The Questionable Death of Jim Crow: How Systemic Racism Impacts Voting Accessibility by Ways of Wait Times

Icarus LaDuke-Lott
Bemidji State University

Political Science Senior Thesis
Bemidji State University
Dr. Patrick Donnay, Advisor
May 2023

Abstract

Racial identity and perception thereof are consistent themes throughout the history of the United States. Countless studies have attempted to measure the impact of this factor on everyday life, with present research finding the lives of non-white individuals to be needlessly burdened due to systemic and individual prejudice. But how does this extend to the realm of political accessibility? And if the impact is great, can we truly claim that the era of Jim Crow is over? To address this question, I utilized the data collected by the Cooperative Election Study in 2020, working to emphasize the impact of systemic racism through the examination of experienced wait times at the polling booth. This study suggests a correlation between non-whiteness and increased wait times while voting, along with increased wait times for those of income brackets under the national average. Acknowledging this formally through data allows us to move forward in our attempts to counteract such effects. This study confirms the heightened wait times experienced by non-white voters as displayed in former studies, but goes beyond common current research as it focuses on systemic factors such as intergenerational wealth and redlining.

A Review of the Surrounding Literature

A History of Oppression

It is not a matter of opinion, but rather a matter of historical and modern fact that non-white individuals from various backgrounds face increased levels of adversity in the United States of America. Marginalized individuals face the possibility of societal rejection, institutional and de facto disenfranchisement, persecution, and a myriad of other hardships. Historically, these issues have manifested themselves in a variety of places, and the United State's electoral system is far from immune, as demonstrated by instances such as the Jim Crow laws of the 1830s. It is the intersection of such historical facts and modern realities where I and others attempt to answer the question of the impact of systemic racism on the accessibility of the American polling booth. To operationalize this concept this study will focus on the hypothetical correlation between race and experienced waiting time at voting polls during the 2020 presidential election. However, to begin to explore such a complex topic, one must first establish the avenues which lay the roadwork for future research.

The present is nothing if not the resulting butterfly effect of historical developments, and the United State's past of racist practices breathes life into the potential prejudice of the future. One practice that has been hypothesized to be a tributary to the degradation of modern-day voting accessibility is known as redlining. Redlining was a policy established by the Home Owners' Loan Corporation in the 1930s that sought to extensively assess mortgage risks in the aftermath of the Great Depression (An et al., 2019). This was accomplished in various American

metropolitan neighborhoods through the enactment of their "City Survey Program", a program that assigned various grades to inhabited areas based both on the properties themselves and their inhabitants' occupation, age, ethnicity, and realm of employment along with a collection of other factors (An et al., 2019).

The interaction of the aforementioned factors would result in the neighborhood's official grade. An "A" or "Green" ranking was given to the neighborhoods deemed the "Best" out of those surveyed, a "B/Blue" ranking was bestowed on the neighborhoods that were not qualified for the "best" category but were still desirable, the "C/Yellow" ranking indicated that a neighborhood was "Definitely Declining", and finally a "D/Red" ranking indicated a neighborhood was viewed as one of the worst neighborhoods surveyed and was already in a substantial state of decline (An et al., 2019). The presence of Black, Jewish, or immigrated inhabitants in any neighborhood led to the neighborhood losing points towards their final grading, and any neighborhood with a high concentration of Black inhabitants was given the lowest ranking of "D/Red", effectively declaring the area undesirable, devaluing the affected properties and putting a bright red line between the inhabitants of these neighborhoods and opportunities for economic growth (such as loans, intergenerational wealth, etc.) as they were deemed to be "higher risk" than their "Green" counterparts (An et al., 2019). Some regions of note that took part in this practice are the Northeast and Midwest, where cities such as Chicago, Pittsburgh, and Cleveland host some of the most segregated neighborhoods in the nation (Best & Mejia, 2022).

The Past Leaks into the Present

These redlining practices, though officially long discontinued, have lent themselves to the creation of de facto racial segregation along with financial barriers for those who were present in

the areas deemed undesirable, often leading to individuals having to remain within the neighborhood or move to one of similar appraisal value as this caused a massive blow to their ability to accumulate wealth and pass it down to future generations (Mendez-Carbajo, 2021). This cycle is exacerbated by decreased quality of financial services in areas that are primarily of minority populations or minority descent (with an estimated 16% increase in complaints filed to the Consumer Financial Protection Bureau (CFPB) concerning local financial institutions with a higher minority share of the population in their clientele) (Begley & Purnanandam, 2021). The chance of success for the children of those affected is also drastically impacted, resulting in lower family income levels as they face the reality of household wealth being positively correlated with better health, educational, and behavioral outcomes (Conwell & Ye, 2021).

