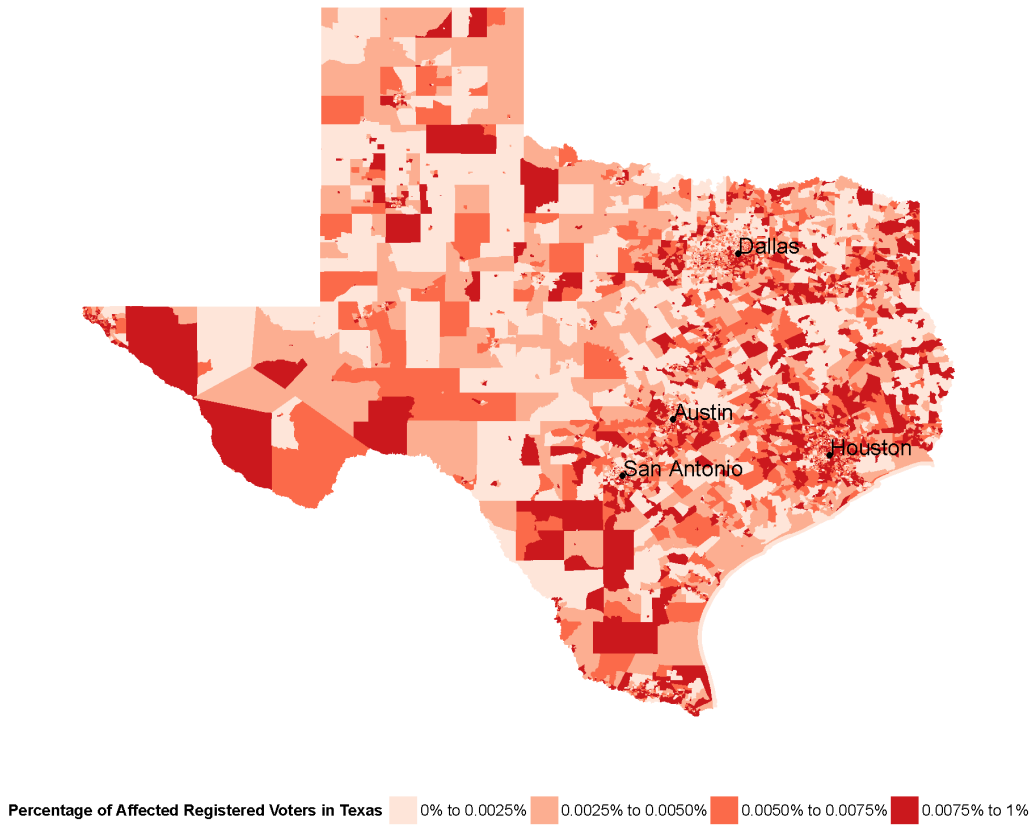
Figure 2: Geographic Distribution of Affected Registered Voters in Texas



VI.C. RACIAL COMPOSITION OF AFFECTED REGISTERED VOTERS

29. Minorities are not evenly distributed throughout Texas. The odds that a given Affected Registered Voter is African American vary greatly depending on where that voter resides. The U.S. Census provides information on the racial composition of the populations living in various geographical areas. The racial composition of Census Block Groups (*i.e.*, the

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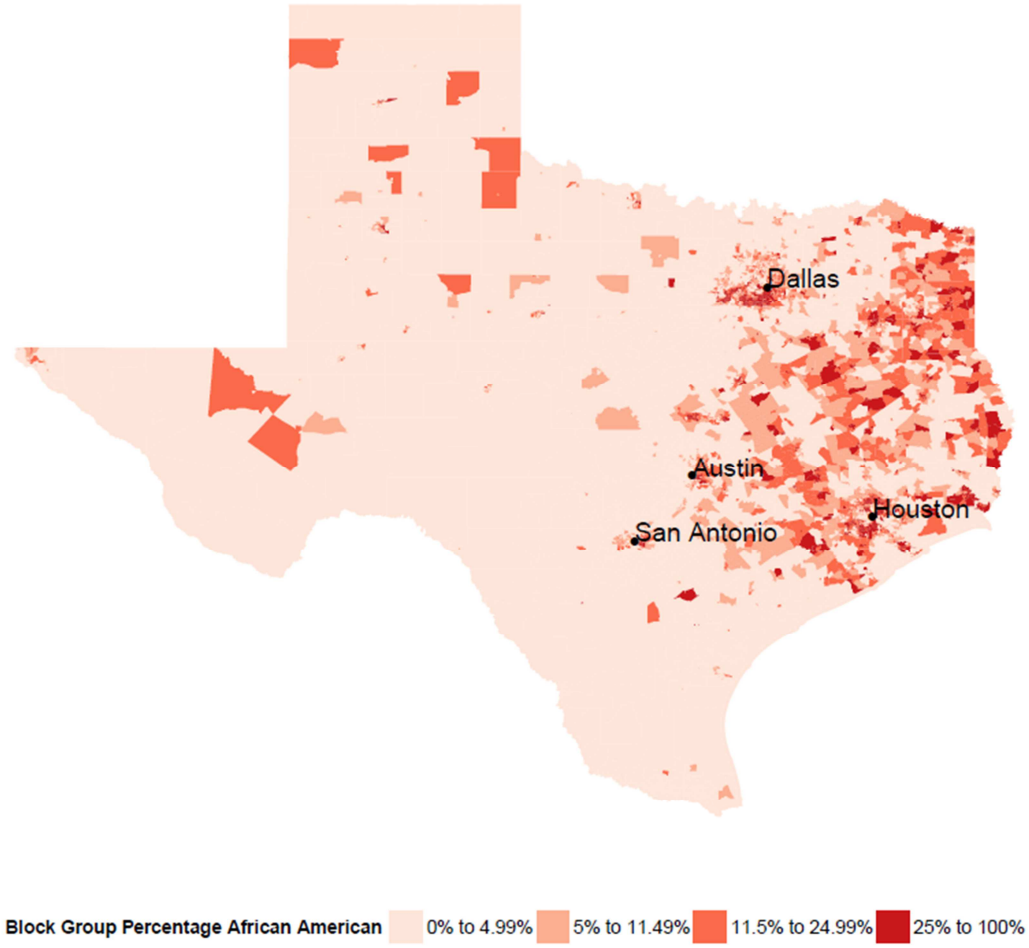
exemption. Disability-eligible voters likely face additional burdens to vote imposed by SB 14 that I do not measure. Additionally, there are a variety of reasons for which some disability-eligible voters might choose to apply for an EIC; such voters would face the same burdens of obtaining an EIC discussed in this report.

fraction of the population in each Census Block Group that is African American) in Texas is shown in Figure 3.

Figure 3: Racial Composition (Fraction African American) of Census Block Groups in Texas



30. As seen in Figure 3, many African Americans in Texas live in urban areas. The counties with the highest proportion of African Americans are generally in or very near cities, especially Dallas, Waco, Houston, and Beaumont. Nearly half of the African-American population in Texas lives in Dallas or Harris County.[17] There is also a significant presence of African Americans in Census Block Groups that contain prisons. Texas revokes the right

[17] Houston is located in Harris County.

to vote for convicted felons, and I conservatively remove all Census Block Groups with federal and state prisons from my analysis.[18]

31. For the purpose of the current analysis, it is not necessary to identify the race of each voter with precision; it is sufficient to estimate the number of Affected Registered Voters that are African American or not African American. I do so in three steps:

    a. First, I estimate the proportion of registered voters in each Census Block Group that is African American.[19]

    b. Second, I assign each Affected Registered Voter to a Census Block Group based on addresses in the TEAM database using geocoding software.[20]

    c. Third, I assign to each Affected Registered Voter a probability of being African American equal to the proportion of registered voters in each Census Block Group that is African American (as estimated in step (a)).

32. My method is "conservative" in the sense that, if there is a disparity in prevalence between the races, then I am likely to systematically underestimate it. Given that, as discussed below, my conservative method shows a significant racial disparity, I would expect a less aggregated analysis, or one bringing to bear additional information regarding racial composition, to show a larger racial disparity. Essentially, my method only detects a racial disparity based on where Affected Registered Voters live. If there is a racial disparity

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[18] *See* http://tdcj.state.tx.us/unit_directory/ for a list of all state prisons in Texas.

See http://www.bop.gov/locations/list.jsp for a list of all federal prisons in Texas.

[19] I calculate this proportion as the ratio of (i) the number of registered voters in the Census Block Group who are African American to (ii) all registered voters in the Census Block Group. I calculated (i) as the number of African Americans in the Census Block Group (taken from Census data) multiplied by the state-wide fraction of African Americans who are registered to vote. I calculated (ii) as the sum of the equivalent quantity as in (i) for each race. At a state-wide level, in 2012 the Census reports that 72% of white Texans are registered to vote, about 71% of African-American Texans are registered to vote, and about 39% of Hispanic Texans are registered to vote.

Source: U.S. Census Bureau, Voting and Registration in the Election of November 2012 – Detailed Tables, Table 4b, available at

https://www.census.gov/hhes/www/socdemo/voting/publications/p20/2012/tables.html .

[20] *See* Appendix C for details on the geocoding algorithm.

beyond controlling for where Affected Registered Voters live, my method will not capture it. Intuitively, one can see this by imagining a case where all Affected Registered Voters were actually African American (so 0% were not African American), and considering what my method would estimate. So long as some Affected Registered Voters lived in Census Block Groups that were racially mixed, my method would estimate that at least some of those Affected Registered Voter were not African-American, which necessarily understates the assumed racial disparity. In other words, by averaging over a Census Block, I lose granularity of the analysis. In Appendix D, I repeat my estimate using more aggregated Census regions and verify that the more granular the analysis regarding racial composition, the greater the number of Affected Registered Voters that are African American. In sum, I would expect to find greater racial disparity using a more granular analysis.

33. Table 1 provides my calculations of the number and share of Affected Registered Voters by race. Using my conservative method, I find that 5.5% of African-American registered voters would need to obtain a Required ID in order to vote. This is larger than the overall population of Affected Registered Voters, where I find that 4.1% of all registered voters would need to obtain a Required ID.[21] It is also larger than the white population of Affected Registered Voters, where I find that 3.1% of white registered voters in Texas would need to obtain a Required ID.

[21] As noted above, *see supra* footnote 15, I have restricted my analysis to those registered voters who do not have the option of applying for a disability exemption and therefore *must* obtain a Required ID in order to vote.

