The Electoral Geography of Provisional Ballots by County
The North Carolina 2008 U.S. Presidential Election

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The geography of provisional ballots is a realm of electoral geography that is increasingly important since such ballots can frequently shape electoral outcomes. That said, it is an area of inquiry that remains considerably under-researched. The purpose of this paper is to partially remedy this deficiency by highlighting the geographic significance and overall impact of the 52,000 provisional ballots cast during the 2008 presidential election in North Carolina. The paper focuses on a comprehensive analysis of the spatial distribution of provisional ballots in both absolute and relative terms by county. Based on a regression analysis we highlight the links that exist between the number of provisional ballots cast by county and various predictor variables. The research found that older, well-educated, predominately white counties found in Western and Coastal North Carolina cast fewer provisional ballots than other counties. Furthermore, counties with long agricultural histories and “minority-majorities” located in the northeastern part of the state cast provisional ballots at much higher rates.

La geografía de los votos provisionales es un ámbito de la geografía electoral cada vez más importante, ya que tales votos con frecuencia pueden influenciar los resultados electorales. Dicho esto, es un área de investigación que sigue siendo considerablemente poco investigada. El objetivo de este trabajo es remediar parcialmente esta deficiencia poniendo de relieve la importancia geográfica y el impacto global/total de los 52,000 votos provisionales de Carolina del Norte durante las elecciones presidenciales de 2008. El documento se centra en un análisis exhaustivo de la distribución espacial de los votos provisionales tanto en términos absolutos como relativos por condado. Basado en un análisis de regresión se destacan los vínculos que existen entre el número de los votos provisionales por condado y diversas variables predictoras/pronosticadoras. La investigación encontró que los condados más viejos, bien educados, predominantemente blancos del oeste y de la costa de Carolina del Norte recibieron menos votos provisionales que otros condados. Además, los condados con un largo historial agrícola y “minoría-mayorías” situados en el noreste del estado tuvieron cantidades mucho más altas de votos provisionales.

KEY WORDS: Provisional ballots, elections, political geography, North Carolina

PALABRAS CLAVE: votos provisionales, elecciones, geografía política, Carolina del Norte

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INTRODUCTION

Geographers have long been actively engaged in better understanding the spatial patterns of elections (Taylor and Johnston 1979; Taylor 1989; Agnew 1990; O’Loughlin et al. 1994; Morrill et al. 2007; Brunn et al. 2011). The importance of electoral geography was never more evident than during the 2000 U.S. presidential election when Republican George W. Bush narrowly carried the swing state of Florida. His Democratic opponent, Vice President Al Gore, requested manual recounts in four Florida counties: Broward, Miami-Dade, Palm Beach and Volusia. These counties traditionally voted Democratic and might have been expected to generate more votes for Gore. Under Florida law, all counties were required to certify election returns within seven days of the election. Ultimately, after much litigation, the U.S. Supreme Court ruled that no constitutionally valid recount could be completed by the “safe harbor” deadline, in part, due to the different standards that existed between “punch card” counties and “optical scanner” counties.

Partly in response to the issues raised in Bush v. Gore 531 U.S. 98 (2000), the U.S. Congress passed the Help America Vote Act (HAVA) in 2002 which mandated that states issue provisional ballots to any citizen who believes that he or she should be eligible to vote, thus introducing an entirely new form of electoral geography that has yet to be fully understood, particularly from a spatial perspective.

A provisional ballot is a “fail safe” ballot cast by a voter who is either not on the official voter rolls, or who for some other reason initially appears ineligible. Whether a provisional ballot is counted is contingent upon the verification of that voter’s eligibility, usually conducted within seven to ten days following the election. Recently, several states have enacted laws relating to both provisional ballots and general voter identification laws. Much of the debate about these new laws has focused on whether these initiatives are a legitimate weapon to combat voter fraud or instead a strategy to suppress minority voter turnout given that minorities may be more likely to cast a provisional ballot, and less likely to carry the needed identification to vote (Vercellotti and Anderson 2006).

What impacts might provisional ballots have in addressing this question? The primary purpose of this paper is to better understand the electoral geography of provisional ballots cast in North Carolina by county during the 2008 U.S. presidential election. It is hypothesized that age, race, and education are key factors that substantively impact the geography of provisional ballots at the county level while more procedural and administrative matters (such as the number of full-time election staff and the type of technology used on election day) play a more muted role. Much of the rationalization for this hypothesis lies in the notion that intra-state differences in provisional voting behavior are likely better explained by socio-demographic differences based on factors like age, race, and education. By contrast, the different ways in which each state has responded to the HAVA mandate when administering provisional ballots might better explain inter-state differences where procedural differences between states regarding the administration of the provisional ballot can be substantive.

