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Data in Politics I

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Voices Deferred: An Analysis of Voter Wait Times

Introduction

Democracy in the United States has always been tricky to ensure. A nation whose government is structured to represent its diversity in thought and background often has trouble doing so. For years, women and people of color have faced outright denial, dismissal, and even death when trying to vote. Still today, disenfranchised groups face several obstacles when attempting to take part in the democratic process. Among other issues, technical malfunctions, insufficient access to transportation, and financial insecurity increase the difficulty of registration and participation in elections at all levels. This paper will discuss some of the many complexities that marginalized voters face. Data collected by Harvard University's 2018 Congressional Cooperative Elections Study will be examined to draw conclusions regarding voter wait times. These data will lead into a discussion of policy implications that will protect the rights of American voters from all backgrounds.

One-hundred years after the ratification of the Nineteenth Amendment, women across America have enacted change through their votes. In 2017, black women voters were quickly credited as the decisive force behind Democratic Senator Doug Jones' victory in a contentious Alabama special Senate election. Jones' opponent was Republican Roy Moore, a staunch

conservative backed by self-identifying "Value Voters." This votership consisted of White Evangelicals who opposed abortion rights and same-sex marriage protections, topics that deeply divided progressive and conservative voters, especially in Alabama. Comprising 17% of the overall turnout, 98% of black women voted for Jones. These women voters were credited as giving Jones the push he needed to win. For as many victories won by women, however, many barriers continue to place their voices at risk of going unheard.

Historically, several issues have prevented minority groups from exercising their right to vote. Particularly affecting low-income households, many voters cannot take time off work or away from their children to wait in line to vote. Especially in the age of COVID-19, low wages combined with job insecurity lead to a portion of Americans who cannot make it to the polls on election day. Working-class mothers with unaccommodating childcare provisions may not be able to leave their small children and wait in long lines to vote. Though not the case for every American, these issues have the propensity to impact the 10.5% of Americans living in poverty.[1] For entire counties facing economic disparity, issues may run far deeper.

A 2019 study conducted by the Center for Social Development at Washington University in St. Louis examined the relationship between income and ease of voting access in the St. Louis area. A microcosm of many parts of the country, St. Louis City and St. Louis County differ largely in population and voter ideology. In St. Louis County, 66.9% of the population is white compared to 33.5% comprised of Black, Asian, and Hispanic citizens. The median household income is $62,931. This is almost double the median household income of $38,664 in the City of

[1] Percentage taken from 2019, when the poverty threshold for a family of four was $26,172. Bureau, U. (2020, September 16). Income, Poverty and Health Insurance Coverage in the United States. Retrieved November 23, 2020, from https://www.census.gov/newsroom/press-releases/2020/income-poverty.html

St. Louis, where whites are the racial minority. Rooted in the historical and racially charged separation of city and suburb, these starkly contrasting demographics have implications in the democratic process.

This study founds several differences in ease of access at polling places in census tracts based on racial makeup and income. There was a negative and statistically significant correlation between the percentage of Black voters in a tract and site accessibility for persons with disabilities ($r = -.28, p = .047$). This finding was backed by qualitative observations from researchers, one of whom noted an unaccommodating one-way entrance in a predominately-black (98.0%), high-poverty (61.3%) tract in St. Louis City: "[There were] descending concrete stairs to [the] voting entrance into the school's gym; there was not an alternative from the front entrance (McClendon et al. 19)."

Another common theme in high-poverty areas was poor signage. In the same tract, polling place signage consisted of a "Sandwich board sign" declaring "vote here." A testament to understaffing at this location, "[this] sign was blown around a lot… sometimes poll observers rather than poll workers had to replace it (19)." In a high-poverty (29.2%), majority-White (72.6%) tract in St. Louis County, a researcher noted that "There [were] only political signs – no signs indicating it is a polling location" besides the ones placed directly on the door (21). This lack of signage violated Mo. Rev. Stat. § 115.119.[2] Though signage seems insignificant, it is a telltale marker of neglect toward polling places low-income areas, where voices may be stifled as a result.

