A Spatial Voting Model:

Neighborhood Effects on Partisanship and Turnout

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1 Introduction

Despite decades of research, the structure of voter turnout—who votes and why—remains largely a mystery to political science. For most of this period, research has focused on either demographics (race, education, income, gender, etc.) and/or campaigns (get out the vote, campaign spending, negative vs. positive ads, closeness of the race, etc.)

There has been, however, a parallel path of research on the topic, which focuses on the social aspects of voting. Such research attempts to answer the paradoxical question of why *anyone* would choose to vote--when voting is costly and the chance of being pivotal is infinitesimally low--by citing the social mechanisms through which voting (or political involvement more generally) is rewarded.

A subset of this research has focused on “neighborhood effects”—the hypothesis that “social interaction within locales, particularly (though not exclusively) residential communities, affects people’s political and voting behavior” (Sui & Hugill 2002). The term “neighborhood effect” was first coined by Kevin Cox in *The Voting Decision in a Spatial Context* (1969). The literature that followed was built on the underlying belief that “(1) individual preferences and actions are influenced through social interaction, and (2) social interaction is structured by the social composition of the individual’s environment” (Huckfeldt 1983, 651). The closer you live to someone, the more likely you are to interact with them. Therefore, the political behavior of the people closest to you is most likely to influence your behavior.[[1]](#footnote-1)

But how can this effect be differentiated from the others (e.g. demographics and campaigns)? Almost all research on neighborhood effects has been conducted using some combination of individual-level survey data and aggregated data (on various scales). Survey data provides a large amount of information on social variables like marital status, church attendance, or membership in other groups—and has the benefit of including a multitude of demographic variables to act as controls. Aggregated data, meanwhile, has the advantage of illustrating attributes of groups and changes in the population over time. We know, for example, that different states have different types of behavior. But why should this be true?

Erikson, Wright & McIver (1994) found that variation in political behavior between states is significant even after accounting for demographic variation. That is, “cultural” effects on partisanship cannot be attributed solely to the effects of education, income, gender, etc. As it turns out, we also cannot attribute these differences to differences in campaign exposure or competitiveness. As the scale gets smaller and smaller, we continue to see clustering—even as, theoretically, the geographic variation in competitiveness or exposure to campaigns becomes relatively uniform. There is nothing special about state lines, or county lines, or precinct lines. We see clustering at even the smallest levels.

The central theses of neighborhood analysis, of course, are not universally accepted. The doubts of scholars such as King (1996) and Dunleavey (1979) have focused on the difficulty of separating contextual effects from unobserved demographic variables. This is a real and serious concern. However, one of the major benefits of GIS is the added value of the ability to combine data from numerous sources spatially.

For example, Haspel and Knotts (2005) use GIS to calculate the distance between the residence and polling pace for registered voters in the city of Atlanta. They use a natural experiment—the redistricting following the 2000 election—to determine the effect of distance on turnout. They find the effect to be significant.

Sui and Hugill (2002) conduct an analysis of voter behavior using GIS spatial analysis to determine neighborhood effects in local elections in the city of College Station, Texas. Using spatial analysis, they find neighborhood effects to be significant predictors of voter turnout. As they note, up until their paper was published, few scholars had attempted to use geocoded individual voter data from actual elections because of technological constraints. The availability of GIS, however, allowed Sui and Hugill to study a small sample in great detail. This is the technology that I will also be taking advantage of. As Longley et al. put it, “… the first law of GIS management says: you get something for nothing by bringing together (geo)information from different sources and using it in combination” (2005).

The following section of this paper uses GIS and basic data analysis to determine the relationship between one’s immediate neighbors and their one’s political behavior. Specifically, I test 3 hypotheses:

H1: A registered voter is more likely to turnout on election day if he lives around other voters who vote.

H2: A voter is more likely to register to the party that the majority of her neighbors register for. (With a subhypothesis, H2B, that the partisanship has a party-specific effect on voter’s turnout.)

H3: The farther the polling place from one’s residence, the less likely she is to vote.

In each case, the null hypothesis, H0 will be that the geographic indicator in question has no effect.

This paper will proceed in five sections. Following this introduction and literature review, I will (1) present my data and method of analysis, (2) present each hypothesis and the relevant findings, (3) discuss the implications of these results, and (4) conclude with an evaluation of how further research may proceed.

1 Data and Method of Analysis

The source of my individual-level data is a complete voterfile of registered voters from Brevard County, Florida, obtained directly from the FL Secretary of State. My choice of Brevard County was a function of both the availability of good data for this area and the demographic mix of the registered voters. By law, Florida’s voting record is available for academic research, and includes certain demographic variables (e.g. race) which are not often included elsewhere. Additionally, primaries in Florida are closed primaries, so voters are on the record for having registered for one party or another—useful information that would be unavailable in states with open primaries. According to census data, the income and educational distribution of the population across this sample is fairly uniform. The demographics of Brevard County, although not identical, are similar to Florida as a whole.[[2]](#footnote-2)

There are 351,488 voters currently registered in Brevard County—of which 289,931 turned out in the last election (for a rate of 82.5%). My sample of 50,000[[3]](#footnote-3) was drawn randomly from this population (solely to facilitate ease of handling in STATA and GIS). Of these 50,000, voters were dropped from the analysis if they were missing key pieces of demographic data (such as gender or race)—leaving us with a sample of about 43,000. For each of these voters, I have (among other things) Name, Residential Address, Mailing address, sex, race, birth date, registration date, and whether the voter did or did not vote in each of 18 elections since 2004. Included in these elections are the presidential primaries and generals in 2004 and 2008, the midterm generals in 2006, and—the remainder—local and regional elections for lesser offices. In each of the elections, I have excluded voters who were ineligible and/or unregistered to vote. That is, voters are only counted as *Not Voted* if they registered before an election.

