Mapping the Path to Participation:
Polling Site Distribution and Minority Voting Behavior

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Introduction

This year alone marks a significant turning point for democracy worldwide as nearly half of the world's population will be participating in national elections. Since the birth of its nation, the United States has been epitomized to be the quintessential model for democratic values, serving as a pioneer and protector of human rights, free and fair elections, and other democratic institutions. However, recent political trends have placed the United States' democracy in jeopardy. Following President Biden's triumph over former President Donald Trump in the 2020 election, the infamous January 6th riot took place where pro-Trump supporters raided the Capitol in protest of the transition of power. This attack was fueled by disinformation and misinformation that was spread across several digital platforms and social media outlets, convincing people that the election was tampered with by domestic and foreign actors. As a result of the outcomes of the last election and likelihood of a Trump versus Biden rematch in this year's 2024 election, this research project aims to highlight trends of discrimination among minority voters.

Specifically, this project will aim to address the following research question: *how does the number of polling sites affect voter participation rates among minority communities in the United States in the 2020 election?* America's history has proven on multiple occasions how the country's White elites seek to pass legislations and policies that diminish the electoral opportunities for marginalized groups. Recent attacks on America's democracy and the right to vote among minorities come in the forms of 1) the spread of disinformation on social media platforms and the use of deep fakes; 2) attempts at banning or restricting mail-in ballots; and 3) strategically shutting down polling sites to evoke longer commuting times for voters. For example, a recent study showed that the number of ballots casted over presidential, mid-term congressional, and municipal elections decreased by 2%-5% when distance to polling places increased by .25 miles (Cantoni, 2015). Furthermore, polling site closures also affect voter participation rates by increasing wait times at existing sites. When factoring in race, "zip codes with greater than 75% non-white populations waited more than twice as long as zip codes with less than 25% non-white populations" (Mann, 2019). Longer wait times have proven to result in significantly higher rates of leaving the check-in line, and, in cases like Los Angeles, the consolidation of polling locations resulted in a 3% reduction in voter turnout (Brady and McNulty, 2011). Thus, a geospatial analysis will reveal the relationship and consequences of the number polling sites, state demographics, and voter participation related to the 2020 U.S. presidential election.

Methodology

This study draws on four types of data to assess the effects of the number polling sites on voter participation among minority communities:

1. U.S. Counties, 2020 and U.S. States and Equivalent, 2020 shapefiles extracted from the United States 'publicly available Tiger/Line database provided by the Census Bureau;
2. County and State population demographic data provided by the Census Bureau from the 5-Year Estimate Data Profiles American Community Survey, 2020;
3. Polling site information, including exact addresses, names, and zip codes, collected and published by independent researchers at the Center for Public Integrity for the Barriers to the Ballot Box investigation; and
4. Presidential voter participation rates by county created and provided by CNN for the 2020 presidential election.

Figure 1 illustrates the locations of interest for this study. Delaware, Maryland, North Carolina, Virginia, and West Virginia have been identified as five continuous states that 1) possess adequate data on their polling sites; 2) call for a regional comparison on the given research topic, and 3) have witnessed greater amounts of