The Impact of Oppressive Economic and Voter Regulation Trends

In an ideal democratic scenario, these wealth disparities would have no impact on the ability of individuals to vote, nor the quality of their experience at the voting booth. However, all of these aforementioned effects are part of a compounding, interconnected set of disadvantages faced by nonwhite individuals that accumulate into a concept known as systemic racism- racism that has been ingrained into our social, economic, political, and voting systems (Oppenheimer, 2021). And though there are relatively few pieces of research that directly tie redlining and its racially charged motivations to systemic racism and subsequent voter suppression, along with a lack of academic works to the contrary, the potential interactions are made clear as one shifts focus to the relationship between neighborhood wealth disparities and the quality and/or quantity of polling places in various areas (Pitzer et al., 2021).

The established correlation between a higher population of racial minority voters in an area and

the quality of their corresponding voting polls is a key factor to consider when comparing the experiences of people of white and non-white backgrounds at the polling place. As the number of racial minority voters in an area increased, it was found that their corresponding polling place was increasingly likely to be lacking proper visibility and stability, factors directly related to a higher voter turnout (Pitzer et al., 2021). Voting districts that are primarily made up of minority voters are also more likely to have poorer quality equipment and less available staff, slowing down voting lines and creating greater barriers to those who intended to vote (Pitzer et al., 2021).

This study is not the first to bring into question the varied wait times experienced by people of different racial identities. A study conducted by M. Keith Chen, Kareem Haggag, Devin G. Pope, and Ryne Rohla revealed this discrepancy in experienced wait times by examining positioning data gathered from hundreds of thousands of smartphones belonging to voters in the 2016 presidential election in an attempt to confirm or deny the existence of a more expansive wait period for voters of diverse background at the voting booth (Chen et al., 2020).

The results of this study were stark, with the resulting information revealing that residents of entirely-black neighborhoods tended to wait 29% longer to vote than their counterparts in entirely-white neighborhoods (Chen et al., 2020). This culminates in a 74% chance that voters from all-black neighborhoods would have to wait more than 30 minutes to be able to cast their ballot (Chen et al., 2020). This phenomenon was found to be relevant even between neighborhoods in the same town or county (Pettigrew, 2017). This counters the common claim that these long waits are formed by lengthy ballots or other variables that vary based on voting jurisdictions (Pettigrew, 2017). Analysis of polling places that created extensive waiting periods revealed common themes, such as a lack of accessibility and signage, lower quality voting

equipment (although economically privileged individuals experience a short wait at the voting place regardless of the presented voting method), recent relocation of the polling location, and fewer available polling staff (Pitzer et al., 2021). It is important to note that, while the study indicated above does show significant differences between wait times experienced by different racial groupings, it does not consider income and region-specific variables as possible alternative explanations or contributing factors.

Though the focus of the literature is highly varied, with certain studies and research pieces (such as those of Marker, 2013) digging into issues of voter identification laws and potential racial biases within voter identification and/or registration systems, various disagreements surrounding the validity of racial identification via records or self reporting among participants (Jablonski, 2020), questions of the impact of absentee voting, discussions surrounding felony disenfranchisement (Kelley, 2017), etc., many researchers have come to the same broad conclusion: these factors intertwine to effectively alter and possibly limit voter turnout, swaying the results of elections and therefore the fate of the nation (Anderson & Burdin, 2019).

Methods and Analysis

One of the most immediate challenges when dealing with such a large question is finding an appropriate dataset within which to operate. The dataset which presented itself to me as being the most representative of the issue of the impact and interaction of race, historic redlining practices, economic status and wait times experienced at the United States' polling place is the CES: the Cooperative Election Study (*formally known as the Cooperative Congressional Election Study)*. This study is conducted through the collection of pre- and post-election surveys from volunteers nationwide and aims to provide insight into the relationships between (*among other things*) midterm and presidential elections. The survey itself is divided up into Common Content (*questions asked of all participants*) and Team Content (*questions assembled by various researching groups that will be asked of 1,000 respondents per participating team).*

The CES has been a yearly exercise in data collection from its origins in 2006 through the most recently released dataset in 2021. For the purposes of observing a more specific example of the hypothesized phenomena, I narrowed down the scope of the study to the CES 2020 dataset, which contains responses from approximately 61,000 individuals before and after their participation in the 2020 presidential election. The data includes a plethora of highly varied information, from demographic-centered questions of race, sexuality, gender identity, religious background, economic status, etc. to political affiliations, policy opinions, and leanings on social issues.

It is important to note that the data presented here is weighted by a numeric conversion of vvweight_post. Though the survey conductors recommended the use of variable commonpostweight to compensate for any discrepancies in representation for various

populations, the initially provided weight proved far too taxing for SPSS, resulting in inaccurate reports of the number of respondents, while also providing a minimal adjustment of the data, with a commonly observed difference between weighted and unweighted data points of 2% across the board. Vvweight_post, when converted from its initial state as a string variable into a numeric variable (*renamed vvweight_post_num*), proved to be better fitted to allow for variances within populations of registered voters who completed both stages of the survey.