Table 1: Affected Registered Voters by Race

	All Texans	All Registered Texan Voters		All Affected Registered Texan Voters	Affected Share of Registered Voters
	[A]	[B]		[C]	[D]
African American	2,835,493	1,721,682		95,393	5.5%
White	11,311,834	7,686,747		241,812	3.1%
Hispanic	9,389,496	3,385,463		186,654	5.5%
All	24,932,741	13,350,209	*EIC required*	541,143	4.1%
			EIC required, or disability exempt	622,279	4.7%

Notes and Sources:
U.S. Census Bureau 2010 population counts; U.S. Census Bureau, Current Population Survey, November 2012; TEAM database.
[B]: TEAM consists of a total of 13,564,410 voters; 13,510,908 of whom were not known to be deceased as of July 2014; 13,406,038 of these voters have addresses or zipcodes that are able to be mapped to Census Block Groups; 13,350,209 of these voters map to Census Block Groups without prisons.
[C]: Results of DOJ Matching data and Brattle racial coding algorithm.
[D]: [C] / [B].

VII. The Economic Costs Imposed by SB 14

34. Every Required ID has a direct fee, except for Veteran IDs and the EIC, as shown in Table 2.[22]

[22] For full voting requirements in Texas, see "Required Identification for Voting in Person," available at http://votetexas.gov/register-to-vote/need-id/ .

Table 2: Fees to Issue Required IDs

	ID Type	Nominal Cost	
		New ID	Renewal ID
[1]	Texas Driver License		
	Under 18	$16	$6
	18 to 84	$25	$25
	Over 85	$9	$9
	Disabled Veterans	$0	
	Replacement	$11	
[2]	**Texas Election Identification Certificate**	**$0**	
[3]	Texas Personal Identification Card		
	59 and Younger	$16	$16
	60 and Older	$6	$6
	Replacement	$11	
[4]	Concealed Handgun License - Standard	$140	$70
[5]	Veteran ID card	$0	
[6]	United States Citizenship Certificate		
	Naturalization Certificate	$680	$345
	Certificate for Citizenship	$600	$345
[7]	United States Passport		
	Book	$135	$110
	Card	$55	$30

Notes and Sources:

All forms of identification, except for US citizenship certificate or certificate of naturalization, need to be current or expired no longer than 60 days at the time of voting. See http://www.txdps.state.tx.us/driverlicense/electionid.htm.

[1] & [3]: Texas Driver License and Identification Card Fees, available at http://www.txdps.state.tx.us/DriverLicense/fees.htm.

[2]: Election Identification Certificate (EIC) information, available at http://www.txdps.state.tx.us/driverlicense/electionid.htm.

[4]: Texas Concealed Handgun License (CHL) Fee Table, available at http://www.dps.texas.gov/RSD/CHL/documents/CHLFeeSchedule.pdf.

[5]: Veteran Services, available at http://www.txdps.state.tx.us/DriverLicense/vetServices.htm.

[6]: Application for Naturalization information, available at http://www.uscis.gov/n-400. Application for Certificate of Citizenship information, available at http://www.uscis.gov/n-600. Application for Replacement Naturalization/Citizenship Document information, available at http://www.uscis.gov/n-565.

[7]: United States Passport Fees, available at http://travel.state.gov/content/dam/passports/FeeChart/Passport%20Fees%20Chart%202014_TSG.pdf.

35. In addition to the issuance fee, all other Required IDs (except the Texas Personal Identification Card) have eligibility requirements, such as military service or learning to drive, that make them unreasonable alternatives for the purpose of enabling voting. I focus on the costs to obtain an EIC because it is the least costly remedy for most Affected Registered Voters.[23]

36. Although there is no direct fee associated with acquiring an EIC, a voter without a Required ID bears economic costs in acquiring one. For purposes of my analysis, I categorize these economic costs as direct or indirect, and as monetary or non-monetary.

    a. Direct versus Indirect

        i. *Direct Economic Costs* are costs associated with the narrow act of applying for and receiving an EIC, such as the time and expense it takes to go to the DPS and apply for an EIC.

        ii. *Indirect Economic Costs* are costs that are incurred to support applying for and receiving an EIC, such as the cost of obtaining a birth certificate or securing childcare while obtaining the EIC.

    b. Monetary versus Non-Monetary

        i. *Monetary Economic Costs* include any cash expenditures related to acquiring an EIC or supporting documents.

        ii. *Non-Monetary Economic Costs* include the non-cash economic costs associated with acquiring an EIC, such as waiting in line at the DPS or the time spent acquiring a birth certificate.

37. Note that both direct versus indirect economic costs and monetary versus non-monetary economic costs are independent characteristics, such that both direct and indirect economic costs can be either monetary or non-monetary. These may include the time and monetary costs of obtaining supporting documentation (such as a birth certificate), the costs in time and money of traveling to a DPS or other facility that issues EICs, lost wages,

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[23] Note that in addition to a fee, the Texas Personal Identification Card requires the same sort of documentation as the EIC. *See* http://www.txdps.state.tx.us/DriverLicense/applyforid.htm.

the cost of child care services,[24] and the potential risk of job loss. The EIC is valid for 6 years, so some of the costs related to physical renewal of an EIC would be periodically repeated.

VII.A. A "FREE" EIC IS NOT COSTLESS TO OBTAIN

38. I understand that Texas has claimed that the EIC is "free" and that there is therefore no economic cost imposed by SB 14.[25] This claim is incorrect. First, there are indirect monetary costs involved in obtaining an EIC, such as transportation costs, child care costs while traveling and waiting at the DPS, and the cost of obtaining supporting documents. Second, it is widely recognized—in the economics literature,[26] in business practice, and in U.S. government- and state-sponsored studies[27]—that non-monetary costs, such as wait or travel times, are economic costs and are an important consideration in the overall cost of a decision.

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[24] The Texas Workforce Commission reported that median child-care costs for part-day services range from $11 for school-age children in registered child-care homes to $26 for infants in licensed child-care centers. *See* Texas Workforce Commission (April 2011), "2010 Texas Child Care Market Rate Survey – Final Report," at 15. Report available at:

http://www.twc.state.tx.us/svcs/childcare/child-care-market-rate-report.pdf.

[25] Defendant's Motion to Dismiss, ECF No. 52, at 2, 17-18.

[26] For example, noted statistician and economist Harold Hotelling and antitrust economist Steven Salop give equal weight to both travel costs and the direct price of purchasing a good, noting the importance of distance from a firm in determining whether an individual will buy from the firm or its rival. *See* Harold Hotelling (1929) "Stability in Competition" *The Economic Journal* 39: 41-57 and Steven Salop (1979) "Monopolistic Competition with Outside Goods" *The Bell Journal of Economics* 10: 141-156.

[27] Empirical studies of the value of time, particularly in travel decisions, play an explicit role in transportation planning, including highway build out, congestion management, the determination of tolls, and the setting of transit fares for buses and subway systems. *See*, for example, Texas A&M Transportation Institute (December 2012), "TTI's 2012 Urban Mobility Report"; David Ellis (May 2008), "Technical Memorandum: Cost Per Hour and Value of Time Calculations for Passenger Vehicles and Commercial Trucks for Use in the Urban Mobility Study"; Maricopa Association of Governments (February 2012), "Toll Road Modeling Support: Final Report"; and, U.S. Department of Transportation (September 28, 2011), "Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis."

VII.B. THE COSTS OF DOCUMENTS REQUIRED TO OBTAIN AN EIC

39. Although I do not directly estimate the costs of acquiring the documents that are required to support an application for an EIC, if needed, they are nevertheless real costs. Individuals who have to obtain these documents would bear these costs in addition to the travel costs I estimate.

40. To qualify for an EIC, voters must provide:[28]

    a. documentation of identity, and

    b. documentation of U.S. Citizenship, and

    c. a valid Texas voter registration card.

41. Documentation of Identity is divided into three categories: primary, secondary, and supporting. One primary, two secondary, or one secondary and two supporting identification documents must be provided for identity verification and EIC eligibility.[29]

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[28] Election Identification Certificate (EIC) information, available at:

http://www.dps.texas.gov/DriverLicense/electionID.htm.

Additionally, one must be a Texas resident and be 17 years and 10 months or older, and not possess another legitimate form of voting identification.

A summary of the documents required to support an application for an EIC are provided in Table 13 in Appendix E.

[29] Primary identification is a Texas driver's license expired more than 60 days but within two years of the expiration date. Secondary identification includes original or certified copies of a birth certificate issued by the appropriate State Bureau of Vital Statistics or equivalent agency, United States Department of State Certification of Birth, a court order with name and date of birth indicating an official change of name and/or gender, or U.S. citizenship or naturalization papers without an identifiable photo. Supporting identification includes twenty eight different categories of documents, including a voter registration card, Texas vehicle or boat title or registration, Social Security card, a driver's license or photo ID issued by DC or another U.S. state or territory, or school records. Election Identification Certificate (EIC) – Documentation Requirements lists all acceptable forms of documentation, available at:

http://www.txdps.state.tx.us/DriverLicense/eicDocReqmnts.htm.

42. Documentation of U.S. citizenship can be satisfied by several forms of identification.[30] Since some such commonly held IDs—U.S. passports or citizenship papers with photo—are sufficient to vote in their own right, it is generally the various forms of birth certificates that are relevant for obtaining an EIC.

43. For Texas-born residents, the monetary cost of obtaining a birth certificate is $22. I understand that an individual who obtains a birth certificate in person (as opposed to by mail) for purposes of obtaining an EIC can have this fee waived.[31] However, photo ID requirements to obtain a birth certificate may lead to additional costs. Applicants must submit or show a valid photo ID,[32] such as a current driver's license or U.S. Passport in order to apply for a birth certificate. Alternatively, applicants must provide a number of secondary identification documents, which also require at least one photo ID.[33]

44. For residents born outside of Texas, the monetary cost of obtaining a birth certificate varies by state. Every U.S. state offers an option to obtain a birth certificate either online or by mail.[34] Required documentation varies by state, but in general a valid photo ID is required in order to apply for a birth certificate.

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[30] These include: a U.S. passport book or card, birth certificate issued by a U.S state, territory, or District of Columbia, Certificate of Report of Birth, Consular Report of Birth issued by the U.S. Department of State, U.S. Certificate of Citizenship or Certificate of Naturalization, or U.S. Department of Justice Immigration and Naturalization Service U.S. Citizen ID card.

[31] *See*

http://www.dshs.state.tx.us/Layouts/ContentPage.aspx?PageID=56719&id=8589981487&terms=election+identification.