Figure 1.
Study Locations with Polling Sites

racial diversification and racial isolation among communities within their borders. It is important to note that the Center for Public Integrity's dataset is the only publicly available source to compile national data on polling site addresses. However, complete information is provided for only 37 out of the 50 states due to funding, time, and bureaucratic challenges the researchers encountered (Levine et. al., 2021).
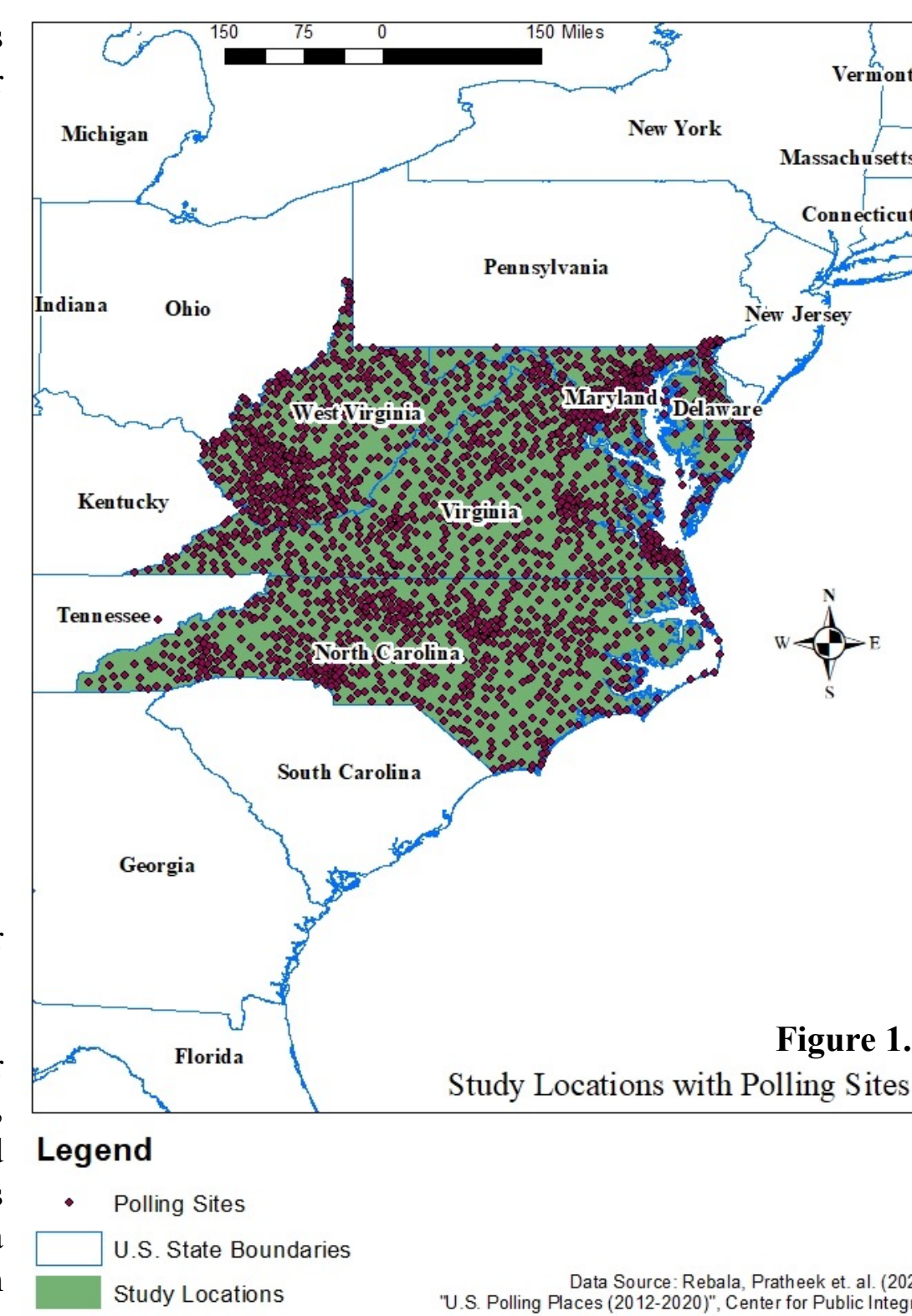
As shown in **Figure 1**, polling sites were geocoded by zip code due to inconsistencies in address formatting between the Center for Public Integrity and U.S. Census Bureau datasets. Geocoding by zip codes allowed for the polling sites to be presented per county as each county contains a unique zip code, matching the zip code information with their corresponding geographic coordinates for visualization. During the matching process, only 34 out of 6717 polling sites unsuccessfully matched and required manual correction. These cases were due to errors in the zip codes provided by the Center for Public Integrity and were triangulated using geographic information from Google Maps. After successfully matching all polling places, I then performed a spatial join to the county level for the analysis, merging the tabular data from the geocoded polling places to the spatial data of the counties in the study location.