[2] Mo. Rev. Stat. § 115.119 (1978): "Each polling place shall be plainly marked with a sign posted in a place and manner sufficient to notify voters of the location of the polling place."

Long lines and voter confusion are direct effects of understaffing at polling locations. The Washington University study found the percentage of Black residents in a tract to be negatively and statistically significantly correlated with the average number of poll workers at a polling location ($r = -.49, p = .002$) (19). The study also found that "confusion about polling pads and electronic voting machines were only reported in predominately Black tracts." Polling pads, which election officials use to check in and verify voters, are crucial to ensuring efficiency at a polling place. Inadequate training on how to use these machines can lead to delays.

Both quantitative and anecdotal findings from the study report a positive and statistically significant association between the percentage of Black residents in a tract and line length at 6:00 p.m. ($r = .35, p = .022$) and 7:00 p.m. ($r = .51, p = .008$) (20). Long lines were found at "five of the 10 polling locations in predominately Black tracts but at only one polling location in a predominately white tract (20)." At a St. Louis County location in a low-poverty (6.1%), predominately-Black (56.0%) tract, a researcher noted that "voters were angry because this year everyone had to wait outside in the cold and no one was allowed to wait indoors (20)." It is evident that wait times are an issue for voters in St. Louis, but does this issue scale nationally?

Data Preparation and Analysis

The 2018 Congressional Cooperative Elections Study published by Harvard University provides statistics for use in analyzing the causes of voter wait times. The subject of this analysis is the question of whether Americans of color suffer from longer wait times than white Americans on election day. From this question stems the following hypotheses:

H_0: There is no difference in the voting wait times of white Americans and non-white Americans.

H_{a1}: Black Americans had longer voting wait times than white Americans.

H_{a2}: Hispanic Americans had longer voting wait times than white Americans.

H_{a3}: Asian Americans had longer voting wait times than white Americans.

H_{a4}: Americans of "other" races / ethnicities had longer voting wait times than white Americans.

To prepare the data for regression, the race, faminc, income_county and vote2016 independent variables were cleaned. Also, the county_density variable was introduced. Race was changed into a categorical variable with levels "White," "Black," "Hispanic," "Asian," and "Other," with "White" serving as the reference category. Faminc was changed to a categorical variable with levels "Low Income," "Medium Income," and "High Income," with "Low Income" serving as the reference category. Observations where the respondent preferred not to report a family income were recoded to "NA." To eliminate outliers for income_county the variable was changed into a categorical variable based on distribution, with levels "Lower Quarter," "Lower-Middle Quarter," "Upper -Middle Quarter," and "Upper Quarter with "Lower Quarter" serving as the reference category. The county_density variable was created by dividing county_pop by land_area and dividing the resulting value by 1000 to reflect population density in thousands. Last, vote2016 was changed to a factor variable with levels "Trump" and "Clinton," with "Clinton" serving as the reference category. Responses indicating that a respondent voted for a candidate other than Trump or Clinton in 2016 were recoded to "NA."

After cleaning the data to ensure an accurate regression model, two graphs were produced. The first graph expresses respondent wait times by region:

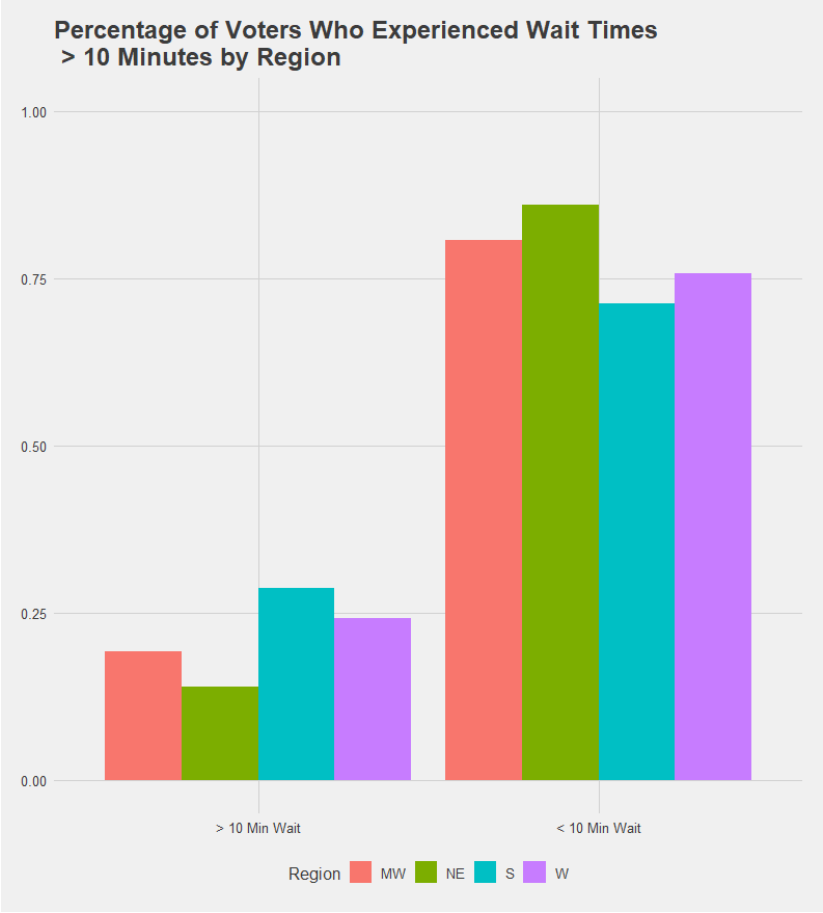

Fig. 1 Comparing wait times for respondents from the Midwestern, Northeastern, Southern and Western United States.

As observed in Fig. 1 as well as in Fig. 2 to follow, long wait times are a common occurrence for most respondents. Respondents in the Northeastern United States most often experienced wait times exceeding ten minutes. Southern respondents least often experienced wait times over ten minutes. The next plot analyzes the relationship between 2016 Presidential Nominee choice and wait time:

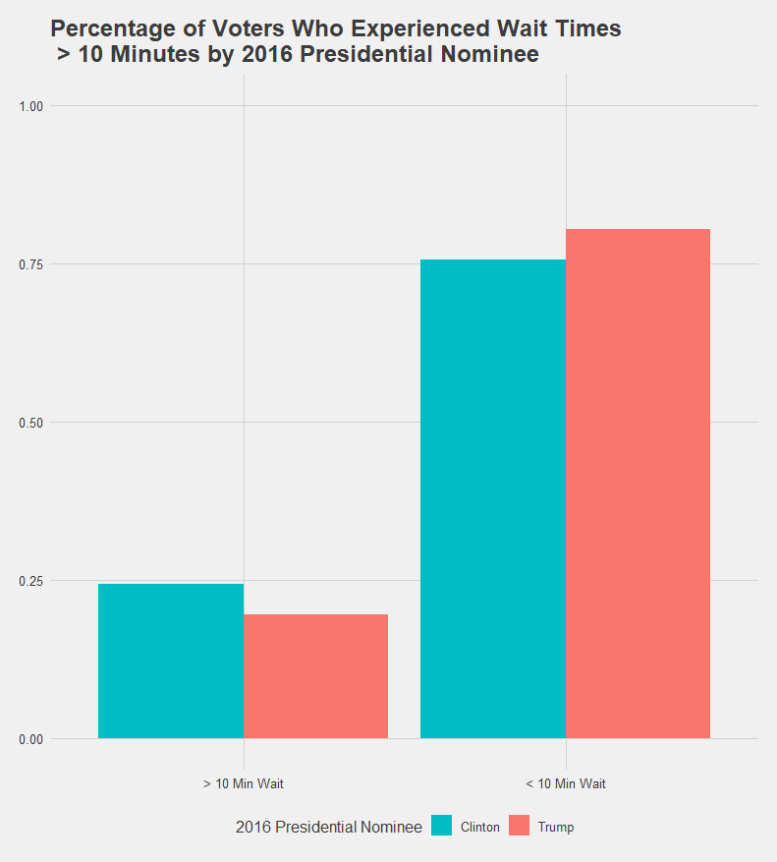

Fig. 2 Comparing wait times for respondents based on who they picked for Presidential Nominee *in 2016.*

Based on respondents' 2016 presidential vote, Republican respondents more often experienced wait times longer than ten minutes. Democratic respondents were less likely to experience wait times longer than ten minutes. To draw a meaningful conclusion from these comparisons two regressions were run. The bivariate regression investigates the relationship between race and wait times, and the multivariate regression controls for the above-mentioned independent variables.

	Dependent variable:	
	wait	
	Bivariate	Multivariate
	(1)	(2)
raceBlack	0.329***	0.289***
	(0.019)	(0.022)
raceHispanic	0.320***	0.296***
	(0.022)	(0.026)
raceAsian	0.315***	0.277***
	(0.039)	(0.047)
raceOther	0.055**	0.046
	(0.028)	(0.034)
famincMedium Income		0.089***
		(0.034)
famincHigh Income		0.094***
		(0.027)
county_density		0.008***
		(0.001)
income_countyLower-Middle Quarter		0.018
		(0.017)
income_countyUpper-Middle Quarter		0.040**
		(0.018)
income_countyUpper Quarter		-0.015
		(0.018)
vote2016Trump		-0.037***
		(0.013)
Constant	1.806***	1.705***
	(0.006)	(0.029)
Observations	30,754	23,226
R^2	0.017	0.022
Adjusted R^2	0.016	0.022
Residual Std. Error	0.947 (df = 30749)	0.935 (df = 23214)
F Statistic	129.140*** (df = 4; 30749)	48.476*** (df = 11; 23214)
Note:		*p<0.1; **p<0.05; ***p<0.01

Table 1 Bivariate and multivariate models.

The bivariate model provides the equation $wait = 1.806 + 0.329 * raceBlack + 0.320 * raceHispanic + 0.315 * raceAsian + 0.055 * raceOther + \varepsilon$.

Moving from “White” to “Black” increases wait time by 0.329 units on average. Moving from “White” to “Hispanic” increases wait time by 0.315 units on average. Moving from

"White" to "Asian" increases wait time by 0.315 units on average. Moving from "White" to "Other" increases wait times by 0.055 units on average. Since there is a positively and statistically significantly correlation between moving from "White" to any other race, this model rejects the null hypothesis and supports all four alternative hypotheses.

The multivariate model provides the equation $wait = 1.705 + 0.289 * raceBlack + 0.296 * raceHispanic + 0.277 * raceAsian + 0.046 * raceOther + 0.089 * famincMedium\ Income + 0.095 * famincHigh\ Income + 0.008 * county\_density + 0.018 * income\_countyLower\ Middle\ Quarter + 0.040 * income\_countyUpper\ Middle\ Quarter - 0.015 * income\_countyUpper\ Quarter - 0.037 * vote2016Trump + \varepsilon.$

Holding all else constant, moving from "White" to "Black" increases wait time by 0.289 units, on average. Holding all else constant, moving from "White" to "Hispanic" increases wait time by 0.296 units, on average. Holding all else constant, moving from "White" to "Asian" increases wait time by 0.277 units, on average. Holding all else constant, moving from "White" to "Other" increases wait time by 0.046 units, on average.