[32] An application for birth certificate can be submitted online, by mail, or in person. This potentially eliminates the direct travel costs associated with obtaining a birth certificate. *See*

http://www.dshs.state.tx.us/vs/reqproc/certified_copy.shtm.

[33] For a list of acceptable primary or secondary identification requirements for a Texas birth certificate, see:

http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=25&pt=1&ch=181&rl=28.

[34] All states except Wyoming and Vermont allow online application of vital records via the commercial vendor VitalChek, https://www.vitalchek.com/. Most also host their own online vital records service. Wyoming has a by-mail application service. *See*

Continued on next page

45. I have not found any analyses considering whether African Americans in Texas have lower possession rates of these supporting documents than white Texans. Indirect evidence, however, suggests that African Americans in Texas are less likely to possess such documentation. A 2006 survey by the Brennan Center found that one-quarter of voting-age African Americans lack a government issued photo ID, versus 8% of white citizens.[35] Another study found that 26.7% of African-American 18 to 29 year-olds lacked a birth certificate, compared to only 15.7% of white youth.[36] According to this same study, African-American "youth reported that the lack of required identification prevented them from voting at nearly four times the rate of white youth (17.3 percent compared with 4.7 percent)."[37] Evidence provided at trial in the recent Wisconsin voter ID case of *Frank v. Walker* found that "[m]issing birth certificates are also a common problem for older African American voters who were born at home in the South because midwives did not issue birth certificates."[38] Furthermore, significant numbers of Katrina evacuees relocated to Texas[39] and a much higher percentage of African-American evacuees did not return to their pre-Katrina counties,[40] suggesting that a disproportionately high number of African-

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Continued from previous page

http://www.health.wyo.gov/rfhd/vital_records/birthcertificate.html. Vermont has an online and by-mail application service. *See*

https://secure.vermont.gov/VSARA/vitalrecords/.

35 *See* "Citizens without Proof: A Survey of Americans' Possession of Documentary Proof of Citizenship and Photo Identification," available at:

http://www.brennancenter.org/sites/default/files/legacy/d/download_file_39242.pdf.

36 Jon Rogowski and Cathy Cohen, "Black and Latino Youth Disproportionately Affected by Voter Identification Laws in the 2012 Election," at 5. Report available at:

http://research.blackyouthproject.com/files/2013/03/voter-ID-laws-feb28.pdf.

37 *Id.* at 1.

38 Wisconsin Decision at *16 n.17; *see also id.* at *30 n.36.

39 Jeffrey A. Groen and Anne E. Polivka (March 2008), "Hurricane Katrina evacuees: who they are, where they are, and how they are faring," BLS Monthly Labor Review, at 40. (Hereinafter, "Groen & Polivka".)

40 Groen & Polivka, at 44.

American Katrina evacuees settled in Texas. Many of these evacuees lost their IDs in the storm.[41]

VII.C. TRAVEL COSTS TO OBTAIN AN EIC

46. Travel costs include monetary costs such as bus or taxi fares, as well as non-monetary costs such as travel time. To estimate travel costs, I assume that potential voters would seek to obtain an EIC from whichever DPS or other EIC issuing location that minimizes the overall travel cost of getting to that location.

47. If the only travel option to get to a DPS were walking, then most potential voters would travel to the DPS closest to their home.[42] Figure 4 provides an illustrative example of this selection method for the Houston area. Each DPS is denoted by a black dot, and the collection of Census Block Groups whose residents would find that DPS to be the nearest are shown as like-colored dots surrounding the black dot.[43] For example, the area of South Houston has a single DPS, and it is surrounded by magenta dots, which represent all of the Block Groups (and potential voters) who would choose to walk to that DPS rather than any other because it is the nearest EIC-granting location. Just east of South Houston is a collection of grey-colored dots identifying Block Groups that would choose to go to an alternate DPS location rather than the location in South Houston.

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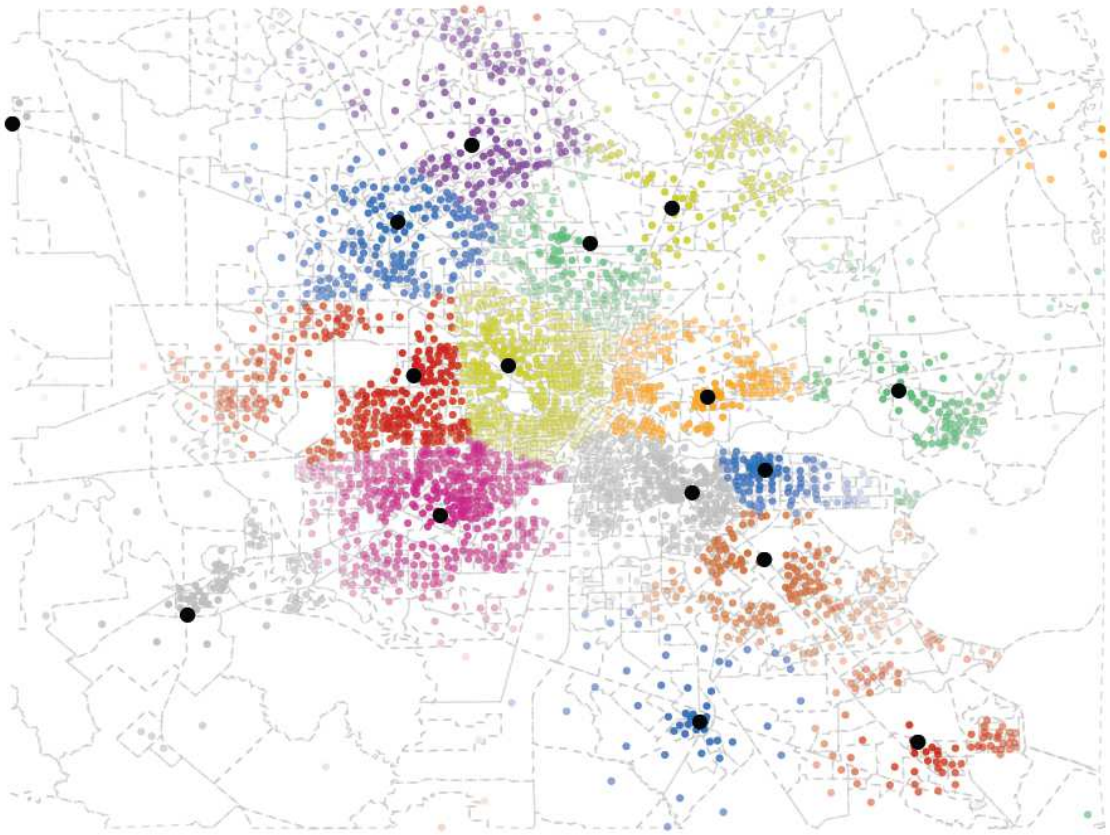
41 Bob Sullivan (September 13, 2005), "Katrina victims face identity crisis," NBC News, available at: http://www.nbcnews.com/id/9316512/ns/technology_and_science-security/t/katrina-victims-face-identity-crisis/#.U58Jq_ldWVM. Last accessed June 16, 2014.

42 It is possible that some people would travel to a DPS from work or while commuting to or from work. I do not have any information on the work addresses (or times at work) for registered Texas voters, so I model travel from home.

43 In this particular chart, distance is measured by the Euclidean distance metric, often referred to "as the crow flies." It is an approximation of the walking distance, although actual street patterns would distort the distances somewhat.

Figure 4: Block Groups with Shortest Distance to Each DPS Location (Houston)



48. Figure 4 does not account for differences in travel time or costs associated with different travel modes (walking, bus, taxi, or being driven by a friend or family member). For example, some Block Groups may sit on transit lines that significantly shrink the travel time to a particular DPS location, suggesting that the preferred DPS location may not be the nearest one.

49. In this section, I explain how I account for these factors by calculating the total cost of travel, including the economic costs of travel time, for each of three possible modes of travel—walking, transit, or taxi—and selecting the lowest cost method.[44]

[44] Obviously, driving oneself is not an option—otherwise the individual would already have a valid photo ID in the form of a driver's license. The cost of a taxi also stands in for the "cost" of getting a ride from a friend or relative.

VII.C.1. Value of Time

50. The amount of money an individual would be willing to pay to avoid travel time is known as the "Value of Time" in the economics and transportation literature.[45] Everyone has a limited budget of time to allocate towards work and leisure activities, and time spent going to the DPS reduces the time available for other productive or pleasurable pursuits. Transportation departments at the state and federal levels have long recognized this fact, and the value of commuters' time plays a key role in their decisions regarding road construction and maintenance, as well as congestion management.

51. The Texas Transportation Institute issued a report in December 2012 that valued the cost of delays while traveling at $16.79 per hour for personal (as opposed to commercial) drivers.[46] Other transportation agencies derive similar values for the value of travel time savings. Many identify a value of time that is approximately equal to 50 percent of average wages.[47] This valuation is also recommended by the U.S. Department of Transportation ("USDOT") for local personal travel, which notes explicitly that with 2009 nationwide median annual household income of $49,777, the average value of travel time savings would be $12.00 per hour.[48] The USDOT also notes that "Personal time spent walking or waiting outside vehicles, as well as time spent standing in vehicles or bicycling [presumably when not for pleasure], should be evaluated at 100 percent of hourly income."[49] This latter measure better captures the value of time expended to acquire an ID solely for the purpose of retaining the ability to vote.

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[45] *See* Small, Kenneth A. and Erik T. Verhoef, *The Economics of Urban Transportation*, New York: Routledge, 2007, at 45-46.

[46] *See* Texas A&M Transportation Institute (December 2012), "TTI's 2012 Urban Mobility Report." For a description of methodology, see David Ellis (May 2008), "Technical Memorandum: Cost Per Hour and Value of Time Calculations for Passenger Vehicles and Commercial Trucks for Use in the Urban Mobility Study."

[47] *See* Maricopa Association of Governments (February 2012), "Toll Road Modeling Support: Final Report" for a useful summary of many state and federal transportation agencies' modeling efforts. Common methodologies include stated preference surveys, revealed preference analysis using observed mode choice data, and speed choice models.

[48] *See* U.S. Department of Transportation (September 28, 2011), "Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis."

[49] *Id.* at p. 13.

52. Accordingly, I value the cost of time spent travelling to an EIC granting location at 100 percent of the median (within Tract) wage rate. I do this separately for each race and census tract.[50] The distribution of median (within Tract) wage rates in Texas is presented in Table 3. African-American Texans earn on average $13.69 per hour, compared to $23.08 for white Texans. There is also considerable variability across Census Tracts. The bottom 25% of Census Tracts have an African-American wage rate of less than $10.20, while the top 25% of Census Tracts have an African-American wage rate exceeding $16.44.