Results

Based on the data collected, a series of maps were produced on ArcGIS to spatially analyze the following variables at the county level: number of polling sites, population demographics, and voter participation rates. First, it is important to disaggregate the number of eligible voters (citizens of at least 18 years old) from the total population to understand and compare voter participation rates more accurately. **Figure 2** illustrates this population for all five states at the county level accordingly. The map shows a relatively equal distribution of eligible voters among each county with Maryland (5.3 million), Virginia (8.5 million), and North Carolina (10.4 million) possessing counties with higher concentrations of eligible voters. Delaware and West Virginia place lower than the three aforementioned states in number of eligible voters with state voting populations of 1.1 and 1.7 million, respectively.
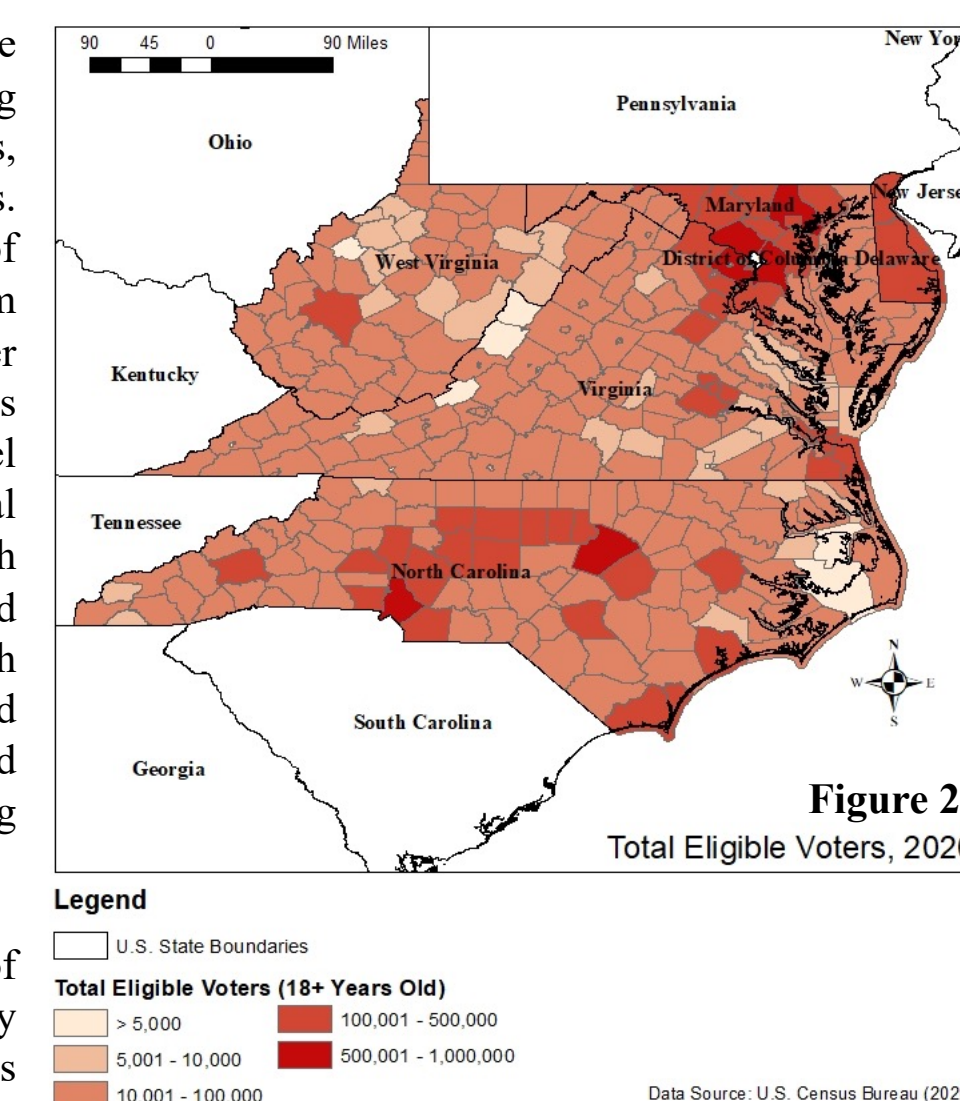

Figure 2.
Total Eligible Voters, 2020

Figure 3 furthers the comparative assessment of demographic data at the county level of each state by factoring in race. The study selected African Americans and Hispanics to compare against Whites as these are two minority groups that have historically been marginalized in this area and comprise a significant portion of the states' total populations. In addition, Maryland, Virginia, and North Carolina have several counties designated as "sanctuary cities" whereas Delaware and West Virginia do not, posing as a unique regional contrast that affects the racial makeup of each state regarding Hispanics (Center for Immigration Studies, 2024).