The logic of choosing North Carolina as a case study was partly driven by the
narrow margin of victory in the 2008 presidential election. North Carolina had the second closest race in the nation in 2008, where the margin of victory was a mere 14,000 votes for Senator Barack Obama over Senator John McCain. Furthermore, approximately 52,000 votes were cast by provisional ballot in this election, and nearly half of these provisional ballots were subsequently certified and officially counted in the final election results. Although provisional ballots were a small portion of the total votes cast in North Carolina, these ballots may have had a significant impact in determining the outcome of the presidential election.

The following section provides a broad outline of the central argument regarding the key roles that certain socio-demographic factors and administrative or procedural matters play in shaping provisional voter behavior. Section 3 discusses the various methods and data sources used to investigate the electoral geography of provisional ballots in North Carolina. The results of the analysis and a discussion are presented in Section 4. Finally, Section 5 summarizes the main findings and the broader implications of this research.

LITERATURE REVIEW

Numerous theoretical frameworks have been developed to explain voter behavior. Research grounded in the classic social-psychological modeling tradition have long argued that various drivers, such as a sense of citizen duty, are key factors when explaining voting decisions (Riker and Ordeshok 1968). By contrast, rational voter theory has tended to utilize conventional cost-benefit analysis when determining if a voter will or will not cast a ballot (Aldrich 1993). Some of these costs may include factors such as the time and effort involved in gathering information about potential candidates (Matsusaka 1995), weather-related factors (Debbage et al. 2014), as well as more logistical issues such as voter identification requirements at polling places (Vercellotti and Anderson 2006) and limited polling days or hours (Golway 2012).

Although a substantive literature exists regarding voting behavior, a limited amount of research has been conducted on provisional ballots, particularly regarding the spatial distribution of such ballots. In broad conceptual terms, Foley (2008) suggested that provisional ballots serve as a sort of insurance policy protecting voters against administrative errors that may have caused them to be disenfranchised, as well as protecting the integrity of the election itself by providing election administrators the ability to confirm the legitimacy of voters whose eligibility may be questioned. Much of this argument was carried through with the HAVA mandate which required that all states implement the use of provisional ballots in time for the 2004 U.S. Presidential Election. After the 2004 election, the Commission on Federal Election Reform, (more commonly known as the Carter-Baker Commission) deemed provisional ballots an overwhelming success because they served as a crucial safety net for hundreds of thousands of eligible voters. That said, in many jurisdictions, the administration of provisional ballots created significant confusion and problems at the polls, and may have led to the disenfranchisement of many voters in 2004 (Weiser 2006).

Weiser identified many of the problems as being largely administrative in nature. She pointed out that a number of states
did not plan for provisional balloting until shortly before the election and some administrators continued changing the rules for provisional voting until the last minute. For example, provisional ballots were not available at some polling locations while some poll workers did not offer provisional ballots or refused to allow voters to cast provisional ballots. Additionally, a federally mandated study by electionline.org (2005) concerning the implementation of provisional ballots “revealed quite dramatically that when it comes to provisional ballots, a national standard hardly means national uniformity.”

Regarding the geography of provisional ballots, the Eagleton Institute of Politics (2006) pointed out that the spatial distribution of provisional ballots cast in the 2004 U.S. Presidential election was extremely varied. They found that California, New York, Ohio, Arizona, Washington, and North Carolina in aggregate accounted for two-thirds of all provisional ballots cast nationwide while just one-third were cast in the other 44 states. Additionally, they determined that the percentage of provisional ballots cast within a state varied from a high of 7 percent in Alaska to a low of 0.006 percent in Vermont. A Pew (2009) analysis of the 2008 U.S. presidential election concluded that more than two million provisional ballots were cast nationwide, and that similar to the 2004 election, the geography was highly varied, with only four states (Arizona, California, New York, and Ohio) accounting for two-thirds of the total. The Pew (2009) study suggested that this disparity was a function of the varying administrative procedures regarding the implementation of the provisional ballot process. According to Pew (2009, p.2), “depending on state laws and local rules, provisional ballots are issued for a variety of reasons depending on the state, including: a voter’s name is not on the registration list; a voter does not have proper identification; a voter has moved within a county; a voter is recorded as having already voted; as well as many others.” It is likely that the different administrative standards between the states partly explain the substantive differences in the geography of provisional ballots.

Some of the most geographically explicit analyses of provisional ballots includes the work of Kimball and Foley (2009), Baybeck and Kimball (2008), and Alvarez and Hall (2009). Unlike some prior research which implied that the (mis)administration of provisional ballots might be partly explained by different administrative standards by jurisdiction, a common theme in each of these more geographic analyses was the significance of fundamental socioeconomic differentials in explaining the inequitable distribution of provisional ballots.

Kimball and Foley (2009) examined state level data from 44 states and county-level data from California, Florida, and Ohio, and the research compared provisional voting rates from the 2004 and 2008 general elections. They found that the provisional voting rate (as a percentage of total ballots cast) by state were consistent from one presidential election to the next and suggested that “provisional voting tends to be more common in areas with large concentrations of Black or Hispanic residents and in places with large population growth” (Kimball and Foley 2009, p 2).