Table 3: Wage Rates by Race

	Statistic	African American	White	Hispanic
[1]	Overall Average	$13.69	$23.08	$11.28
[2]	Average Across Tracts	$13.12	$21.75	$11.75
[3]	Standard Deviation	$5.25	$10.49	$4.70
[4]	Median	$13.03	$20.57	$10.39
[5]	25th Percentile	$10.20	$16.39	$8.71
[6]	75th Percentile	$16.44	$26.84	$12.88

Source: Census Bureau American Community Survey

Notes:

[1]: Calculated as census tract wages weighted by total labor hours by race.

[2] - [3]: Unweighted statistics across census tracts.

[4] - [6]: Statistics weighted by labor hours by race.

VII.C.2. The Economic Costs of Travel to Obtain an EIC

53. The total cost of travel to a DPS location includes both monetary (*e.g.*, transit and taxi fares) and non-monetary (value of time) costs. I determine each of these based on a geocoding algorithm that allows me to calculate expected travel times and distances for each of three travel modes: walking, taxi, and public transit. I assume that voters wishing

[50] Although I model the expected amount of travel time to EIC locations separately by Block Group, I rely on publically available Census data for income statistics, which only describe income at the Census Tract level.

to obtain an EIC will select the DPS location and travel mode that minimize the total cost of travel. Appendix C includes specific details on the algorithm.

54. Table 4 provides an illustrative example of the registered voter's decision process for two different voters living in the same location choosing a DPS location and travel mode to obtain an EIC. Each hypothetical voter is presented with three potential DPS locations to visit via any of the three travel mode options. For example, for Voter 1 to travel to DPS Location 1, she could take a taxi, with a total travel time of 10 minutes and an expected fare of $14.50.[51] If she were to walk instead, she would bear no direct monetary costs, but the walk would take 150 minutes. Finally, if instead she were to use public transit, the total trip time in this illustrative example would be 42 minutes and she would pay a fare of $4.10. Voter 1's wage rate is equal to the median wage rate for African-American Texans of $13.03/hour,[52] from which I can calculate the value of time across each option. In this instance, Voter 1 would choose to take public transit to DPS Location 1, at a total one-way travel cost of $13.22, composed of $4.10 in fare charges and $9.12 in travel time costs.

55. Voter 2 in the illustrative example would make a different decision. Her wage rate is equal to the median wage rate for white Texans of $20.57. As a consequence, two options with the same travel times and fare expenses can lead Voter 2 to choose a different DPS location. In this example, the lowest travel cost for Voter 2 is to take a taxi to DPS location 2, which costs her $3.09 in travel time costs and $13.25 in fare charges, for a total trip cost of $16.34. If she had chosen the same options as Voter 1, she would bear $14.40 in travel time costs and $4.10 in transit charges, for a total travel cost of $18.50. Importantly, the main impact of Voter 2's higher wage and subsequent value of time is to lead her to make a different travel choice than Voter 1 when faced with the same expected travel times and fare charges.

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[51] For this analysis, I assume that the total taxi fare is the sum of a $2.50 base fare and an additional $2.00 per mile for distance traveled. These numbers were determined by taking the average of the taxi rates reported by the cities of Houston and Fort Worth. *See*

http://www.houstontx.gov/ara/regaffairs/taxicabs_rates.html and

http://fortworthtexas.gov/uploadedFiles/Municipal_Court/About_Us/Administration/Taxicab%20Rates%20and%20Approximate%20Fares.pdf, last visited June 22, 2014.

[52] In the actual travel cost analysis, the wage rate for each Block Group is specific to the Census Tract within which the Block Group is located. *See* Table 3.

Table 4: Illustrative Example of Travel Mode Choice and Cost Calculation

	Voter 1 African American Wage = $13.03 DPS Location			Voter 2 White Wage = $20.57 DPS Location		
	1	2	3	1	2	3
Taxi						
Travel Time (minutes)	10	9	12	10	9	12
Value of Time ($)	$2.17	$1.95	$2.61	$3.43	$3.09	$4.11
Fare ($)	$14.50	$13.25	$17.00	$14.50	$13.25	$17.00
Total ($)	$16.67	$15.20	$19.61	$17.93	**$16.34**	$21.11
Walk						
Travel Time (minutes)	150	135	180	150	135	180
Value of Time ($)	$32.58	$29.32	$39.09	$51.43	$46.28	$61.71
Fare ($)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total ($)	$32.58	$29.32	$39.09	$51.43	$46.28	$61.71
Public Transit						
Travel Time (minutes)	42	51	44	42	51	44
Value of Time ($)	$9.12	$11.03	$9.64	$14.40	$17.42	$15.22
Fare ($)	$4.10	$4.54	$4.22	$4.10	$4.54	$4.22
Total ($)	**$13.22**	$15.57	$13.86	$18.50	$21.96	$19.44

Source: Illustrative example only.

56. I perform similar calculations for each Census Block Group in Texas. The lower wage rates for African-American Texans tend to make public transportation and walking more attractive relative to white Texans. In addition to the wage-rate differential, the greater urbanization of African-American Texans also implies greater access to public transportation for African-American Texans than white Texans. These two impacts combined to skew the mode choice distribution. As shown in Table 5, my analysis finds that African-American Texans tend toward more time-intensive public transport and walking while white Texans are more likely to choose a quicker but more expensive taxi. As described in the illustrative example, even two individuals from the same neighborhood might choose different modes of transportation to get to a DPS location because of different opportunity costs of time.

Table 5: Frequency of Travel Mode Choice to DPS Locations by Race

Mode		African American	White	All Registerd Voters
		[A]	[B]	[C]
Driving	[1]	44%	79%	62%
Transit	[2]	41%	14%	26%
Walking	[3]	15%	7%	12%

Notes and Sources:
Results from The Brattle Group Google API Analysis.
[1]: Frequency of driving mode by race.
[2]: Frequency of transit mode by race.
[3]: Frequency of walking mode by race.

57. Table 6 provides a summary of the expected travel costs associated with these travel mode choices across different segments of the Texas population. Across all Affected Registered Voters in Texas, the expected travel costs to obtain an EIC are $36.33. Among Affected Registered Voters, African Americans have an expected average travel cost to a DPS location of $26.68, composed of an expected average travel time of 85 minutes and $11.80 in expected average fare charges. Among white Affected Registered Voters, the expected average travel cost to a DPS location is $48.18, composed of an expected average travel time of 38 minutes and $35.59 in expected average fare charges. These numbers reflect the different options available and constraints imposed across racial groups in Texas.

Table 6: Summary of Travel Costs by Race

Breakdown of Travel Costs		African-American Affected Voters	White Affected Voters	All Registered Voters
		[A]	[B]	[C]
Travel Time (minutes)	[1]	85	38	58
Value of Time ($)	[2]	$14.88	$12.59	$12.49
Fare ($)	[3]	$11.80	$35.59	$23.84
Total Cost ($)	[4]	$26.68	$48.18	$36.33

Notes and Sources:
Results from The Brattle Group Google API Analysis, TEAM Data, and DOJ matching data.

[A] - [C]: Average values across all block groups in Texas by race.
[1]: Calculated travel times to mimimum-cost DPS location.
[2]: Calculated using wage rates by race by Census tract from the ACS Survey 2010.
[3]: Calculated using travel distance to minimum-cost DPS taxi and transit rates based.
[4]: Sum of [2] & [3].

58. Given that the prevalence of African-American Texans needing to acquire an EIC to retain the right to vote is about twice as high as for white Texans, the expected travel costs for a random Affected Registered Voter, conditioned on race, are not so different and are probably higher for African-American Texans. Nevertheless, because these cost differences are largely driven by differences in earnings, they are not directly comparable for purposes of evaluating burden. *See* Section VIII.

VII.D. TOTAL COSTS TO OBTAIN AN EIC BY RACE

59. The total cost to acquire an EIC will depend on many factors, specific to each voter. Some voters will live near a DPS and have a copy of their birth certificate, while others will live far away, will need to acquire a birth certificate, and possibly will incur other costs as well. Such costs could include:

- *Travel costs.* I found that the average cost for an Affected Registered Voter to travel to a DPS was $36.33. This cost varies by the voter's location. It also varies, on

average, by race, with African-American Affected Registered Voters experiencing $26.68 in travel costs and white Affected Registered Voters experiencing $48.18 in travel costs. Additional travel costs could be incurred for individuals who need to acquire other documentation to support their EIC application.

- *Documentation costs.* Applying for an EIC requires additional documentation. These documents usually require payment of fees. Additionally, the requirements to obtain such documents may lead to additional costs.

- *Time spent at DPS applying for EIC.* Some Affected Registered Voters are likely to experience long wait times at the DPS location, increasing the total time costs to acquire an EIC.[53]

- *Time lost at work.* Some Affected Registered Voters are likely to have inflexible work schedules and either suffer lost vacation time or forego lost wages for time spent acquiring an EIC. I found that the average African-American Affected Voter would spend 85 minutes in travel to and from a DPS location in order to obtain an EIC. DPS wait times could increase the total time spent acquiring an EIC to 2 hours or more. This would amount to at least $26 in lost wages for a typical working African American in Texas.

- *Child care costs.* Some Affected Registered Voters may need to secure child care services for at least a partial day in order to obtain an EIC. Such costs could range from $11 up to $26.

60. While these costs are not necessarily additive for all Affected Registered Voters, the total cost to obtaining an EIC for an Affected Registered Voter will likely include some combination of each of these costs and accumulate to potentially several multiples of the total travel costs calculated here. So, for example, an African-American Affected

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[53] These wait times could range from 15-45 minutes, to as much as several hours.

See

http://www.nbcdfw.com/investigations/DPS-Wait-Times-Shorter-at-New-Mega-Center-License-Offices-200942911.html. Last visited June 26, 2014.

See also

http://www.khou.com/news/local/DPS-wait-times-are-longer-than-ever-161146955.html. Last visited June 26, 2014.

Registered Voter that needs a birth certificate and child care could incur the following costs:

- travel costs -$26.68,
- one hour spent at DPS - $13.03,
- one hour spent acquiring birth certificate - $13.03,
- birth certificate fees - $22,[54] and
- partial day of child care services - $11.

This hypothetical voter would incur total costs of $85.74, approximately three times the travel costs alone.

VIII. Obtaining the Required IDs is More Burdensome for African Americans

61. As demonstrated in the previous sections, African Americans are more likely to need to acquire an ID to vote and acquiring an ID for the purpose of voting comes with a cost. As noted above, whatever its level, a cost is more burdensome the lower is the socioeconomic standing of an individual.