Figure 3. County Population Percentage by Race, 2020.
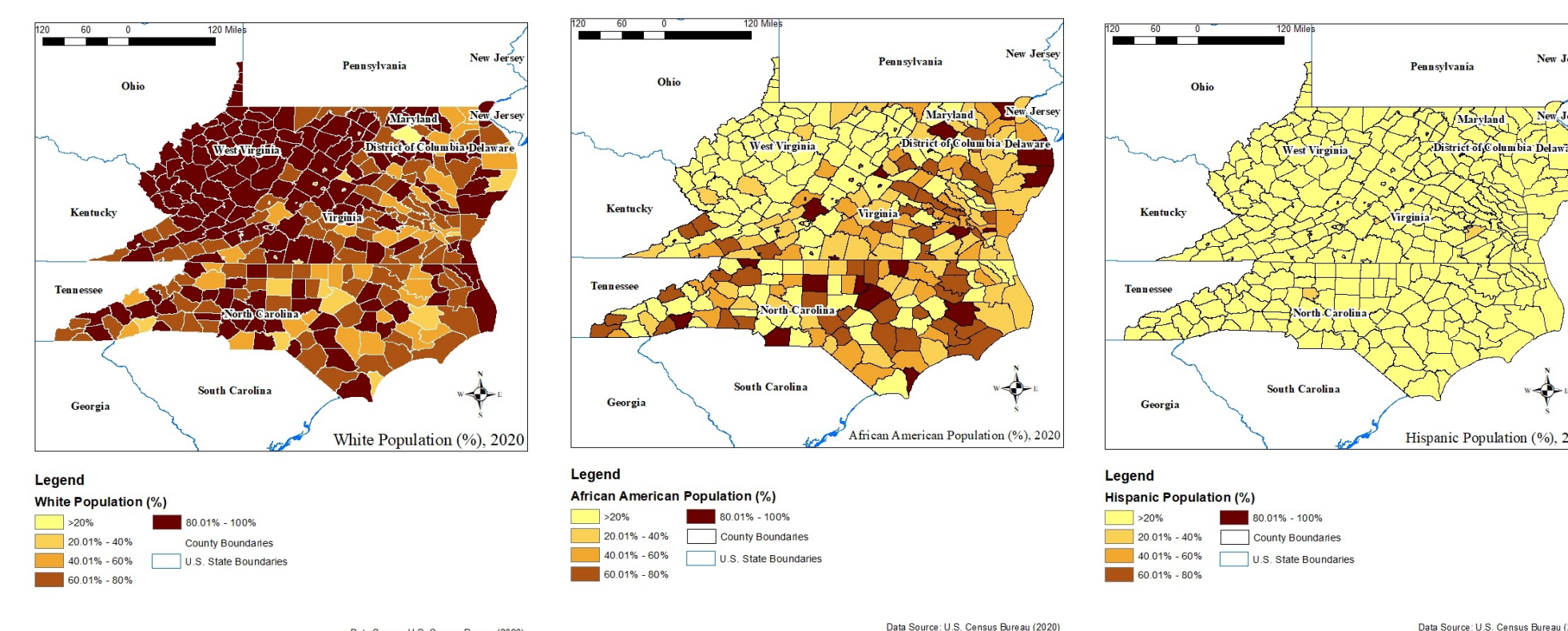
While the number of individuals in each county vary by racial identification, Whites comprise the largest racial group in the area with African Americans and Hispanics trailing in second and third, respectively. Demographic data highlights that within the five states of interest, 284 out of the 315 counties possess a population that is greater than or equal to 50% White in comparison to the 16 counties that have an African American majority (greater than or equal to 