All of these things are particularly important in studying our unit of analysis: adult Americans who voted in the 2020 presidential election. Though the dataset obviously cannot be directly representative of the whole population of the United States (*n=61,000*), the responses are so widespread and the datapool large enough that we can get a solid look at the interactions of racial identity, economic status, voter identification error, and wait times experienced at the polling booth. It is also important to note that more specific data, such as exact racial and ethnic identities of multiracial respondents, has been filtered out of this study in the name of concise research and relative brevity, though their less-specific responses will still make an appearance in all calculations using the race and/or race_simp_asc variables, leaving our pool of respondents at 61,000.

From these 61,000 individual responses we can see the possibility of a multitude of patterns that may reveal important information about how our electoral system interacts with systemic realities.

Some of the hypotheses which I see rise to the surface of the dataset are as follows:

1. Non-white Respondents will have an increased chance of experiencing wait times of more than ten minutes at the polling booth.
2. Those who report an income under the 2020 United States' median income of $67,521

(*round: $70,000*) will be more likely to experience wait times of more than ten minutes at the polling booth.

3. Non-white respondents will be more likely to experience increased wait times in comparison to their white counterparts in areas that are known to have participated in extensive redlining policies (*Northeast, Midwest*).

It is important to discuss that these hypotheses cannot fully confirm the interaction between redlining and the observed phenomena. A full examination of this question would be aided by individual and group case studies following those in areas most heavily impacted by redlining. However, the hypotheses presented within this study can create a more in-depth foundation for following research by demonstrating the interactions between the present variables.

Testing these hypotheses requires the use of several variables that capture the interaction of one's racial and economic demographics and the issues and timeline they experience throughout the voting process.

The initial group of variables used in this study are:

Est_Wait_Time_IP (*originally named CC20_404, this variable estimates the wait time experienced at the polls by each respondent, where 1= Not at all, 2=Less than 10 minutes, 3=10-30 Minutes, 4=31 Minutes-1 Hour, 5=More Than 1 Hour. N=24,219.*).

Race (*reporting the racial identities of each respondent, where 1=White, 2=Black, 3=Hispanic, 4=Asian, 5=Native American, 6= Middle Eastern, 7=Two or More Race, 8= Other. N=61,000.*).

Faminc_new (*reporting the annual income of the respondent's household for the previous year, with 1= Less than $10,000, 2=$10,000 - $19,999, 3=$20,000 - $29,999 , 4= $30,000 - $39,999, 5= $40,000 - $49,999, 6=$50,000 - $59,999 ,76= $60,000 - $69,999, 8=$70,000 - $79,999, 9= $80,000 - $99,999, 10= $100,000 - $119,999, 11=$120,000 - $149,999 12= $150,000 - $199,999, 13= $200,000 - $249,999, 14=$250,000 - $349,999, 15= $350,000 - $499,999,, 16= $500,000 or more, and 97= Prefer not to answer, which has been coded as missing in hopes of cleaning up resulting data tables. N=60,981.*).

Region *(reporting the census region which the respondent lived in at the time of participation in the study, with 1=Northeast, 2=Midwest, 3=South, 4=West)*

In order to accommodate both a more specific and a more broad view of the question at hand, the list of variables used to address my question also includes recoded editions of race, named race_simp_asc (*recoded with 1= non-white, 2= white*), and faminc_new, now called faminc_simp (with *recoded datapoints 1-4=1, 5-8= 2, 9-12=3, 13-16=4*).

Increased Wait Times Experienced by Non-White Respondents

In order to test the idea of non-white participants experiencing higher wait times than white respondents I ran a crosstabulation between the aforementioned variables Est_Wait_Time_IP

and race, originally running the test without the weighting that centers registered voters who participated in both waves of the questionnaire. The results (*as displayed in table 1*) show a statistically significant ($P < .001$) interaction between the race of the respondent and an increased wait time at the polling booth. Though the difference may be relatively small overall, with a Cramer's V of .056, the numbers are most visually striking when you compare the percentage of white participants who experienced more than an hour wait time versus the responses of Black respondents, with 3.5% more of the Black participants reporting a wait of this length. However, white respondents were not those who reported the least chance of an hour plus wait time. The Native Americans population reported the lowest chance of having this experience, with 2.8% of the population reporting more than an hour wait. However, it is important to note that this is also the smallest portion of the response pool besides the "other" category, and may influence the overall results of the study.

In order to provide clarity when examining the relationship between non-whiteness and an increased wait time, I ran another crosstabulation between Est_Wait_Time_IP and race_simp. The results (*shown in Table 2*) show significance as well ($P<.001$) and has a Cramer's V of .065.

Overall, these results are consistent with the presented hypothesis, and therefore I reject the null hypothesis.