62. As I show below, African Americans in Texas tend to be poorer than whites in Texas, making the burden of acquiring an ID to vote higher for African-American voters than for white voters. Stated slightly differently, if all that is known about a potential Texas voter is that she is African-American, the data analyzed in this report show that the burden of acquiring an ID to vote is expected to be higher for her than if she were a white Texan.

VIII.A. African Americans in Texas have Lower Incomes than White Texans

63. It is well established that African Americans generally have substantially lower income[55] and wealth[56] than white Americans. I have examined income and wealth distributions in

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[54] I assume that this voter would be mailing in his application for a copy of his birth certificate.

[55] In a study titled on income and poverty, the U.S. Census reported that "Comparing the 2012 income of non-Hispanic White households to that of other households shows that […] the ratio of Black to non-Hispanic white income was .58." *See* Carmen DeNavas-Walt, Bernadette D. Proctor, Jessica C. Smith

Continued on next page

Texas and find this generally to be true in this state as well, both state-wide and across households in Texas. As shown in Table 3 above, African Americans in Texas on average have significantly lower wages (59% lower) than white Texans.

64. As shown in Table 7, in 2010, white Texas residents had an annual median income of $52,392, approximately 68% greater than the median income of $31,104 for African-American residents of Texas and approximately 36% greater than the median income of other minority residents. Additionally, approximately 69% of Texas's African-American population had an income less than the median income of white residents, while approximately 66% of Texas's other minority population had an income less than the median income of white residents. If the income distribution were random across racial groups, only 50% of residents would be expected to have an income less than the white group's median income.

Continued from previous page

(September 2013) "Income, Poverty, and Health Insurance Coverage in the United States: 2012" (p. 8), available at:

https://www.census.gov/prod/2013pubs/p60-245.pdf .

[56] The U.S. census reports that 2010 median wealth for white (non-Hispanic) households was $110,729. For African-American households the median net worth was $4,955, or about 22 times less than the net worth of white households. *See* U.S. Census "Net Worth and Asset Ownership of Households: 2010," available at:

http://www.census.gov/people/wealth/files/Wealth_Tables_2010.xls.

Table 7: Texas Household Income by Race

State of Texas 2010		African American [A]	White [B]	Other [C]
Median Household Income	[1]	$ 31,104	$ 52,392	$ 38,412
% Difference with White	[2]	68.4%		36.4%
Total Number of Households	[3]	263	1,087	855
Households below White Median	[4]	181		560
Households below White Median (%)	[5]	68.8%		65.5%

Notes and Sources:
[1], [3] & [4]: Data from the Survey of Income and Program Participation, 2008 Panel, Wave 7.
[A][2]: [B][1] / [A][1] - 1.
[C][2]: [B][1] / [C][1] - 1.
[A][5]: [A][4] / [A][3].
[C][5]: [C][4] / [C][3].

VIII.B. AFRICAN AMERICANS IN TEXAS HAVE LESS WEALTH THAN WHITE TEXANS

65. The distribution of wealth across racial groups in Texas is more uneven than income. Table 8 presents the breakdown of wealth by racial group. The wealth measurement is the sum of equity in homes, vehicles, businesses, interest-earning assets at banks and other institutions, stocks and mutual fund shares, non-home real estate, other assets, 401K, IRA, Keogh and thrift savings accounts.[57] The median household wealth of the white population in Texas is $97,800, more than 7 times larger than the median household wealth of $11,961 for the African-American population, and almost twice as large as the median household wealth of other minority populations.

[57] *See* Peter McHenry, "Does Low Wealth Constrain Long-Distance Migration?", College of William and Mary, August 2013, p. 14, available at:

http://wmpeople.wm.edu/asset/index/pmchenry/paperwealthandmigration.

Table 8: Texas Household Wealth by Race

State of Texas 2010		African American [A]	White [B]	Other [C]
Median Household Wealth	[1]	$ 11,961	$ 97,800	$ 34,490
% Difference with White	[2]	717.7%		183.6%
Total Number of Households	[3]	263	1,087	855
Households below White Median	[4]	217		634
Households below White Median (%)	[5]	82.5%		74.2%

Notes and Sources:
[1], [3] & [4]: Data from the Survey of Income and Program Participation, 2008 Panel, Wave 7.
[A][2]: [B][1] / [A][1] - 1.
[C][2]: [B][1] / [C][1] - 1.
[A][5]: [A][4] / [A][3].
[C][5]: [C][4] / [C][3].

66. The disparity in wealth appears to be at all income levels. Nationally, white Americans increase their wealth more quickly than African Americans do as their income rises. One study found that over a 25 year period, every dollar increase in income raised white family wealth by $5.19, whereas over the same period a dollar increase in income raised African-American family wealth by $0.69.[58]

VIII.C. African Americans in Texas are More Likely to be Poor than White Texans

67. As shown in Table 9, one-quarter of all African Americans in Texas live below the poverty line. This is a rate that is two-and-a-half times as high as the poverty rate for white Texans, but similar to other minority Texans.

[58] Thomas Shapiro, Tatjana Meschede and Sam Osoro, "The Roots of the Widening Racial Wealth Gap: Explaining the Black-White Economic Divide" (February 2013), Figure 3, available at:

http://iasp.brandeis.edu/pdfs/Author/shapiro-thomas-m/racialwealthgapbrief.pdf.

Table 9: Texas Poverty Status by Race

	African American		White		Other		% Difference Between White and African American
At or Above the Poverty Line	2,046,954	77%	10,061,576	91%	7,627,095	76%	15%
Below the Poverty Line	627,862	23%	956,513	9%	2,387,679	24%	-15%

Source: U.S. Census Bureau, 2006-2010 American Community Survey.
Note: "African American" and "White" race categories do not include individuals that also identify as "Hispanic" or "Latino."

VIII.D. African Americans in Texas Score Lower on Other Measures of Socioeconomic Status than White Texans

68. The disparity seen in wage rates is consistent with disparities in unemployment rates. As shown in Table 10, African-American unemployment in Texas is more than twice the rate of white unemployment in Texas.

Table 10: Texas Employment Status by Race

	African American		White		Other	
Employed	1,186,242	88%	5,627,211	95%	4,312,163	92%
Unemployed	158,430	12%	317,602	5%	361,199	8%
% Difference Between White and African American Unemployment						-6%

Source: U.S. Census Bureau, 2006-2010 American Community Survey.
Note: "African American" and "White" race categories do not include individuals that also identify as "Hispanic" or "Latino."

69. This disparity in income and wealth is also consistent with disparities observed in other measures of social and economic well-being. For example, income and wealth is known to

be strongly correlated to education[59] and, as seen in Table 11, the educational achievement gap between African-Americans and whites is significant.

Table 11: Texas Education Attainment by Race

	Less than High School Diploma		Less than Undergraduate Degree	
African American	260,738	16%	977,674	58%
White	688,064	9%	4,011,559	51%
Other	2,072,196	38%	2,257,395	41%
% Difference Between White and African American Educational Attainment		-7%		-8%

Source: U.S. Census Bureau, 2006-2010 American Community Survey.
Note: "African American" and "White" race categories do not include individuals that also identify as "Hispanic" or "Latino."

VIII.E. SB 14 Creates a Higher Expected Burden for Affected Registered Voters Who are African American than for those Who are White

70. Of the Affected Registered Voters in Texas, those who are African American are expected to experience a higher burden of acquiring an EIC to vote than the Affected Registered Voters who are white. The higher expected burden comes from the non-trivial costs of acquiring an EIC and the greater impact any cost has on lower income voters, as African-American Texans are more likely to be. The cost of acquiring an EIC, whether $25, $50, or $100, will have a much bigger impact on individuals who, on average, earn $31,104 and have household wealth of $11,961 than on individuals who, on average, earn $52,392 and have household wealth of $97,800.

71. To put my findings in perspective, the travel costs for an African-American Affected Registered Voter of $26.68 represents approximately 26% of a day's earnings, but the typical African-American Texan only has 115 days of earnings stored as wealth. In comparison, the travel costs for an white Affected Registered Voter of $48.18 represents

[59] *See*, for example, Steven Strauss, "The Connection Between Education, Income Inequality, and Unemployment," available at:

http://www.huffingtonpost.com/steven-strauss/the-connection-between-ed_b_1066401.html.

approximately 29% of a day's earnings, but the typical white Texan has 594 days of earnings stored as wealth. For only the travel-cost portion of the burden created by SB 14, an African-American Affected Registered Voter is required to expend a share of their wealth that is more than four times higher than the share required for a white Texan.

72. When combined with the prevalence analysis above of who is more likely to need to acquire an EIC to retain their right to vote, the burden imposed on African Americans in Texas to acquire an EIC will tend to be much greater than the burden imposed on white Texans to acquire an EIC.

IX. Registered African-American Student Voters in Texas

73. I identified nine Historically Black Colleges and Universities (HBCUs) in Texas.[60] As expected, the Census Block Groups that these HBCUs reside in have high numbers of African-American residents—60% in the HBCU Census Block Groups versus 12% overall in Texas. Voter registration, however, was significantly higher on HBCU Census Block Groups than average voter registration rates per Census Block Groups in these areas. The nine Census Block Groups with HBCUs had an average of 86% voter registration compared with the 54% state-wide average. These same Block Groups also have a higher percentage of Affected Registered Voters, 14% versus 4% state-wide. Student IDs—even those from public institutions—are not an allowable form of photo ID under SB 14. The data thus suggests that the student population at HBCUs is disproportionately affected by SB 14 as compared to the registered voter population state-wide.

Respectfully submitted,

Date: September 21, 2014

Coleman Bazelon, Ph.D.

[60] The nine HBCUs are Huston-Tillotson University; Paul Quinn College; Southwestern Christian College; Texas College; Wiley College; Jarvis Christian College; Prairie View A&M University; St. Philips College; and Texas Southern University.

Appendix A – Curriculum Vitae of Coleman Bazelon

Coleman Bazelon
Principal

Washington, D.C. +1.202.955.5050 Coleman.Bazelon@brattle.com

Dr. Coleman Bazelon is a principal in the Washington, DC office of *The Brattle Group*. He is an expert in regulation and strategy in the wireless, wireline, and video sectors. He has consulted and testified on behalf of clients in numerous telecommunications matters, ranging from wireless license auctions, spectrum management, and competition policy, to patent infringement, business valuation, and broadband deployment.