Baybeck and Kimball (2008) examined provisional voting in the 2006 Federal election in Cuyahoga County, Ohio; Duval County, Florida; and Baltimore City, Maryland. Each of these three states had some
kind of provisional voting mechanism in place prior to HAVA. They found that voters who move a lot, people who are not registered, or groups lacking resources or civic skills are some of the main contributing factors in triggering geographic clusters or concentrations of provisional ballots. Baybeck and Kimball (2008, p 1) also argued that the “geographic concentration of provisional voting is mitigated by ambiguous laws defining provisional voting, decentralized election administration, and the high degree of discretion left to poll workers in implementing provisional voting.” They also examined the percentage of provisional ballots cast relative to three key demographic variables which included the percentage of the precinct population that was non-white, (a proxy for race), the percentage of households with children and a single female head of household, (a proxy for poverty), and the percentage of households occupied by renters, (a proxy for mobility). Baybeck and Kimball (2008, p 9) found that “provisional voting is more common in precincts with larger concentrations of non-white residents, female-headed households with children, and especially rental-occupied households.”

One of the most comprehensive studies of the geography of provisional ballots was conducted by Alvarez and Hall (2009), who analyzed provisional ballots in the 2008 Ohio general election. Alvarez and Hall (2009 p 2.) hypothesized that “provisional ballots are likely to be used in areas with a high degree of residential mobility,” and “in counties with highly mobile populations and voters sensitive to the cost of registration, there will be higher rates of provisional ballot use.” Alvarez and Hall (2009) examined Ohio counties that had a college or university with a large student population to test the mobility hypothesis. Additionally, Alvarez and Hall (2009) used the percentage of a county’s population over the age of 65 to test their hypothesis that younger populations are more likely to be mobile and to consist of new voters. They used four additional precinct-level variables to help support their hypothesis, including the percent of the population that was white, the percent in poverty, the percentage of new registrants, and the voter turnout percentage. Alvarez and Hall (2009) found that the percentage of provisional ballots cast was highest in precincts with a low percent white population. They also found that a positive and significant correlation existed between the percentage of a county’s population in poverty and the percentage of provisional ballots cast. Likewise, they found that the average provisional voting rate was 6.11 percent for counties with large colleges or universities, but only 3.74 percent for those without a college or university, holding all other variables constant. Overall, Alvarez and Hall (2009, p 3) concluded that:

First a county’s racial composition is a significant factor related to provisional voting. . . . Second, the age of the county’s population consistently has an effect in each of the models. . . . Third, additional evidence exists that counties with large colleges or universities have higher provisional ballot use. . . . Finally, counties with higher rates of new registered voters do see higher provisional ballot usage rates, though in these two models those estimates are not statistically significant when we control for other factors (such as age and mobility) that might be related to the new voter registration rate.
METHODS

This paper will focus on attempting to answer two specific research questions. What is the fundamental spatial distribution of provisional ballots by county in North Carolina during the 2008 Presidential election, and what determinants most contribute to shaping this spatial distribution? The goal of conducting this two-part analysis is to better understand the spatial distribution of provisional ballots, as well as to identify counties that appear to issue provisional ballots at disproportionate rates. It will be hypothesized that the key predictors include age, race, and education and that the different administrative procedures used on Election Day play a less substantive role in shaping the geography of provisional ballots in North Carolina. Overall, this analysis looks at two basic provisional ballot measures: the absolute distribution of provisional ballots by county and the relative geography of provisional ballots per 1,000 total ballots cast (both provisional ballots and traditional ballots combined). Both variables will be regressed on several population, socio-economic and administrative/procedural predictors to help determine if basic population variables (e.g., total population, registered voter population, population density), socio-economic factors (e.g., age, white/non-white, education) or election administration variables (e.g., number of full-time election staff, type of technology used on election day to record the vote) are most significant in shaping the geography of provisional ballots in North Carolina (Table 1). The population and socio-economic data used in this analysis were obtained from the U.S. Census Bureau 2008 American Community Survey, the North Carolina State Information Management System (SEIMS), and/or the U.S. Internal Revenue Service database. Each of the election administration variables described below were collected by either contacting respective Election Directors for each of the 100 counties in the state or downloading the data from the SEIMS database. More specifically, the data included:

General Election Turnout—Turnout rate is defined as the number of voters who attempted to cast a ballot divided by the total number of registered voters.

Percentage Early Voting Turnout—It is hypothesized that voters in counties with elevated early voting turnout will cast fewer provisional ballots on Election Day because during the early voting period voters are able to register to vote and update their record.

Number of Full Time Staff—It is assumed that higher staffing levels will lead to fewer mistakes throughout the administrative process, thus reducing the need for provisional ballots.