Table 1: Wait Times Experienced By Various Racial Groupings at the Polling Booth

			Respondent's Race								
			White	Black	Hispanic	Asian	Native American	Middle Eastern	Two or More Races	Other	Total
Wait Time Experienced	Not At All	Count	6171	552	507	148	45	133	104	2	7662
		% within race	**34.4%**	**21.7%**	**29.7%**	**24.0%**	**31.5%**	**38.3%**	**36.1%**	**11.8%**	**32.5%**
	Less Than 10 Minutes	Count	4951	714	476	218	39	73	80	4	6555
		% within race	**27.6%**	**28.1%**	**27.9%**	**35.3%**	**27.3%**	**21.0%**	**27.8%**	**23.5%**	**27.8%**
	10-30 Minutes	Count	3832	677	461	154	39	80	53	8	5304
		% within race	**21.4%**	**26.6%**	**27.0%**	**25.0%**	**27.3%**	**23.1%**	**18.4%**	**47.1%**	**22.5%**
	31 Minutes-1 Hour	Count	2039	374	162	64	16	37	28	2	2722
		% within race	**11.4%**	**14.7%**	**9.5%**	**10.4%**	**11.2%**	**10.7%**	**9.7%**	**11.8%**	**11.5%**
	More Than 1 Hour	Count	949	224	101	33	4	24	23	1	1359
		% within race	**5.3%**	**8.8%**	**5.9%**	**5.3%**	**2.8%**	**6.9%**	**8.0%**	**5.9%**	**5.8%**
Total		Count	17942	2541	1707	617	143	347	288	17	23602
		% within race	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 1: Chi = 294.190, P < .001. Cramer's V = .056

Table 2: Encountered Wait Times Within Simplified Racial Categories

			Race of Participants		
			Non-white Respondents	White Respondents	Total
Wait Time Experienced	Not At All	Count	2623	11285	13908
		%	**29.8%**	**36.4%**	34.9%
	Less Than 10 Minutes	Count	2410	8330	10740
		%	**27.3%**	**26.8%**	27.0%
	10-30 Minutes	Count	2096	6242	8338
		%	**23.8%**	**20.1%**	20.9%
	31 Minutes-1 Hour	Count	1049	3435	4484
		%	**11.9%**	**11.1%**	11.3%
	More Than 1 Hour	Count	638	1734	2372
		%	**7.2%**	**5.6%**	6.0%
Total		Count	8816	31026	39842
		%	100.0%	100.0%	100.0%

Table 2: Chi = 166.146, P < .001. Cramer's V = .065, df=4

Increased Wait Times Experienced by Those with Lower Reported Annual Income

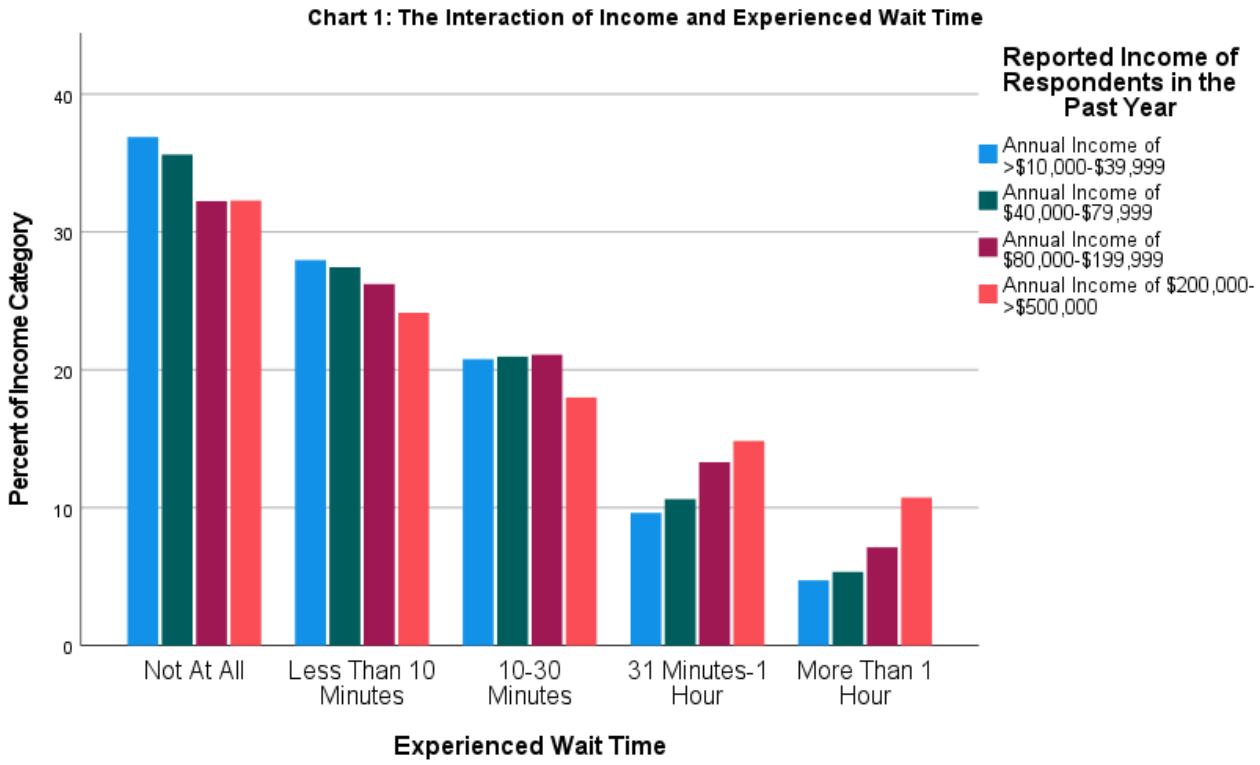
The literature suggests an interaction between lower economic class and a slower experience at