Dr. Bazelon frequently advises regulatory and legislative bodies, including the U.S. Federal Communications Commission and the U.S. Congress. He also has expertise in the federal government's use of discount rates for policy and regulatory analysis, intellectual property valuation, economic impact analysis, and antitrust and damages analysis.

Throughout his career, Dr. Bazelon has had extensive experience with spectrum license auctions. He advises on and evaluates numerous auction designs and regularly serves as an auction advisor for bidders in spectrum license auctions.

Prior to joining *Brattle*, Dr. Bazelon was a vice president with Analysis Group, an economic and strategy consulting firm. During that time, he expanded the firm's telecommunications practice area. He also served as a principal analyst in the Microeconomic and Financial Studies Division of the Congressional Budget Office where he researched reforms of radio spectrum management; estimated the budgetary and private sector impacts of spectrum-related legislative proposals; and advised on auction design and privatization issues for all research at the CBO.

SELECTED CONSULTING PROJECTS

Litigation

- Evaluated damages in the applications market.
- Assessed allocation theories in an international bankruptcy.
- Evaluated damages from a programming contract termination.
- Evaluated damages from allegations of reputational harm.
- Evaluated damages from non-working wireless network equipment.
- Assessed Domestic Industry requirement in ITC 337 case involving wireless equipment patents.
- Assessed commercial viability of full text searching of books business model.
- Assessed Domestic Industry requirement in ITC 337 case involving portable storage device patents.
- Estimated value of satellite assets in bankruptcy.
- Estimated damages from denial of pole attachments.

- Provided written testimony evaluating the performance of a numbering resource administrator.
- Provided written testimony on the ability to estimate damages for a class of satellite phone users.
- Provided written testimony on the economic value of Rights-of-Ways in Massachusetts.
- Estimated damages for a broadcast tower permit revocation.
- Provided oral testimony on the proprietary nature of specific information contained in a statewide public safety network bid.
- Provided written testimony on economic value associated with items provided in a labor neutrality agreement.
- Estimated damages associated with USF and other telephone taxes paid by a calling card reseller.
- Assessed the damages associated with the infringement of patents related to VoIP technology and the likely impact of a permanent injunction.
- Estimated recoverable data costs for two pesticides.
- Estimated cost of delay in granting local cable franchise.
- Analyzed the economic underpinnings of an exclusivity clause of a mobile phone affiliation agreement.
- Assessed commonality issues of physicians for class certification of RICO action against a set of health insurance companies.
- Estimated "Loss of Use" damages for a severed fibre optic cable.
- Provided written testimony estimating the value of a surety bond in a contract dispute involving toll free phone numbers used in an enhanced service application.
- Assessed damages associated with infringement of patents used to provide Voice over Internet Protocol (VoIP).
- Assessed basis for guidance of a large telecommunications firm in a 10-b securities litigation.
- Valued digital television radio spectrum in St. Louis in the pre-litigation phase of a breach of contract dispute.
- Estimated damages in a breach of contract case involving the sale of a fibre optic network.
- Researched the basis for generally optimistic forecasts of broadband deployment in the later 1990s and early 2000s in an anti-trust litigation.
- Researched the basis for generally optimistic beliefs about the telecommunications sector .in the late 1990s in a 10-b securities litigation.
- Assessed the market for Competitive Local Exchange Carriers in an SEC fraud case.
- Assessed a bankruptcy sale proposal for a national tier 1 broadband backbone provider.
- Examined the business case asserted for a small wireless reseller in a breach of contract litigation.
- Assessed damages associated with infringement of patents used in DNA fingerprinting applications.
- Assessed changes in contributions to the Cable Royalty Fund on behalf of Sports Claimants in a Copyright Arbitration Royalty Panel (CARP) proceeding.

- Assessed the capital adequacy of the U.S. branch of a foreign bank.

Regulatory Proceedings

- Provided testimony in prison phone rate proceeding.
- Estimated economic impact of LNP on RLECs.
- Assessed relevance of U.S. UNE-L experience for New Zealand benchmarking proceeding.
- Authored analysis of harm from revoking LightSquared's ATC authorization.
- Estimated value of pairing Upper 700 MHz A Block with public safety.
- Estimated impact of increased regulatory uncertainty on spectrum value.
- Estimated value of government provision of GPS service to private industry.
- Coauthored analysis of feasibility of reallocating broadcast television through the use of incentive auctions.
- Analyzed impact on spectrum value of pairing AWS III spectrum.
- Coauthored analysis of the merits of licensed versus unlicensed allocation of the TV White Spaces.
- Estimated the value of TV White Spaces.
- Provided written testimony on the economic harm of using proprietary information in retention marketing.
- Provided written testimony on the economics of pole attachment rates.
- Estimated the value of the PCS H-Block spectrum band.
- Estimated the economic impact of ITC Exclusion Order on cell phone handsets.
- Authored several reports on the 700 MHz auction rules.
- Analyzed the relationship between the size of cable systems and the economics of the programming market.
- Presented analysis on pricing differentials in overlapping cable markets.
- Assessed proposed regulation of mobile phone roaming rates.
- Analyzed impact of local franchise requirements on competition in the video marketplace.
- Developed and assessed Indian spectrum management proposals.
- Analyzed economic ramifications of à la carte cable channel pricing on consumers and the cable and television programming industries.
- Examined the relative merits of licensed versus unlicensed radio spectrum and the effects of "underlay" licenses on existing commercial licensees.
- Examined federalism issues related to mobile telephony regulation.
- Examined and refuted arguments suggesting that the California Telecommunications Consumer Bill of Rights was an appropriate response to market failures.
- Assessed the impact on consumers of California's Telecommunications Consumer Bill of Rights proposal.
- Provided written testimony refuting analysis purporting to show a positive relationship between UNE-P and telecom network investment.

- Provided written testimony examining the effects of unbundling regulations on capital spending in the telecommunications sector.
- Estimated the adjustment to the TELRIC pricing formula to account for irreversible investment in the local telephone network.
- Examined the impact of irreversible investments in the local telephone network on the TELRIC pricing methodology.
- Assessed the degree of market overlap of two food service firms for purposes of merger review.
- Provided written testimony that assessed the validity of an analysis of the costs of a DTV tuner mandate.
- Provided written testimony of a forecast of toll free number demand for the toll free number administrator, SMS/800, in a rate case proceeding.

Other

- Advised bidder in Canadian 700 MHz auction.
- Evaluated performance of TV stations when repacked in an Incentive Auction.
- Analyzed differences in U.S. and European wireless markets.
- Assessed business case and value of HF license holder.
- Analyzed likely auction outcomes for TV broadcaster participating in incentive auction.
- Assessed value of commercial mobile spectrum bands.
- Analyzed economic impacts of the commercial casino industry.
- Evaluated impact of digitization on copyright industries.
- Analyzed economic and employment effects of Dutch gas hub.
- Advised bidder in Indian 3G spectrum license auction.
- Estimated economic and employment effects of network neutrality regulation.
- Analyzed relative costs of wireless and wireline deployments in rural areas.
- Analyzed potential harms from Internet gambling.
- Estimated economic value of reallocating TV spectrum for wireless broadband.
- Estimated economic and employment effects of electric power transmission construction in support of new wind generation facilities.
- Estimated economic and employment effects of broadband stimulus grant applications.
- Estimated employment effects of an ATC-mobile satellite network deployment.
- Analyzed the impact of reducing international mobile phone roaming charges.
- Developed an auction platform for an electricity procurement auction.
- Analyzed the economic impacts of reduced mobile phone taxes in Africa and the Middle East.
- Evaluated the impact of reducing ethanol requirements on gasoline prices.
- Analyzed FRAND licensing requirements for intellectual property in the DTV standard.
- Advised bidder in Canadian AWS spectrum license auction.
- Advised bidder in FCC 700 MHz spectrum license auction.
- Evaluated a business plan for proposed dam removals.
- Assessed a business plan involving the WiMAX market.

- Estimated the value of a portfolio of spectrum licenses.
- Assessed the budgetary impacts of legislation to license TV white spaces.
- Analyzed the economics of the military's build versus buy decision for broadband satellite communications capacity.
- Advised bidder in FCC AWS spectrum license auction.
- Provided framework to estimate impact of the effect of designation of TV white spaces as unlicensed on 700 MHz auction receipts.
- Analyzed Universal Service Fund expenditures.
- Analyzed cable franchising requirements.
- Valued proposals to re-band the Upper 700 MHz Band of radio spectrum.
- Analyzed proposed accelerated digital television transition impacts on society and the federal budget.
- Coauthored a report on the value of a portfolio of patents used to provide Voice over Internet Protocol (VoIP).
- Coauthored a report to the U.S. Chamber of Commerce on the economic effects of telecommunications deregulation.
- Assessed the business cases for IRU swaps of a large international fibre optic network owner.
- Examined the effects of unbundling regulations on broadband penetration internationally.

TESTIMONY AND DECLARATIONS

"Rebuttal Expert Report of Coleman Bazelon, Ph.D.," In the Matter of the Companies' Creditors Arrangement Act, R.S.C. 1985, c. C-36, As Amended, and in the Matter of a Plan of Compromise or Arrangement of Nortel Networks Corporation, Nortel Networks Limited, Nortel Networks Global Corporation, Nortel Networks International Corporation and Nortel Networks Technology Corporation United States Bankruptcy Court for the District of Delaware, Case No. 09-10138 (KG), February 28, 2014.

"Supplemental Expert Report of Coleman Bazelon, Ph.D.," In the Matter of Sky Angel U.S., LLC, against Discovery Communications, LLC, Animal Planet, LLC, United States District Court for the District of Maryland, Case No. 8:13-cv-00031-DKC, January 31, 2014.

"Expert Report of Coleman Bazelon, Ph.D.," In the Matter of the Companies' Creditors Arrangement Act, R.S.C. 1985, c. C-36, As Amended, and in the Matter of a Plan of Compromise or Arrangement of Nortel Networks Corporation, Nortel Networks Limited, Nortel Networks Global Corporation, Nortel Networks International Corporation and Nortel Networks Technology Corporation United States Bankruptcy Court for the District of Delaware, Case No. 09-10138 (KG), January 24, 2014.

"Expert Report of Coleman Bazelon, Ph.D.," In the Matter of Sky Angel U.S., LLC, against Discovery Communications, LLC, Animal Planet, LLC, United States District Court for the District of Maryland, Case No. 8:13-cv-00031-DKC, December 6, 2013.

"Expert Report of Coleman Bazelon, Ph.D. and Armando Levy, Ph.D," In the Matter of LT Game International Ltd., against Shuffle Master, Inc., United States District Court for the District of Nevada, Case No. 2:12-cv-01216-JAD-GWF, October 4, 2013.