50%). The number of counties without a White majority nearly doubles to 31 when combining all racial minorities. However, there were no counties that scored a Hispanic majority, with Manassas Park City, Virginia having the highest percentage of Hispanics (40.1%). When comparing the counties of each state across **figure 3**, it is evident that West Virginia is the least racially diverse with North Carolina and Virginia being among the top two most racially diverse. Maryland and Delaware rank 3rd and 4th, respectively.
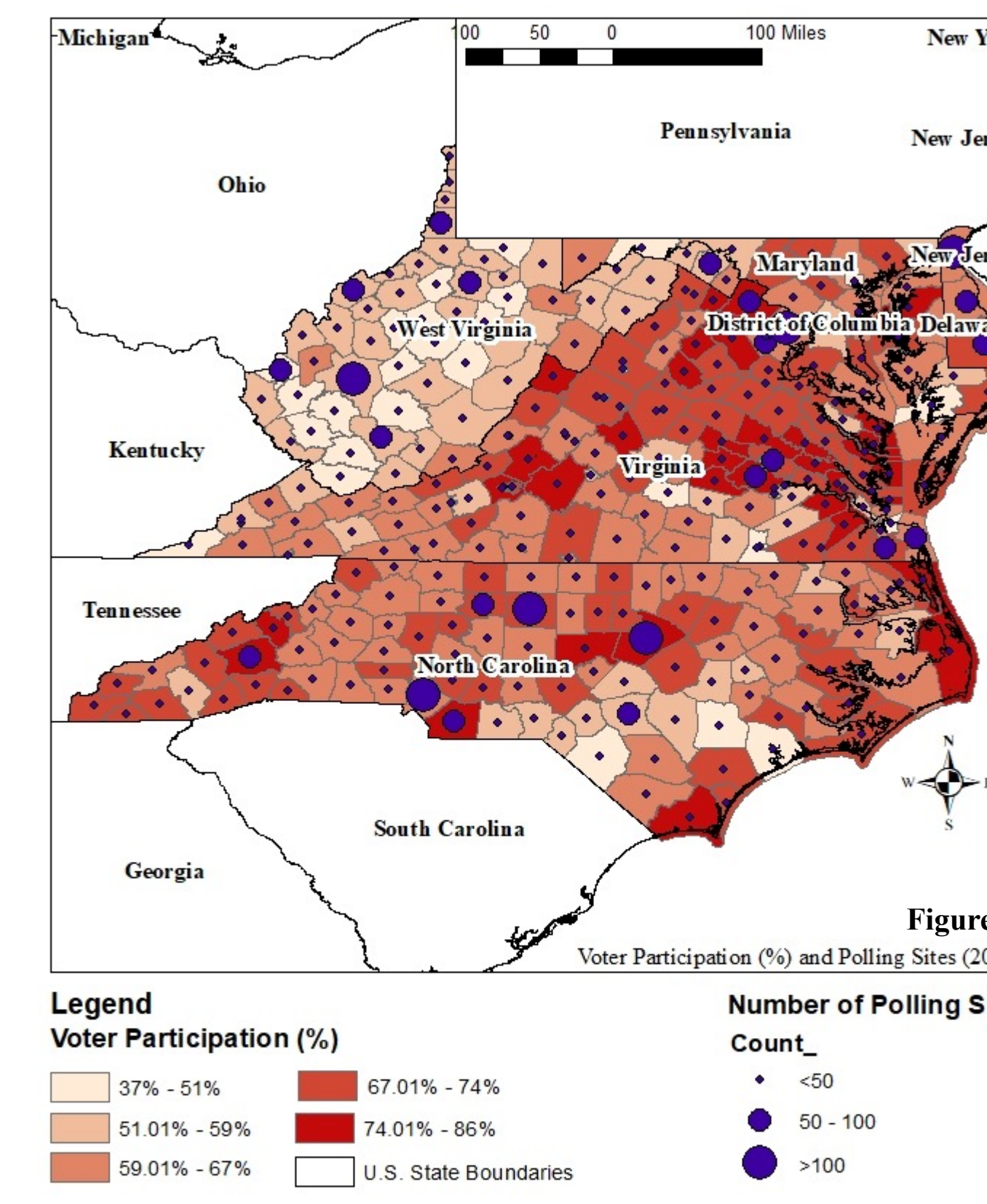