the polling booth due to inequitable resource levels. Following this logic I conducted another crosstabulation, this time between faminc_simp and Est_Wait_Time_IP. The results were again significant (P<.001) but not incredibly impactful (Cramer's V= .049). This shows an interaction between an extended wait time and lower income levels, however, the interaction is less impactful than the direct correlation between non-whiteness and increased wait times, as demonstrated in the results of the first hypothesis. In fact, once the annual income reported reaches the level of $200,000-$500,000, a larger percentage (10.7%) of the population reported a wait time of over an hour than their counterparts of different income levels, though the population is far smaller than the others presented (*472 individuals fell within the highest reported income grouping, whereas the other three categories averaged 4001.33 respondents*). The interaction between the results of this crosstabulation and the literature which examines the negative correlation between non-whiteness and increased income begins to connect the variables to show how an intersection of racial or racially-influenced factors can come together to explain a discrepancy in the experienced wait times between races. Overall, these results are significant and lead to rejection of another null hypothesis.

Table 3: The Interaction of Income and Experienced Wait Time at the Polling Booth

			Respondent's Reported Income for the Previous Year				
			Annual Income of >$10,000-$39,999	Annual Income of $40,000-$79,999	Annual Income of $80,000-$199,999	Annual Income of $200,000->$500,000	Total
Experienced Wait Time	Not At All	Count	3945	4454	3605	472	12476
		%	**36.9%**	**35.6%**	**32.2%**	**32.3%**	34.8%
	Less Than 10 Minutes	Count	2990	3432	2932	353	9707
		%	**28.0%**	**27.5%**	**26.2%**	**24.1%**	27.1%
	10-30 Minutes	Count	2222	2621	2360	263	7466
		%	**20.8%**	**21.0%**	**21.1%**	**18.0%**	20.8%
	31 Minutes-1 Hour	Count	1029	1327	1488	217	4061
		%	**9.6%**	**10.6%**	**13.3%**	**14.8%**	11.3%
	More Than 1 Hour	Count	506	667	796	157	2126
		%	**4.7%**	**5.3%**	**7.1%**	**10.7%**	5.9%
Total		Count	10692	12501	11181	1462	35836
		%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi = 261.810, P < .001. Cramer's V = .049



Chi = 261.810, P < .001. Cramer's V = .049

Increased Wait Times Experienced by Non-white Respondents in Areas with Historically More Extensive Redlining

When reviewing the provided literature the importance of income and geological location came to mind, as income levels are often tied to past redlining procedures, and geological location in the United States can correlate with the chances of that particular individual being impacted by redlining, with certain regions engaging in the practice to higher levels than others (Best & Mejia, 2022).. This gives rise to the hypothesis that non-white respondents who are more likely to be existing in the aftermath of more intensive redlining practices are more likely to experience

increased waiting times at the polling booth- tying together the two aforementioned variables through historical means. This serves to address the question of alternative explanations for the observed phenomena (*economic differences*). By attempting to link geographic location with income levels and race through a historical lens, I can create a potential bridge between racial and economic explanations for increased wait times through the utilization of this common factor.

I deemed it necessary to condense the faminc_new variable further in the name of readability.This was accomplished by recoding the aforementioned variable into a new variable named "faminc_bin", which narrows down the originally reported sixteen income categories into three simplified bins (*with values 1-6= 1, 7-11= 2, 12-16=3, labeled as "Low to Average Income", "Average to Middle Income", and "Middle to High Income" respectively*).

With these things in mind, I conducted a crosstabulation with faminc_bin and race_simp_asc as independent variables, with Est_Wait_Time as the dependent variable, with an additional layer of the region variable. The resulting table has been separated into three tables in the name of clarity and readability, with the first (Table 4) representing the "Low to Average Income" category, the second (Table 5) representing the "Average to Middle Income" group, and the final section (Table 6) representing the "Middle to High Income" category.

The results, as displayed in Tables 4, 5 and 6, portray a significant ($P<.001$) correlation between non-white racial identities, geographic region, and increased experienced wait times at all levels of income. Across all levels of income, non-white individuals have a higher correlation with increased wait times (*Table 4, Low-Average Income: White respondents Cramer's V: .069,*

Non-white respondent's Cramer's V: .109. Table 5, Average-Middle Income: White respondents Cramer's V: .074, Non-white respondent's Cramer's V: .121. Table 6, Middle-High Income: White respondents Cramer's V: .115, Non-white respondent's Cramer's V: .212).