"Expert Report of Coleman Bazelon, Ph.D.," In the Matter of Certain Electronic Devices, Including Wireless Communications Devices, Tablet Computers, Media Players, and Televisions, and Components Thereof, United States International Trade Commission, Investigation No. 337-TA-862 (Judge Shaw), July 5, 2013.

"Declaration of Coleman Bazelon" In the Matter of PTA-FLA, Inc, Daredevil, Inc., NTCH-WEST TENN., Inc., NTCH-WA, Inc., and Eric Steinmann against ZTE Corporation, and ZTE USA, Inc. Florida Arbitration, Case No.: 50-494-T-00665-11, February 26, 2013.

"Rebuttal Testimony of Coleman Bazelon," In re: Petition for Suspension or Modification of Application of the Requirements of 47 U.S.C. § 251(b) and (c), pursuant to 47 U.S.C. § 251(f)(2) regarding Time Warner Cable Information Services (Maine) LLC's Request, State of Maine Public Utilities Commission, Docket No. 2012-198, Docket No. 2012-218, Docket No. 2012-219, Docket No. 2012-220, Docket No. 2012-221, October 12, 2012.

"Testimony of Coleman Bazelon, Ph.D.," In re: Petition for Suspension or Modification of Application of the Requirements of 47 U.S.C. § 251(b) and (c), pursuant to 47 U.S.C. § 251(f)(2) regarding Time Warner Cable Information Services (Maine) LLC's Request, State of Maine Public Utilities Commission, Docket No. 2012-198, Docket No. 2012-218, Docket No. 2012-219, Docket No. 2012-220, Docket No. 2012-221, August 20, 2012.

"Expert Report of Dr. Coleman Bazelon," *Salsgiver Communications, Inc., Salsgiver Telecom, Inc., and Salsgiver Inc. v. Consolidated Communications Holdings, Inc., North Pittsburgh Systems, Inc., and North Pittsburgh Telephone Company, Inc.,* Court of Common Pleas, Allegheny County, Pennsylvania, Civil Division, No. GD 08-7616, May 10, 2012.

"Oral Testimony of Coleman Bazelon, The Brattle Group, Inc. before the U.S. House of Representatives, Committee on Energy and Commerce Subcommittee on Communication and Technology," April 12, 2011. (spectrum)

"Testimony of Coleman Bazelon, Principal, *The Brattle Group*, before the U.S. House of Representatives, Committee on Energy and Commerce, Subcommittee on Communications, Technology, and the Internet," June 17, 2010 (spectrum valuation).

"Supplemental Expert Report of Coleman Bazelon," *Gemalto PTE LTD and Gemplus S.A. v. Telecommunications Industry Association*, United States District Court for the Eastern District of Virginia, Alexandria Division, Case 1:08-cv-00776-LMB-TRJ, December 16, 2008.

"Expert Report of Coleman Bazelon," *Gemalto PTE LTD and Gemplus S.A. v. Telecommunications Industry Association*, United States District Court for the Eastern District of Virginia, Alexandria Division, Case 1:08-cv-00776-LMB-TRJ, November 6, 2008.

"Prefiled Rebuttal Testimony of Coleman D. Bazelon," In re: Complaint and Request for Emergency Relief Against Verizon Florida LLC for anticompetitive behavior in violation of Sections 364.01(4), 364.3381, and 364.10, F.S., and for failure to facilitate transfer of customers' numbers to Bright House Networks Information Services (Florida) LLC, and its affiliate, Bright House Networks, LLC, Florida Public Service Commission, Docket No. 070691-TP, July 25, 2008.

"Prefiled Direct Testimony of Coleman D. Bazelon," In re: Complaint and Request for Emergency Relief Against Verizon Florida LLC for anticompetitive behavior in violation of Sections 364.01(4), 364.3381, and 364.10, F.S., and for failure to facilitate transfer of customers' numbers to Bright House Networks Information Services (Florida) LLC, and its affiliate, Bright House Networks, LLC, Florida Public Service Commission, Docket No. 070691-TP, May 30, 2008.

"Declaration of Coleman Bazelon in Support of Plaintiffs' Motion for Class Certification," *Kenneth Stickrath, et al v. Globalstar, Inc.*, United States District Court for the Northern District of California, San Francisco Division, Case No. 07-CV-01941 TEH, April 25, 2008.

"Testimony of Coleman Bazelon, Principal, *The Brattle Group*, before the U.S. House of Representatives, Committee on Energy and Commerce, Subcommittee on Telecommunications and the Internet," April 15, 2008 (reviewing the 700 MHz auction).

"Concerning the Meaning of 'Fair and Reasonable Compensation' in Section 253(c) of the Telecommunications Act of 1996 and the Comparability of the Rights-of-Way Fees Paid by Level 3 in Massachusetts and Elsewhere," *The Massachusetts Turnpike Authority v. Level 3 Communications, LLC, et al.,* The United States District Court for the District of Massachusetts, Civ. Act. No. 06-11816, December 17, 2007.

"Concerning the Effects of the Fixed Rent Charged for Access to the Massachusetts Turnpike," *The Massachusetts Turnpike Authority v. Level 3 Communications, LLC, et al.,* The United States District Court for the District of Massachusetts, Civ. Act. No. 06-11816, November 12, 2007.

"Affidavit of Dr. Coleman Bazelon," *Gulfside Casino Partnership v. Mississippi Riverboat Council, et al.*, United States District Court for the Southern District of Mississippi, Southern Division, Cause No. 1:07-CV-110-LG-JMR, May 4, 2007.

"Rebuttal Report of Dr. Coleman Bazelon," *Level 3 Communications, LLC, v. City of St. Louis, Missouri*, United States District Court for the Eastern District of Missouri, Eastern Division, Consolidated Case No. 4:04-CV-871 CAS, June 17, 2005.

"Affidavit of Dr. Coleman Bazelon," *Informed Communications Systems, Inc. v. Intelogistics Corp., d/b/a Prosodie Interactive*, United States District Court, Southern District of Florida, Miami Division, Case No.: 04-61245 CIV Huck/Turnoff (October 12, 2004).

EXPERT DESIGNATIONS

- *Touch America, Inc. v. Qwest Communications International, Inc.*
    - Designated as an expert in Arbitration (June 2003)
- *Informed Communications Systems, Inc. v. Intelogistics Corp., d/b/a Prosodie Interactive*, United States District Court, Southern District of Florida, Miami Division, Case No.: 04-61245 CIV Huck/Turnoff
    - Filed affidavit (October 12, 2004)
- *Level 3 Communications, LLC v. City of St. Louis, Missouri*, United States District Court for the Eastern District of Missouri, Eastern Division, Consolidated Case No. 4:04-CV-871 CAS
    - Filed Rebuttal Report (June 17, 2005)
    - Deposition (July 14, 2005)

- Cable Merger before the FTC
    - Presented analysis to FTC staff (March 20, 2007)
- *Gulfside Casino Partnership v. Mississippi Riverboat Council, et al.*, United States District Court for the Southern District of Mississippi, Southern Division, Cause No. 1:07-CV-110-LG-JMR
    - Filed affidavit (May 4, 2007)
- *Motorola, Inc. v. State of Mississippi Department of Information Technology Services and M/ACom, Inc.*, Chancery Court of Hinds County, Mississippi, Cause No. G2006-2179 S/2
    - Testified (May 23, 2007)
- *American Towers, Inc. v. Jackson & Campbell, P.C., et al.*, DC Superior Court, No. 003277-06
    - Deposition (March 19, 2009)
    - Filed Affidavit (May 22, 2009)
- *The Massachusetts Turnpike Authority v. Level 3 Communications, LLC, et al.,* The United States District Court for the District of Massachusetts, Civ. Act. No. 06-11816
    - Filed Expert Report (November 12, 2007)
    - Filed Rebuttal Report (December 17, 2007)
    - Deposition (January 21, 2008)
- *Kenneth Stickrath, et al v. Globalstar, Inc.,* United States District Court for the Northern District of California, San Francisco Division, Case No. 07-CV-01941 THE
    - Filed Declaration (April 25, 2008)
    - Deposition (June 11, 2008)
- In re: Complaint and request for emergency relief against Verizon Florida LLC for anticompetitive behavior in violation of Sections 364.01(4), 364.3381, and 364.10, F.S., and for failure to facilitate transfer of customers' numbers to Bright House Networks Information Services (Florida) LLC, and its affiliate, Bright House Networks, LLC, Florida Public Service Commission, Docket No. 070691-TP
    - Filed Direct Testimony (May 30, 2008)
    - Filed Rebuttal Testimony (July 25, 2008)
    - Deposition (August 13, 2008)
- *Gemalto PTE LTD and Gemplus S.A. v. Telecommunications Industry Association,* United States District Court for the Eastern District of Virginia, Alexandria Division, Case 1:08-cv-00776- LMB-TRJ
    - Filed Expert Report (November 6, 2008)

- Deposition (December 2, 2008)
- Filed Supplemental Expert Report (December 16, 2008)

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  - Filed Damages Analysis (February 27, 2009)
  - Deposition (April 3, 2012)
  - Filed Expert Report (May 10, 2012)
- *Certain Products Containing Interactive Program Guide and Parental Control Technology* United States International Trade Commission, Investigation No. 337-TA-820
  - Designated as an expert (June 8, 2012)
- In re: Petition for Suspension or Modification of Application of the Requirements of 47 U.S.C. § 251(b) and (c), pursuant to 47 U.S.C. § 251(f)(2) regarding Time Warner Cable Information Services (Maine) LLC's Request, State of Maine Public Utilities Commission, Docket No. 2012-198, Docket No. 2012-218, Docket No. 2012-219, Docket No. 2012-220, Docket No. 2012-221
  - Filed Direct Testimony (August 20, 2012)
  - Filed Rebuttal Testimony (October 12, 2012)
  - Testified (October 23, 2012)
- In the matter of PTA-FLA, Inc , Daredevil, Inc., NTCH-WEST TENN., Inc., NTCH-WA, Inc., and Eric Steinmann against ZTE Corporation, and ZTE USA, Inc. Florida Arbitration, Case No.: 50-494-T-00665-11
  - Filed Expert Report (February 26, 2013)
  - Deposed (March 15, 2013)
  - Testified (August 30, 2013)
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  - Filed Rebuttal Testimony (July 5, 2013)
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  - Filed Expert Report (January 24, 2014)
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PROFESSIONAL AFFILIATIONS

- American Bar Association
- American Economic Association
- Federal Communications Bar Association
- National Research Council - Committee on a Survey of the Active Scientific Use of the Radio Spectrum

EDUCATION

Dr. Bazelon received his Ph.D. and M.S. in Agricultural and Resource Economics from the University of California at Berkeley. He also holds a Diploma in Economics from the London School of Economics and Political Science and a B.A. from Wesleyan University.