Technologies used on Election Day—In North Carolina, two primary types of polling place communication are used on Election Day. First, poll workers are provided with government issued cell phones in order to have a direct line of communication with the central election office, thus receiving greater support in determining the proper procedure when handling discrepancies. Second, precinct poll workers with access to an E-poll book, or laptop computers provide precinct officials with the ability to more directly verify missing or incorrect information without having to contact the central election office. It is theorized that poll workers in counties with alternate levels of access to the central voter registration database will have fewer provisional ballots. This access allows poll
workers to identify certain (non-critical) issues facing potential voters and remedy them prior to issuing a provisional ballot. Some of these issues include a voter simply going to the wrong polling place, their name being misspelled on a master registration list, a name change, and various other issues.

Administrative provisional system used—Counties that use centralized locations send each provisional voter to a central location within the county to cast the provisional ballot. This central location is often the main office and tends to be staffed by experienced individuals with access to the entire SEIMS database. Counties that use precinct locations allow each provisional voter to cast a provisional ballot at the precinct in which they are located, typically staffed by part-time poll workers with limited access to the SEIMS database. Limited access to the voter registration database and lack of experience often results in poll workers incorrectly requiring eligible voters to cast provisional ballots. This research will attempt to identify if a lack of information and experience is a contributing factor in shaping provisional ballot distributions.

Table 1. List of Independent Variables for Stepwise Regression Analysis.

<table>
<thead>
<tr>
<th>1. Population Measures</th>
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<tr>
<td>Total Population</td>
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<tr>
<td>Voting Age Population</td>
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<td>Registered Voter Population</td>
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<td>New Registered Voters—2008</td>
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<td>Registered Voter Market Share</td>
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<td>Migration—In-migration and Out-Migration</td>
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<tr>
<th>2. Socio-economic Characteristics</th>
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<tr>
<td>Age</td>
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<tr>
<td>White / Non-White</td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>High School graduates, % persons aged 25+</td>
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<tr>
<td>Bachelor’s Degree or higher, % persons aged 25+</td>
</tr>
<tr>
<td>Median Household Income</td>
</tr>
<tr>
<td>Families Below Poverty Level</td>
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<tr>
<td>Homeownership Rate</td>
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<tr>
<td>Housing in multi-unit structures</td>
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<tr>
<td>Residents in same home 1+ year</td>
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<td>Foreign Born</td>
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<th>3. Election Administrative Variables</th>
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<tr>
<td>Political Party Affiliation</td>
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<tr>
<td>General Election Turnout</td>
</tr>
<tr>
<td>Early Voting Turnout</td>
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<tr>
<td>Number of Full Time Election Staff</td>
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<tr>
<td>Technology used on Election Day</td>
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<td>Administrative Procedure</td>
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FINDINGS

In the 2008 presidential election, a total of 52,304 provisional ballots were cast in North Carolina, with an average of 523 provisional ballots per county, ranging from a low of 20 ballots in Alleghany County to a high of 4,191 in Wake County (Figure 1). As might be expected, three of the counties ranking highest in absolute provisional ballots cast also ranked in the top ten in both total population and total registered voters. However, four of the ten leading counties in terms of absolute provisional ballots cast (Robeson, Cabarrus, Pitt, and Johnston) did not rank in the top ten in either total population or total registered voters. Moreover, four highly populated counties (Buncombe, Gaston, Guilford and Union), with high proportions of registered voters failed to make the top ten in terms of absolute provisional ballots cast. The discrepancies that exist between absolute provisional ballot totals and population/voter registration totals by county imply that the geography of provisional ballots is not simply a function of population size but is influenced by other more complex factors.

A more detailed analysis of Robeson County seems warranted since it was one of the most anomalous counties in the state regarding provisional ballots. Robeson County ranked just 24th in both total population and number of registered voters even though it cast the fourth highest number of provisional ballots in the state.

The county is located in the southeastern Coastal Plain along the South Carolina state line, in a largely rural setting with a total population of under 130,000 in 2008. Roughly 68 percent of the population is non-white, the largest percentage of minorities in the state. The minority-majority population found in Robeson County is primarily comprised of Native Americans, nearly 40 percent, many of whom identify themselves as Lumbee Indian, while 21 percent of the county population is classified as African American. According to the U.S. Census Bureau, in 2008, the percentage of the population...
with a Bachelor's degree or higher in Robeson was only 11 percent, which is well below the state average of 25 percent. Additionally, the median household income in Robeson was roughly $31,000 which was also well below the state average of just over $43,000. The combination of elevated minority populations, low median household income and low levels of educational attainment can often lead to a population that is less literate regarding voter procedure and protocol and therefore more likely to cast provisional ballots.

The second phase of inquiry focuses on the spatial distribution of provisional ballots per 1,000 total ballots cast in order to provide more insight into the relative geography of provisional ballots by county in North Carolina. Overall, this spatial distribution yields very different results (Figure 2). Robeson County had the highest ratio of provisional ballots per 1,000 total ballots cast with a rate of 50.6, followed by Bertie County (38.7) and Halifax County (29.9). All of these counties had ratios that were substantially above the state average of 12.01 per 1,000.