Holding all else constant, moving from low to medium family income increases wait time by 0.089 units, on average. Holding all else constant, moving from low to high family income increases wait time by 0.095 units, on average. Holding all else constant, a one unit increase in county density increases wait time by 0.008 units, on average. Holding all else constant, moving from the lower to lower-middle quarter of recorded county income increases wait time by 0.018 units, on average. Holding all else constant, moving from the lower to upper-middle quarter of recorded county income decreases wait time by 0.040 units, on average. Holding all else

constant, moving from the lower to upper quarter of recorded county income decreases wait time by -0.015 units, on average. Holding all else constant, moving from Democratic to Republican votership decreases wait time by -0.037 units, on average. This model has an R^2 value of 0.022, indicating that only 2.2% of the variation in wait times can be explained by the independent variables present. However, since there is a positively and statistically significant correlation between moving from "White" to "Black," "White" to "Hispanic," and "White" to "Asian," this model rejects the null hypothesis and supports alternative hypotheses H_{a1}, H_{a2}, and H_{a3}. Because the correlation between moving from "White" to "Other" is not statistically significant, we reject H_{a4}. This multivariate model provides a more robust analysis of our hypotheses because it has a higher R^2 value and controls for more factors than the bivariate model.

On average, poorer respondents spend more time in line than wealthier respondents. Only respondents living in counties with average income in the upper quartile of respondents experienced a decrease in wait time. On average, respondents in urban communities experienced longer wait times. On average, Democratic respondents spent more time in line than Republican respondents.

Voters of color in poor urban communities face long wait times more often than not. The prospect of inconvenience when voting decreases voter turnout in these communities. With this conclusion in mind, what policies can be put in place to lower wait times and make voting convenient for all Americans?

Conclusion – Policy Implications

While this analysis makes clear which groups are most affected by wait times, an investigation into election policies details the causes. Revisiting the Washington University study

discussed in the introduction, several factors determine in what ways and for what reasons the voting process is not always smooth.

As mentioned in the Washington University study, understaffed and under-resourced polling locations can lead to unexpected delays on election day. To rectify understaffing, local laws should enforce uniform distribution of poll workers. For example, if a polling place in an upper-middle class suburb has an excess of volunteers, some of these workers should be requested to assist at a nearby location that lacks workers. This would help reduce wait times, as more workers are available to answer questions and help the process run efficiently. Likewise, equal distribution of voting technology should be required at the state level. Given two precincts with roughly equal populations but a disparity in the number of machines present, the precinct lacking sufficient machines will undoubtedly have longer wait times.

Next, confusion regarding voting procedure is prevalent, especially as state and federal laws continue to change. In 2014, Congress passed an amendment to the Voting Rights Act of 1965 that eliminated the practice of "preclearance," which has historically prevented states from implementing new voting legislation before being vetted for discrimination. Shortly after the amendment passed, several states attempted to pass laws that would require voters to present some form of identification. At the time of writing, thirty-four states require that voters show some form of identification. Adding to the lack of uniformity, stringency of the law varies state-by-state. In North Dakota, for instance, if a voter does not provide identification at the time of voting their ballot is set aside until they return with valid identification within six days of election day. In Virginia, however, if a voter does not present identification, they need only sign a statement affirming their identity before casting a regular ballot. While the debate regarding whether voter ID laws are discriminatory, the state-by-state variation in requirements is likely to

confuse voters. Multiple voters arriving at the polls with insufficient documentation can increase wait times, especially in high-density areas. If uniformity at the federal level is difficult to implement, it should be easier to for voters to find information on exactly what is required of them on election day.

Decreasing wait times for voters is a multi-faceted issue. Economics, policy, and population density all influence how efficiently a polling place runs on election day. Especially in times as polarizing as these, it is important that all voters' voices be heard, regardless of background, location, or political affiliation. Increasing efficiency at the polls allows for more ballots to be cast in every part of the United States and is therefore an important step in preserving our democracy.

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