Geographic location showed interesting results when comparing the percentage of individuals who experienced wait times of 31 minutes-1 hour and more than 1 hour. In the Low-Average income bracket (Table 4), non-white individuals had the highest chance of experiencing a 31 minute- 1 hour wait time in the Northeast and Midwest, with 13.5% and 12.8% of the population experiencing these wait times respectively. White individuals in the same regions and income bracket had a 9.8% (Northeast) and 8.7% (Midwest) chance of undergoing those wait times. As we continue to explore Table 4, it is clear that although these regions did not have the highest percentage of the non-white individuals with a wait time longer than an hour, 5.2% (Northeast) and 5.6% (Midwest), with the South having 7.1% of the non-white population report a wait time of this length, the numbers still match or overtake the percentage of white individuals who experienced the same wait times, with 5.2% of white respondents reporting a wait of longer than an hour in the Northeast, and 4.0% of the white population reporting wait times of this category in the Midwest.

These effects are visible throughout the income categories, with the Average-High income bracket (*as displayed in Table 5*) showing starkly different percentages of the population experiencing wait times of over 31 minutes among white and non-white respondents, particularly in the Northeast and Midwest. The non-white populations reported 18.2% of said participants experiencing a wait of 31 minutes to 1 hour in the Northeast, and 19.4% in the Midwest. The white population is reported to have 11% and 14.9% of respondents experiencing the same wait

times respectively. As for those who experience a wait of an hour or more, 19.1% of the non-white population of the Average-to-High income bin in the Northeast reported such a wait time, and 8.1% in the Midwest. The white respondents of the same regions and income level reported 12.9% and 6.0% of the population experiencing a wait time of the same length.

Table 4: The Interaction of Low to Average Income, Geographic Region, Race, and Experienced Wait Times

Income Category of Respondent	Race of Respondent				Geographic Region of Respondent				
					Northeast	Midwest	South	West	Total
Low to Average Income	Non-white Respondents	Wait Time	Not At All	Count	240	203	689	224	1366
				%	35.6%	29.9%	26.1%	52.8%	30.7%
			Less Than 10 Minutes	Count	149	166	832	78	1225
				%	22.1%	24.5%	31.1%	18.4%	27.5%
			10-30 Minutes	Count	159	184	640	83	1066
				%	23.6%	27.1%	23.9%	19.6%	23.9%
			31 Minutes-1 Hour	Count	91	87	315	26	519
				%	13.5%	12.8%	11.8%	6.1%	11.7%
			More Than 1 Hour	Count	35	38	189	13	275
				%	5.2%	5.6%	7.1%	3.1%	6.2%
		Total		Count	674	678	2675	424	4451
				%	100.0%	100.0%	100.0%	100.0%	100.0%
	White Respondents	Wait Time	Not At All	Count	886	1432	2095	511	4924
				%	37.9%	38.0%	35.1%	56.2%	37.9%
			Less Than 10 Minutes	Count	696	1085	1689	184	3654
				%	29.8%	28.8%	28.3%	20.2%	28.1%
			10-30 Minutes	Count	406	771	1311	133	2621
				%	17.4%	20.5%	22.0%	14.6%	20.2%
			31 Minutes-1 Hour	Count	229	329	617	38	1213
				%	9.8%	8.7%	10.3%	4.2%	9.3%
			More Than 1 Hour	Count	122	150	256	43	571
				%	5.2%	4.0%	4.3%	4.7%	4.4%
		Total		Count	2339	3767	5968	909	12983
				%	100.0%	100.0%	100.0%	100.0%	100.0%
	Total	Wait Time	Not At All	Count	1126	1635	2784	735	6290
				%	37.4%	36.8%	32.3%	55.1%	36.1%
			Less Than 10 Minutes	Count	845	1251	2521	262	4879
				%	28.0%	28.1%	29.2%	19.7%	28.0%
			10-30 Minutes	Count	565	955	1951	216	3687
				%	18.8%	21.5%	22.6%	16.2%	21.1%
			31 Minutes-1 Hour	Count	320	416	932	64	1732
				%	10.6%	9.4%	10.8%	4.8%	9.9%
			More Than 1 Hour	Count	157	188	445	56	846
				%	5.2%	4.2%	5.1%	4.2%	4.9%
		Total		Count	3013	4445	8643	1333	17434
				%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4:
Non-white Respondents: Chi = 157.704, P < .001. Cramer's V = .109
White Respondents: Chi = 188.048, P < .001. Cramer's V = .069

Table 5: The Interaction of Average to Middle Income, Geographic Region, Race, and Experienced Wait Times