All three of the highest ranking counties regarding relative provisional ballots cast per 1,000 are comprised of minority-majority populations, each with white populations totaling less than forty percent of the total population in each county. Much like Robeson County, Bertie County is one of the least educated counties in the state, with only 63.5 percent of the population aged 25 years or older having obtained a high school diploma, the second lowest percentage in the state and well below the state average of 73 percent. Not surprisingly, only 8.8 percent of the population aged 25 years or older in Bertie County possessed a bachelor's degree or higher, ranking Bertie County 96 out of 100 counties. These low levels of educational attainment combined with an industry based in agriculture and forestry led to median household incomes well below the state average. The median household
income in Bertie County in 2008 was $31,375—the fourth lowest in the state.

Geographically located to the immediate west of Bertie County, Halifax County is also a minority-majority county where 58 percent of the population was African American in 2008. The median household income of $31,495 makes Halifax County the third poorest in the state while only 65 percent of the population graduated from high school, ranked 97th in the state, and only 11 percent of the population aged 25 years or older possessed a bachelor’s degree or higher. The socio-demographic profile of both Bertie and Halifax closely resembles that of Robeson County, and further supports the basic hypothesis that less educated, less affluent counties with large concentrations of minority populations tend to cast disproportionately more provisional ballots than those counties with higher educated, more affluent, predominantly white populations.

Figure 2 not only illustrates the jurisdictions with disproportionately high number of provisional ballots cast but also highlights counties that appear to be casting provisional ballots at disproportionately low rates. Guilford County, including the cities of Greensboro and High Point, is just such a place since it cast provisional ballots at a much lower rate than other urban counties (such as Mecklenburg and Wake Counties). Although Guilford is the third most populated county in North Carolina with nearly 500,000 residents, it cast only 4.26 provisional ballots per 1,000, the fifth lowest rate in the state, and well below the state average of 12.01. According to George Gilbert, former Guilford County Elections Director, the low rate of provisional ballots cast was a result of superior administrative procedures, including the proliferation of early voting locations and convenient hours combined with the implementation of same day registration. He suggested that:

After initial skepticism, experience convinced me that early voting and same day registration work. Early voting enabled us to use fewer polling places and place more experienced and better-trained poll workers in the early voting sites. We were also able to place better technology in these sites and, as a result, execute elections much more accurately. Furthermore, same-day registration during early voting, likewise, has improved both the efficiency and the integrity of elections. Same-day registration has eliminated tens of thousands of “provisional” ballots and enfranchised those tens of thousands of voters that would have been otherwise forced to cast a provisional ballot at the polling place on Election Day. (Gilbert, 2010)

Early Voting is a procedure that allowed any voter registered to vote in Guilford County in 2008 to show up at any Early Voting location up to 17 days prior to Election Day to cast their ballot. Often called “one-stop” voting, early voting allowed voters to change registration information including name and address and be issued their proper ballot all in one location, often eliminating the need for a provisional ballot. Moreover, Same Day Registration is a procedure that allows voters who may have missed the voter registration deadline (25 days prior to Election Day) to go to an early voting site to register and vote. In 2008 in Guilford County, over 150,000 voters, or over 60 percent of the entire turnout, voted during Early Voting.
Furthermore, over 5,200 of the voters who voted early used Same Day Registration to get registered, alleviating the need for casting a provisional ballot on Election Day. The Guilford experience suggests that while age, race, and education may play a powerful role in shaping the electoral geography of provisional ballots, it is possible that various electoral administrative procedures can also shape this geography even at the intra-state scale.

To further test these initial observations, a stepwise regression analysis (SPSS version 20.0) was conducted to determine the key predictors of the geography of provisional ballots in North Carolina. Stepwise regression utilizes an algorithm that is capable of sifting through a large number of independent variables by continuously adding and removing variables in order to achieve the most parsimonious and rigorous solution. In order to ensure the validity of the results of the regression analysis a number of diagnostic tests were conducted to check for multi-collinearity, anomalies, linearity, normality of the residuals, and the homogeneity of variance. The final chosen model exhibited no serious multi-collinearity problems among the selected independent variables and met the assumptions of linearity, normality and homoscedasticity.

The R-squared in the final regression model suggested 37 percent of the variation in provisional ballots cast per 1000 by county was accounted for by four predictor variables including percent white population, percent aged 45-64 years old, percent with a bachelor’s degree or higher, and percent aged 65 years or older. The standardized and unstandardized coefficients for the independent variables are listed in Table 2. The F-score, which measures the overall accuracy of the equation, was 15.65, with a p-value of 0.00, indicating the overall regression model was significant at the 1 percent level. Using the unstandardized b coefficients, the estimated regression equation is:

\[
\text{Provisional Ballots per 1000} = 71.43 - 0.18 (% \text{ White}) - 0.99 (% \text{ Middle-Aged}) - 0.24 (% \text{ Bachelor's Degree}) - 0.32 (% \text{ Elderly})
\]