Figure 4.
Voter Participation (%) and Polling Sites (2020)

Data Sources: CNN, (2019) "Presidential Results."
Rebala, Pratheek et. al., (2020) "U.S. Polling Places (2012-2020)," Center for Public Integrity.

Figure 4 demonstrates the relationship between voter participation rates and number of polling sites. Voter participation is presented as the ratio between total number of eligible voters (as depicted in **Figure 2**) to the total number of people who voted in the 2020 presidential election (per CNN's voting tracker). Polling sites were spatially joined at the county level to depict which counties had more polling sites than others.

When reviewing the top 100 counties with the highest voter participation rates, there are only two counties that do not possess a majority White population (Charles County, VA and Charles County, MD). Additionally, with respect to the top 100 counties with the highest number of polling sites, only 3 predominantly African American counties were represented (Prince George's County, MD,

Portsmouth City, VA, and Baltimore City, MD). However, concerns arise when attempting to compare number of polling sites and voter participation rates among counties that have drastically different population sizes. For example, one may argue that if a county has a higher population, it will then also have a high number of polling sites to accommodate their eligible voters. As a result, it is important to calculate the number of polling sites per 1,000 eligible voters to offer a measure of the availability of polling locations relative to the size of eligible voters in a particular area. After computing this measure, there were only 7 counties out of the top 100 with the highest number of polling sites per 1,000 people that did not possess a White majority.

There are several cases where White majority counties possess a higher number of polling sites than African American and Hispanic majority counties of similar population size. For example, when comparing Fairfax County, VA with Prince George's County, MD, there is a difference of only 144,604 eligible voters. However, Fairfax, a county that is 59 percent White, possesses 216 polling sites and a voter participation rate of 78.89 percent. On the other hand, Prince George's, a county that is 62.12 percent African American, has 38 polling sites and a voter participation that is nearly 10 percentage points less (69.25 percent) than Fairfax. The same is also true when comparing Baltimore City, MD (Voting Population = 453,527) and Anne Arundel County, MD (Voting Population = 427,898). While both counties have a low number of polling sites for their populations, 22 and 30, respectively, Baltimore City (62.3 percent African American) has a lower number of polling sites despite having a higher population than Anne Arundel County (71 percent White). This, in turn, affects their voter participation as Baltimore City experienced a rate of 51.29 percent and Anne Arundel County of 70.26 percent. Both examples illustrate an overall trend that racially diverse counties, on average, possess a lower number of polling sites than White majority counties which impacts their voter participation rates accordingly.

Limitations

The limitations of this study are related to the data that was collected and analyzed. Firstly, because the researchers at the Center for Public Integrity were able to gather data for only 37 states, the study was geo-graphically constrained to the states for which there was adequate data. Five continuous states were selected to provide a regional comparison; however, similar studies with more diverse populations may yield different results and interpretations. Secondly, the variables the study focused on were number of polling sites, race, and voter participation rates. However, since number of eligible voters were not disaggregated by race due to limited data. Therefore, the spatial analysis only shows correlation between voter participation rates and number of polling sites based on the racial demographics of the counties' populations. Lastly, given the circumstances of the last election with the COVID-19 pandemic, mail-in ballots became a popular trend to facilitate safe voting. However, the data presented for this study does not differentiate between those who voted in person or via mail-in ballot. As a result, the relationship between voter participation rates and number of polling sites may be impacted accordingly.

Conclusion and Recommendations

The 2020 U.S. presidential election was transformational since it occurred amid the COVID-19 pandemic, witnessing an unprecedented number of mail-in ballots. Additionally, the consequences of this election directly and indirectly influenced the trajectory of democracy worldwide, arguably sparking a domino effect of similar events to the January 6th Capitol riot in other democratic countries. This research aimed to investigate the effects of the number of polling sites on voter participation rates among minority communities in five Southeastern states. While these five states were significantly comprised of predominantly White populations, the comparison of White majority counties to African American and Hispanic majority counties across and within states highlight racial disparities in voting accessibility. Firstly, counties with a greater presence of racial diversity, on average, have a lower amount of polling locations than their predominantly White counterparts. This relationship is further witnessed when polling sites per 1,000 people was calculated, drawing on comparisons between counties with similar population sizes but different racial demographic makeups. Secondly, while there is a lower number of predominantly African American and Hispanic counties in this general area, almost all non-White majority counties fall outside of the top 100 counties with the highest voter participation rates. Despite these findings, future research should look to expand this study geographically and variably to see if these results and relationships translate to other contexts. Specifically, future studies should investigate how the relationship between voter participation rates and number of polling sites fair in more populated and racially diverse states such as New York, California, and Texas. Furthermore, studies should look to include other variables in addition to the ones evaluated in this study. Some variables that may affect voter participation in addition to race are education levels, occupation status, and income. Depending on particular data, political party affiliation can also be an interesting variable to assess since it could potentially reveal disparities in accessibility to polling locations in predominantly Republican or Democratic voting counties.

References

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