June 18, 2014

Appendix B – Materials Relied Upon

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61. "Vital Records Request Service," Vermont State Archives and Records Administration, retrieved from <https://secure.vermont.gov/VSARA/vitalrecords/> (accessed 06/24/2014).

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Appendix C – Geocoding Methodology

I. Racial Composition of Registered Voters

74. Determining the composition of registered voters required geocoding of the voter addresses in TEAM. I used TransCAD to geocode the individual addresses. This resulted in latitude and longitude coordinates for approximately 85% of the records in TEAM, which I then assigned to a Block Group using the Census TIGER shape file data.[61] Nearly all of the remaining 15% of TEAM records contain valid zip codes, which I then assign to a Block Group based on the latitude and longitude of the zip code centroid.[62]

II. Transportation Costs by Block Group

75. The travel cost analysis requires multiple stages of geocoding. First, I geocoded the addresses of all DPS locations using the Google Geocoding API. I then determined the spherical or great circle distance from each Block Group to each DPS location and selected the three nearest DPS locations for each Block Group. For each of the three DPS locations, I submit Google Directions API queries to determine travel durations and distances by mode for transit, walking, and driving (taxi).[63] These values are then used in the travel cost minimization routine as describe in Section VII.C.2 above.

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[61] Available at http://www.census.gov/geo/maps-data/data/tiger-line.html.

[62] TEAM consists of a total of 13,564,410 voters; 13,510,908 of whom were not known to be deceased as of August 2014; 13,406,038 of these voters have addresses or zipcodes that are able to be mapped to Census Block Groups; 13,350,209 of these voters map to Census Block Groups without prisons.

[63] For details on the Google Directions API, see

https://developers.google.com/maps/documentation/directions/.

Appendix D – Determination of Affected Registered Voter Probability by Race

76. Census provides valuable information on the racial and income composition of various geographies. Public data on household income is provided at the Census tract level, while racial information is available at the Block level. I perform my analysis at the Block Group level.

77. The TEAM database records basic information about registered voters, including voter names and addresses for every registered voter in Texas. As explained in Appendix C, I use a geocoding algorithm to identify from the addresses in the TEAM database the Block Group location of registered voters in Texas and an estimate of the number of registered voters in each Block Group.

78. DOJ provided information from federal and state databases on whether each registered voter in the TEAM database held a Required ID.[64] After removing voters who are eligible for a disability exemption, I combined this with the geocoding algorithm to then calculate the number of registered voters in each Block Group who must obtain a Required ID in order to vote. This is the number of Affected Registered Voters.

79. These sets of information—racial breakdowns by Census Block Group, registered voters, and Affected Registered Voters—are not conformable between the Census data and the TEAM data. That is, I do not observe the racial identity of specific registered voters in TEAM. In order to determine the share of a racial group's registered voters that are Affected Registered Voters, I rely on the rules of probability and a couple of simplifying assumptions.

80. Let R denote the random variable for Race (*e.g.*, African American, white, Hispanic), RV the random variable for registered voter status (registered ("1"), unregistered ("0")), and BG the random variable denoting Block Group (any specific Block Group in Texas). Following Bayes' Rule,

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[64] DOJ matching data provides multiple permutations of all primary and secondary matches. I take a conservative approach and use the union of all potential ID matches across all ID databases to indicate that the registered voter is likely to have a Required ID.

$$\begin{aligned} Pr(R|RV,BG) &= \frac{Pr(R,RV|BG)}{Pr(RV|R,BG)} \\ &= \frac{Pr(RV|R,BG)Pr(R|BG)}{Pr(RV|R,BG)} \\ &= \frac{Pr(RV|R,BG)Pr(R|BG)}{\sum_k Pr(RV|R=k,BG)Pr(R=k|BG)}. \end{aligned}$$

81. The conditional probability of a Block Group resident being a registered voter given that she is African American is unknown to me. But I do know this conditional probability at the state level for Texas, as described earlier in the report. I assume that the propensity to register to vote is the same for all Texas residents within the same race. That is, an African American's propensity to register to vote is assumed to be constant across all Block Groups in Texas. The probability of a registered voter in a given Block Group being of a particular race is then

$$Pr(R|RV,BG) = \frac{Pr(RV|R)Pr(R|BG)}{\sum_k Pr(RV|R=k)Pr(R=k|BG)}.$$

82. This calculation is a critical input for calculating the share of a racial group's registered voters that must obtain a Required ID.[65] The estimated number of registered voters for a racial group is determined by multiplying this probability by the number of registered voters in the Block Group. The estimated number of registered voters within a racial group that are Affected Registered Voters is determined by multiplying this probability by the number of registered voters needing a Required ID in the Block Group.[66] Across Block Groups, the share of a racial group's registered voters that must obtain a Required ID ("ID" in the formula, with "1" denoting an individual that must obtain a Required ID) is

$$Pr(ID=1|RV=1,R) = \frac{\sum_g Pr(R|RV=1,BG=g) * \#(ID=1,RV=1|BG=g)}{\sum_g Pr(R|RV=1,BG=g) * \#(RV=1|BG=g)}.$$

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[65] The assumption that registered voters status is independent of Block Group location conditional on race is restrictive, but it has the favorable outcome that the predicted proportion of registered voters by race across Block Groups will precisely match the observed state-wide Census information.

[66] This calculation further assumes that Required ID possession is independent of race conditional on registered voter and Block Group status. As with the assumption above that registered voter status is independent of Block Group location conditional on race, better data on the racial group status of individual registered votes would obviate the need to make the assumption.

83. This analysis can be done at any level of Census data aggregation, including state-wide, County, Census Tract, Census Block Group and Census Block. At the state-wide level, the share would collapse into just the share of registered voters state-wide that must obtain a Required ID.[67] (This is because the only racial information I use is based on geography, and state-wide there is no variation in geography.) As explained in Section VI.C above, I would expect that increasing levels of aggregation of racial information would tend to bias downward the estimate of the share of African-American voters that must obtain a Required ID. This can be seen in the following table, where exploitation of racial information at the Block Group yields an estimate of the proportion of African-American Affected Registered Voters to be 5.5%. If the geographic distribution of African-American residency is ignored, then the estimate would decrease to the state-wide average of 4.1%. Similar phenomena are observed for each racial group, with shares for each race converging to the state-wide average when geographic racial distributions are ignored.

Table 12: Share of Affected Registered Voters by Geographic Aggregation Level

	Percent of African-American Affected Voters	Percent of White Affected Voters	Percent of Hispanic Affected Voters	Percent of Asian Affected Voters	Percent of Other Affected Voters
Block Group	5.54%	3.15%	5.51%	2.65%	3.55%
Tract	5.40%	3.21%	5.43%	2.73%	3.55%
County	4.08%	3.78%	4.70%	3.57%	3.81%
State	4.06%	4.06%	4.06%	4.06%	4.06%

Notes and Sources:
U.S. Census Bureau 2010 population counts; U.S. Census Bureau, Current Population Survey, November 2012; TEAM database.

84. Finally, for calculation of travel time costs, I weighted Block Groups by the predicted number of registered voters within a racial group that are Affected Registered Voters.

[67] To see this, BG in the formula would be replaced with State=TX. As the summation would contain just one summand, the numbers for Texas, the proportion of registered voters by race would cancel out of the numerator and denominator of the equation, leaving just the number of registered voters lacking an ID divided by the total number of registered voters.

Appendix E: Documentation Required to Obtain an EIC

Table 13: Documentation Required to Obtain an EIC

EIC Documentation Requirements
[1] **Documentation of U.S. Citizenship**
** U.S. Passport Book Or Card
Birth Certificate Issued By U.S. State, Territory, Or Dc
Certificate Of Report Of Birth Or Consuler Report Of Birth
** U.S. Certificate Of Citizenship Or Certificate Of Naturalization
U.S. Department Of Justic Immigration And Naturalization Service U.S. Citizen Id Card
[2] **Documentation Of Identity**
Primary Identification
Texas Driver License (expired for 60 days and is within 2 years of expiration date)
Texas Personal Identification Card (expired for 60 days and is within 2 years of expiration date)
Secondary Identification
Birth Certificate Issued By State Bureau Of Vital Statistics Of Equivalent
U.S. Department Of State Certification Of Birth
Court Order With Name And Date Of Birth Indicating An Official Chane Of Name And/Or Gender
U.S. Citizenship Or Naturalization Papers Without Identifiable Photo
Supporting Identification
Voter Registration Card
School Records
Insurance Policy (At Least Two Years Old)
Texas Vehicle Or Boat Title Or Registration
Military Records
Unexpired Military Dependant Identification Card
Original Or Certified Copy Of Marriage License Or Divorce Decree
Social Security Card
Pilot'S License
Unexpired Photo Dl Or Photo Id Issued By Another (United States) State, U.S. Territory, The District Of Columbia
Expired Photo Dl Or Photo Id Issued By Another (United States) State, U.S. Territory, Or The District Of Columbia That Is Within Two Years Of The Expiration Date
An Offender Identification Card Or Similar Form Of Identification Issued By The Texas Department Of Criminal Justice
Forms W-2 Or 1099
Numident Record From The Social Security Administration
Expired Texas Driver License Or Personal Identification Certificate (Expired More Than Two Years)
Professional License Issued By Texas State Agency
Identification Card Issued By Government Agency
Parole Or Mandatory Release Certificate Issued By The Texas Department Of Criminal Justice
Federal Inmate Identification Card
Federal Parole Or Release Certificate
Medicare Or Medicaid Card
Selective Service Card
Immunization Records
Tribal Membership Card From Federally Recognized Tribe
Certificate Of Degree Of Indian Blood
Veteran'S Administration Card
Hospital Issued Birth Record
Any Document That May Be Added To §15.24 Of This Title (Relating To Identification Of Applicants) Other Than Those Issued To Persons Who Are Not Citizens Of The U.S.

Notes and Sources:
Information from http://www.txdps.state.tx.us/DriverLicense/eicDocReqmnts.htm.

** Denotes a document that is sufficent for voting under SB 14.
[1] Applicants need one document of U.S. Citizenship to qualify for an EIC.
[2] One primary, two secondary, or one secondary and two supporting identification documents must be provided for identity verification and EIC eligibility.