To better understand the relative importance of each predictor variable, the standardized regression coefficients are:

\[
\beta = -0.415, \quad \beta = -0.290, \quad \beta = -0.277, \quad \beta = -0.190
\]

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\]

To better understand the relative importance of each predictor variable

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
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<tr>
<td></td>
<td>(\beta)</td>
<td>Std. Error</td>
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<tr>
<td>Constant</td>
<td>71.42</td>
<td>10.7</td>
</tr>
<tr>
<td>Percent White</td>
<td>-0.183</td>
<td>0.039</td>
</tr>
<tr>
<td>Percent Middle Aged</td>
<td>-0.991</td>
<td>0.296</td>
</tr>
<tr>
<td>Percent Bachelor's Degree or higher</td>
<td>-0.243</td>
<td>0.079</td>
</tr>
<tr>
<td>Percent Elderly</td>
<td>-0.322</td>
<td>0.153</td>
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in accounting for the spatial variation of provisional ballots by county, the absolute magnitudes of the beta coefficients (or standardized regression coefficients) are provided in Table 2. The t-tests are also listed in Table 2 to show the significance of each b coefficient.

**Percent White**

The percent white population by county was the most important variable in predicting the spatial variation of provisional ballots per 1,000 based on the beta coefficient (Beta = -0.183, t = -4.74, p = 0.000). The relationship between provisional ballots and percent white was inverse indicating that if the percent white population increased by one percentage point, then the number of provisional ballots per 1000 will decrease by 0.183. Counties with disproportionately large white populations tended to cast fewer provisional ballots per 1,000 relative to more racially diverse counties. Such a finding supports much of the existing literature that suggested a connection existed between provisional ballots and racial composition. Furthermore, the inverse relationship appears to highlight the importance of gaining a comprehensive understanding of the history of suffrage regarding specific races, suggesting populations with a well-established history of voting rights may experience fewer barriers regarding the electoral process, and thus cast fewer provisional ballots. The counties with the highest percentage of white populations tended to be largely located in the Mountain Appalachian region of western North Carolina where home ownership rates and the percentage of the population with a bachelor’s degree or higher tended to be above the state average (Figure 3). Not surprisingly, many of these same counties tended to cast fewer provisional ballots per 1,000 relative to those counties located in the Piedmont and Coastal Plain regions of the state.

**Percent Middle-Aged**

The regression analysis not only identified racial composition as a key predictor in shaping the spatial distribution of provisional ballots, it also highlighted the
important role that age cohorts can play in shaping the electoral geography of provisional ballots. The unstandardized regression coefficient suggests if the percentage of the population aged between 45 and 64 years old (Beta = −0.290, t = −3.35, p = 0.001) increases by one percentage point then the provisional ballots per 1000 total ballots cast would decrease by 0.99. While much of the existing literature suggests voters tend to participate at increasingly higher rates as they age, it was not fully anticipated that the 45–64 age cohort would feature more prominently as an explanation of the geography of provisional ballots than the more elderly (i.e., 65 years of age and older). However, Harder and Krosnick (2008, p. 531–532) provide some insight into this when they argued “differences between age groups in turnout rates could be due to cohort effects: effects of historical events that occurred when a particular generation of people was at a particular age and that shaped them for the rest of their lives.” Beck and Jennings (1979) have suggested the politically charged climate of the late 1960’s and early 1970’s might have made people who were young adults at that time especially likely to vote throughout the rest of their lives.

Furthermore, a U.S. Census Bureau (2009) geographic mobility survey showed mobility rates tend to peak during the 22 to 26 year old age cohort and then decline over time until aged 67 to 70 where individual mobility rates can elevate again, in part, due to retirement migration. The reduced mobility rates of the middle-aged relative to the more elderly can generate age-cohorts that are effectively more residentially stable, leading to populations that are more likely to have accurate voter registration records, thus mitigating the need to cast a provisional ballot. In North Carolina, counties with a disproportionate share of the population aged between 45 and 64 years of age ranked well below the state average on many mobility measures including new voter registration applications. In 2008, counties with a third or more of the population aged between 45 and 64 tended to generate approximately 3,000 new voter registrations, compared to a state average of 9,678 new registrations per county during 2008.

**Percent Bachelor’s Degree or Higher**

The spatial variation of provisional ballots per 1,000 by county is also inversely influenced by the percent of the population with a bachelor’s degree or higher (Beta = −0.277, t = −3.09, p = 0.003). The unstandardized regression coefficient indicates that if the percentage of the population with a bachelor’s degree or higher increases by one percentage point then the provisional ballots per 1000 would decrease by 0.24. The existing literature suggests a strong correlation exists between voter participation rates and levels of educational attainment and this seems to be borne out in this regression analysis. Most of the counties in North Carolina with a high percentage of the population holding a bachelor’s degree or higher are located along the east-west Interstate 85/Interstate 40 corridor located through the central part of the state, which includes Orange County (53 percent of the population with a bachelor’s degree or higher), Wake County (48 percent), and Durham County (44 percent). Additionally, using Pearson’s correlation coefficient it was
determined that the percent of the population with a Bachelor’s degree or higher is strongly correlated with both high school graduation rates (0.76) and median household income (0.68), while being inversely correlated with the percentage of the population below the poverty line (−0.48). Throughout the literature we have seen correlations between voter participation rates, educational attainment, and income, and it appears these findings are also relevant when examining provisional ballots.