Income Category of Respondent	Race of Respondent				Geographic Region of Respondent: Northeast	Midwest	South	West	Total
Average to Middle Income	Non-white Respondents	Wait Time	Not At All	Count	117	113	417	188	835
				%	27.7%	25.7%	25.5%	46.4%	28.8%
			Less Than 10 Minutes	Count	98	110	458	116	782
				%	23.2%	25.0%	28.0%	28.6%	26.9%
			10-30 Minutes	Count	95	118	414	68	695
				%	22.5%	26.8%	25.3%	16.8%	23.9%
			31 Minutes-1 Hour	Count	52	58	231	16	357
				%	12.3%	13.2%	14.1%	4.0%	12.3%
			More Than 1 Hour	Count	61	41	114	17	233
				%	14.4%	9.3%	7.0%	4.2%	8.0%
		Total		Count	423	440	1634	405	2902
				%	100.0%	100.0%	100.0%	100.0%	100.0%
	White Respondents	Wait Time	Not At All	Count	880	1327	1709	424	4320
				%	35.8%	36.9%	31.3%	54.1%	35.3%
			Less Than 10 Minutes	Count	841	895	1509	180	3225
				%	26.7%	24.9%	27.7%	23.0%	26.3%
			10-30 Minutes	Count	413	717	1217	108	2455
				%	17.2%	19.9%	22.3%	13.8%	20.1%
			31 Minutes-1 Hour	Count	318	441	695	53	1507
				%	13.2%	12.3%	12.7%	6.8%	12.3%
			More Than 1 Hour	Count	172	220	322	19	733
				%	7.2%	6.1%	5.9%	2.4%	6.0%
		Total		Count	2404	3600	5452	784	12240
				%	100.0%	100.0%	100.0%	100.0%	100.0%
	Total	Wait Time	Not At All	Count	977	1440	2126	612	5155
				%	34.6%	35.6%	30.0%	51.5%	34.0%
			Less Than 10 Minutes	Count	739	1005	1967	296	4007
				%	26.1%	24.9%	27.8%	24.9%	26.5%
			10-30 Minutes	Count	508	835	1631	176	3150
				%	18.0%	20.7%	23.0%	14.8%	20.8%
			31 Minutes-1 Hour	Count	370	499	926	69	1864
				%	13.1%	12.4%	13.1%	5.8%	12.3%
			More Than 1 Hour	Count	233	261	436	36	966
				%	8.2%	6.5%	6.2%	3.0%	6.4%
		Total		Count	2827	4040	7086	1189	15142
				%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 5:

Non-white Respondents: Chi = 127.178, P < .001. Cramer's V = .121

White Respondents: Chi = 199.026, P < .001. Cramer's V = .074

Table 6: The Interaction of Middle to High Income, Geographic Region, Race, and Experienced Wait Times

Income Category of Respondent	Race of Respondent				Geographic Region of Respondent: Northeast	Midwest	South	West	Total
Middle to High Income	Non-white Respondents	Wait Time	Not At All	Count	20	10	71	42	143
				%	18.2%	16.1%	21.0%	50.0%	24.1%
			Less Than 10 Minutes	Count	31	15	79	35	160
				%	28.2%	24.2%	23.4%	41.7%	26.9%
			10-30 Minutes	Count	18	20	75	1	114
				%	16.4%	32.3%	22.2%	1.2%	19.2%
			31 Minutes-1 Hour	Count	20	12	60	6	98
				%	18.2%	19.4%	17.8%	7.1%	16.5%
			More Than 1 Hour	Count	21	5	53	0	79
				%	19.1%	8.1%	15.7%	0.0%	13.3%
		Total		Count	110	62	338	84	594
				%	100.0%	100.0%	100.0%	100.0%	100.0%
	White Respondents	Wait Time	Not At All	Count	218	173	357	140	888
				%	34.4%	30.3%	29.3%	57.6%	33.3%
			Less Than 10 Minutes	Count	142	154	319	46	661
				%	22.4%	27.0%	26.2%	18.9%	24.8%
			10-30 Minutes	Count	122	125	244	24	515
				%	19.2%	21.9%	20.0%	9.9%	19.3%
			31 Minutes-1 Hour	Count	70	85	188	24	367
				%	11.0%	14.9%	15.4%	9.9%	13.8%
			More Than 1 Hour	Count	82	34	110	9	235
				%	12.9%	6.0%	9.0%	3.7%	8.8%
		Total		Count	634	571	1218	243	2666
				%	100.0%	100.0%	100.0%	100.0%	100.0%
	Total	Wait Time	Not At All	Count	238	183	428	182	1031
				%	32.0%	28.9%	27.5%	55.7%	31.6%
			Less Than 10 Minutes	Count	173	169	398	81	821
				%	23.3%	26.7%	25.6%	24.8%	25.2%
			10-30 Minutes	Count	140	145	319	25	629
				%	18.8%	22.9%	20.5%	7.6%	19.3%
			31 Minutes-1 Hour	Count	90	97	248	30	465
				%	12.1%	15.3%	15.9%	9.2%	14.3%
			More Than 1 Hour	Count	103	39	163	9	314
				%	13.8%	6.2%	10.5%	2.8%	9.6%
		Total		Count	744	633	1556	327	3260
				%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6:

Non-white Respondents: Chi = 273.121, P < .001. Cramer's V = .212

White Respondents: Chi = 435.519, P < .001. Cramer's V = .115

Concluding Discussion

In reviewing the results from the three hypotheses showcased above, there are several trends. Firstly, a consistent level of significance when investigating the relationships between race and experienced wait times. Initial analysis also showed increased income to have a mostly negative correlation with increased wait times experienced, though in an outlier group within the highest income group there are instances of an increased wait time experienced. Finally, an interaction between the strength of the correlation between the race, income, and experienced wait times and the region of the United States which the respondent voted in.