Percent Elderly

The final predictor to enter the model was the percentage of the population that was aged 65 years or older (Beta = −0.190, t = −2.10, p = 0.038) once again highlighting the key role that age can play in shaping the geography of provisional ballots. The unstandardized coefficient indicated if the percentage of population 65 years old and older increased by one percentage point, then the number of provisional ballots per 1000 total ballots cast will decrease by 0.322. Much of the literature suggests that elderly voters tend to have well established associations within local communities and higher levels of involvement in the electoral process. In 2008, over 90 percent of the population aged 65 years and older in North Carolina was registered to vote, accounting for nearly 1.2 million of the 5.8 million registered voters in the state. Most of the counties with a high percent elderly were located in either western North Carolina or the eastern edge of the Coastal Plain. Both of these regions have seen a significant amount of retirement migration into North Carolina in recent years.

According to Johnson and others (2013), the following North Carolina counties have ranked highest regarding the in-migration of older adults (65+) since 1990: Brunswick, Cherokee, Chowan, Clay, Dare, Henderson, and Transylvania counties. Most of these counties are located in either the western Mountain region or the Coastal Plain areas of the state. Not coincidentally, the proportion of elderly registered voters in each of these counties is roughly 30 percent, well above the state average of 19 percent. These findings suggest that although the elderly populations located in eastern and western North Carolina may include individuals that have recently re-located, it has not apparently eroded their civic consciousness.

DISCUSSION: THE ROLE OF RACE AND OTHER VARIABLES

In the initial regression analysis, the predictor variable for race was defined as percent white/non-white. A more detailed regression analysis where race is disaggregated into percent white, percent black, percent Native American, and percent Hispanic yielded somewhat different results. The $R^2$ in this new regression model suggested that 47 percent of the variation in provisional ballots cast per 1000 by county was accounted for by five predictor variables that included the four predictor variables featured in the original analysis plus percent Native American (Table 3). Based on the new regression model standardized coefficients, percent Native American (Beta = 0.277, t = 3.51, p = 0.001) was the second most important factor in predicting the spatial variation of provisional ballots in North Carolina.
Table 3. Amended Regression Model of Provisional Ballots Cast per 1000 Total Ballots Cast by North Carolina County, 2008.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>Constant</td>
<td>63.84</td>
<td>10.4</td>
</tr>
<tr>
<td>Percent White</td>
<td>-0.151</td>
<td>0.038</td>
</tr>
<tr>
<td>Percent Native American</td>
<td>0.431</td>
<td>0.123</td>
</tr>
<tr>
<td>Percent Middle Aged</td>
<td>-0.864</td>
<td>0.282</td>
</tr>
<tr>
<td>Percent Bachelor’s Degree or higher</td>
<td>-0.228</td>
<td>0.074</td>
</tr>
<tr>
<td>Percent Elderly</td>
<td>-0.331</td>
<td>0.145</td>
</tr>
</tbody>
</table>

As the percent Native American population increases by one percent the number of provisional ballots cast per 1000 total ballots cast will increase by 0.43.

In North Carolina, the spatial distribution of the Native American population is very distinct with disproportionate spatial concentrations in the southeastern and western part of the state (Figure 4). Using ArcGIS version 9.2, a cluster analysis of the Native American population by county was performed and a positive spatial autocorrelation confirmed two clusters including Cumberland, Hoke, Robeson and Scotland counties in the southeast, and Jackson and Swain counties in the mountain west. The Native American populations found in each of these distinct clusters accounted for nearly 60 percent of the total Native American population in the entire state. Of course, this also means that this variable is highly skewed and, thus, violates some of the fundamental assumptions of regression modeling which is why it was not featured in the original analysis.

Any analysis of the role of race in shaping the geography of provisional ballots in North Carolina should include some discussion of the Native American population because Robeson County led the state in the number of provisional ballots cast per 1,000 while also being home to 42 percent of the total Native American population in the state. Much of the literature on provisional ballots has been relatively muted regarding the role that Native American communities play in shaping the geography of provisional ballots and the Robeson phenomenon highlights the need for additional research in this arena.

Other variables that were not statistically significant and, therefore, not featured in the original regression analysis included a number of population metrics (e.g., total population, voting age population, and registered voter population), several socio-economic metrics (e.g., median household income, homeownership rate, and poverty rate) and a number of administrative variables (e.g., number of full-time precinct staff).

One of the most striking omissions of the regression analysis was the lack of influence of political party affiliation. Much of the debate surrounding provisional
ballots suggests these ballots tend to be more commonly issued in communities with disproportionately large numbers of Democratic voters, while communities with a more conservative heritage often generated fewer provisional ballots. Moreover, controversy surrounding the implementation of the provisional ballot process is often rooted in a partisan belief that one political party will use provisional ballots as an attempt to marginalize and disenfranchise the other. In 2008, in North Carolina, Democrats (36.7 percent) and Unaffiliated (36.6 percent) voters cast larger proportions of provisional ballots than did Republicans (25.9 percent). Yet, the results of the regression analysis imply that the electoral geography of provisional ballots is more strongly influenced by socio-demographic factors than it is political affiliation although some of these socio-demographic metrics may be effectively acting as a proxy for party affiliation.

The final regression model also did not include any of the administrative variables that captured the type of voting technology and number of full-time staff employed in each county, amongst other things, when administering the actual vote. It has been suggested in the existing literature that precincts that are under-staffed and/or are utilizing primitive technologies and administrative procedures are more likely to issue disproportionately higher numbers of provisional ballots. Although this may be a potential explanation for the geography of provisional ballots it did not emerge as a statistically significant factor in this analysis.

CONCLUSION

The spatial distribution of provisional ballots is a sub-field of electoral geography that has been largely overlooked in the literature despite the key role such ballots can play in various election outcomes. Only a limited amount of research has focused on both how provisional ballots spatially vary and what the key predictors are in shaping this geography. Much of the existing research has been limited to simple aggregate state-by-state comparisons or case studies of a small number of counties.
or precincts. Overall, the results of this paper, which examined all 100 counties in North Carolina, indicated that race, age, and education are key predictors in determining the electoral geography of provisional ballots.

The electoral geography of provisional ballots in North Carolina suggested that large numbers of provisional ballots were cast along the Interstate 85 and Interstate 95 highway corridors in the central part of the state. The spatial distribution of provisional ballots, however, was not simply a function of population size, since some of the leading counties in terms of absolute number of provisional ballots cast were not necessarily heavily populated counties with large numbers of registered voters. Instead, many of these counties were frequently lesser populated minority-majority counties where a majority of the population was non-white. A closer examination of the geography of provisional ballots on a per capita basis reinforced this finding since the leading counties in terms of provisional ballots per 1,000 votes cast also tended to be minority-majority counties.

A stepwise regression analysis suggested counties that generate a small number of provisional ballots per 1,000 are more likely to be communities that are predominantly white, middle-aged, well-educated, and elderly. Although such findings are supported by much of the existing literature, some of the literature has also previously suggested that the spatial distribution of provisional ballots is frequently simply a product of varying administrative procedures, the type of technology used at the precinct level, and the number of full-time election staff available. Although this may partly explain the low number of provisional ballots in Guilford County, this article has determined that none of these administrative metrics played a significant role in shaping the electoral geography of provisional ballots during the 2008 Presidential election for the vast majority of North Carolina's 100 counties based on our regression analysis. It may be that such factors are more important when conducting research that compares provisional ballot outcomes between states, rather than within a single state, since major procedural and administrative differences may be more likely to be determined by the way in which each state broadly interprets the HAVA mandate.

An important next step in this research agenda should include a more disaggregated analysis of provisional ballots at the precinct level. It has not yet been established that the key determinants of provisional ballots at the county scale are replicable at other more detailed geographic scales of analysis. At the very least, several counties in North Carolina warrant additional analysis including Guilford County and Robeson County and the key role that superior administrative procedures and the Native American community may play, respectively, in shaping provisional ballot outcomes in these two counties.

Overall, the analysis corresponds with much of the existing literature on conventional and provisional ballots which has suggested that race, age, and education play key roles in shaping electoral outcomes. However, the unique influence of both disproportionately large middle-aged populations and Native American communities suggests that the geography of provisional ballots may have more nuanced predictors than previously assumed. Furthermore, the muted impact
of the differing ways in which provisional ballots are administered diverges from much of the extant literature which suggests that administrative procedures and protocols can substantially impact provisional ballot outcomes.

Resolving these research questions is crucial given the amount of attention focused on voter identification laws in recent years, and also given the results of the more recent 2012 presidential election. In 2012, in North Carolina, Republican Mitt Romney won the election by only 2.04 percent of the vote, the second closest margin of victory in the country behind Florida. A preliminary analysis of the 2012 provisional ballot data suggested similar results to that uncovered in this paper. North Carolinians cast roughly the same amount of ballots in 2012 (i.e., 51, 219) as in 2008, and the average number of provisional ballots cast per 1000 remained analogous at 12.05 (compared to 12.01 in 2008). Additionally, Robeson (51.1) and Bertie (38.6) counties cast the most provisional ballots per 1000 in 2012 and the regression analysis once again identified race, age, and education as key predictor variables. As presidential elections become more contested and increasing litigation continues to emerge that challenges many of the new voter identification laws, it is likely that the electoral geography of provisional ballots will continue to play a pivotal role in shaping electoral outcomes.

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