This study confirms the interaction between non-white identities and increased wait times at the polling place that was previously explored by other studies. However, it also expands upon previously established research by showing a regional interaction between the present variables and establishing and maintaining a focus on historical factors, such as redlining, that lent themselves to the establishment of aforementioned interactions.

The results of this study act as a starting place for identifying and addressing equity-related voting issues, moving toward a more involved democracy across racial divides. More research is required to sort out other contributing factors to these increased wait times as well as possible ways to address the issues at hand.

Citations

An, B., Orlando, A. W., & Rodnyansky, S. (2019). The physical legacy of racism: How redlining cemented the modern built environment. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3500612

Anderson, C. E., & Durbin, R. J. (2019). One person, no vote: How voter suppression is destroying our democracy. Bloomsbury Publishing.

Begley, T. A., & Purnanandam, A. (2021). Color and credit: Race, regulation, and the quality of Financial Services. Journal of Financial Economics, 141(1), 48–65. https://doi.org/10.1016/j.jfineco.2021.03.001

Best, R., & Mejia, E. (2022, February 9). The lasting legacy of Redlining. FiveThirtyEight. Retrieved April 4, 2023, from https://projects.fivethirtyeight.com/redlining/#:~:text=The%20legacy%20of%20redlining%20is%20particularly%20pronounced%20in,most%20segregated%20formerly%20redlined%20zones%20in%20the%20country.

Chen, M. K., Haggag, K., Pope, D. G., & Rohla, R. (2020). Racial disparities in voting wait times: Evidence from Smartphone Data. The Review of Economics and Statistics, 1–27. https://doi.org/10.1162/rest_a_01012

Cobb, J. (2018, October 29). Voter-suppression tactics in the age of trump. The New Yorker. Retrieved November 12, 2021, from http://cf.linnbenton.edu/artcom/social_science/clarkd/upload/Voter%20Suppression%20Tactics.pdf.

Conwell, J. A., & Ye, L. Z. (2021). All wealth is not created equal: Race, parental net worth, and children's achievement. RSF: The Russell Sage Foundation Journal of the Social Sciences, 7(3), 101–121. https://doi.org/10.7758/rsf.2021.7.3.05

Jablonski, N. G. (2020). Skin color and race. American Journal of Physical Anthropology, 175(2), 437–447. https://doi.org/https://doi.org/10.1002/ajpa.24200

Kelley, E. (2017). Racism & Felony Disenfranchisement: An Intertwined History. Brennan Center for Justice. http://www.jstor.org/stable/resrep28433

Marker, D. A. (2013). The statistical role in voter identification (ID) laws. Statistics and Public Policy, 1(1), 46–50. https://doi.org/10.1080/2330443x.2013.856710

Mendez-Carbajo, D. (2021, September). Neighborhood redlining, racial segregation, and homeownership. Economic Research - Federal Reserve Bank of St. Louis. Retrieved November 12, 2021, from https://research.stlouisfed.org/publications/page1-econ/2021/09/01/neighborhood-redlining-racial-segregation-and-homeownership

Oppenheimer, D. B. (2021). What is 'systemic racism?' how is it different from racist acts caused by bigotry, prejudice or bias? SSRN Electronic Journal, 1–17. https://doi.org/10.2139/ssrn.3644684

Palandrani, Joseph and Watson, Danika (2020) "Systemic Inequality | Racial

Gerrymandering, The For the People Act, and Brnovich: Systemic Racism and Voting Rights in 2021," Fordham Law Review Online: Vol.89 , Article 21.

Pettigrew, S. (2017). The racial gap in wait times: Why minority precincts are underserved by local election officials. Political Science Quarterly, 132(3), 527–547. https://doi.org/10.1002/polq.12657

Pitzer, K., Mcclendon, G. G., & Sherraden, M. (2021). Voting Infrastructure and Process: Another form of voter suppression? Social Service Review, 95(2), 175–209. https://doi.org/10.1086/714491

Ravel, A. (2018). A New Kind of Voter Suppression in Modern Elections. The University of Memphis Law Review, 49, 1019–1063.

Stewart, C. (2013). Voter ID: Who Has Them? Who Shows Them? Oklahoma Law Review, 66, 21–52. Retrieved November 10, 2021, from https://digitalcommons.law.ou.edu/olr/vol66/iss1/.