Using the registration record has several benefits over survey data. First, it is more accurate—since the voting records have been obtained directly from the precincts, we have no concerns about over-reporting. Second, surveys generally lack the information necessary to map voters. The registration records, on the other hand, contain address information for each voter.

The obvious shortcoming of this data is that it excludes a number of variables which are thought to have major effects on turnout and partisanship—in particular, income and education. The aggregate data which I use to fill in missing demographic variables is drawn from two sources: (1) GIS files compiled by the state of Florida, and (2) Census data, which is broken up by Census tract. The finest

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| --- | --- | --- |
| **Map 1: Brevard County, FL** | **Map 2: Diversity of Brevard and Surrounding** | **Map 3: Median income of Brevard and Surrounding** |
| basemap | Diversity | Median Income |

As the maps above show, the distribution of voters by race and income is fairly uniform over the Brevard county.

breakdown of the population in the census is the census block. In our sample, there are 275 of these blocks, containing between 3 and 1,026 sampled voters. The 2000 Census provides detailed demographic information for each block, which can provide probabilities for each voter. If 10% of people in a district have an income under $10,000, for example, then we can estimate that a single, randomly chosen voter has a 10% probability of having an income under $10,000. Admittedly, we have reason to believe that registered voters will be of a different demographic makeup than the population as a whole. However, since this effect is thought to be uniform, we have no reason to believe that people with an income under $10,000 would register at a higher rate in one district than another—the shift in probabilities will be constant across districts, and can be assumed to cancel out. So, although the registered voter may not actually have a 10% probability of being in the <$10,000 income group, applying the same function to every block will normalize the probabilities.

|  |  |
| --- | --- |
| There is another concern with the census data, however, that is harder to correct for: the 2000 census data is more than 9 years old, and becomes progressively less accurate as we move further from the year 2000. Demographic change may be unpredictable, and until new data is released, we will have no way to know for sure whether the demographic distribution is still accurate.  Florida GIS data, on the other hand, is as recent as 2007, and has been updated every few years. This data includes a number of useful demographic variables, although not in the same detail that the census does. For example, median income for each group is available, but categorical variables across the entire distribution are not. In order to control for demographic drift, I have included data from both (recent) Florida data and (detailed) census data.  Map 4 (right) shows the location (and density) of registered voters in Brevard County. Note that the western part of the state is very rural; to prevent spurious results, voters that live within 1 miles of fewer than 10 other people are not included in the analysis. | **Map 4: All Registered Voters** |
| allvoters |

2 Analysis: Turnout and the Neighborhood Effect—Hypothesis 1

Is an individual’s voting behavior influenced by the voting behavior of his neighbors? It is widely believed that voters weigh the costs and benefits of voting. Simply,

where C is the cost of voting, P is the probability of influencing the outcome of the election, B is the benefit of the preferred candidate winning, and D is the social value of voting. Theoretically, all else being equal, living amongst voters may increase the perceived value of value of D. If a potential voter interacts frequently with politically-involved people, it is reasonable to think that he may be more informed, and may feel more pressure to act as his peers do.

To test this hypothesis, I employed GIS (a mapping program), and STATA (a statistics program) to test for clustered voting patterns on the neighborhood scale. Using the Brevard County record of registered voters, I employed a GIS module to geo-code each voter (based on their residential address) onto a map.[[4]](#footnote-4) [See Map 4] Each point on the map corresponds to a single voter, and contains all the data associated with that voter. I then use these points to map the distribution of voting in the various elections, using different colored dots to represent voters and non-voters.

To create a measured “neighborhood effect,” I use GIS to draw a circle of a fixed radius around each voter. (For the first set of regressions, this radius is set at 1 mile.) All other voters that are located inside this circle are considered part of the voter’s neighborhood, and for each neighborhood GIS calculates a likelihood score: the proportion of people in the voter’s area who voted in each election (excluding the voter at the datapoint). Each voter has a unique neighborhood likelihood score for each election, which are exported as variables into STATA.[[5]](#footnote-5) The “neighborhood effect” is then entered into a series of regressions, using the available demographic characteristics of each voter as controls. (Examples of two of the maps produced are found on the following page.)

The obvious concern is running these regressions is that one’s geographic location is correlated with other (perhaps more important) variables. For example, one may be more likely to live around people with the same income, or a similar level of education. Problematically, both education and income have been widely shown to have significant effects on voting behavior. (See Leighley and Nagler 1992; Wolfinger and Rosenstone 1980.) Because of the omitted variable issue, I employ (1) an OLS regression

|  |  |  |
| --- | --- | --- |
| Voter Turnout and neighborhood radius (in two elections) | | |
| **Map 4: All Voters** | **Map 6: September 5, 2006 Primary Election** | **Map 7: November 7, 2006 General Election (midterm)** |
| allvoters | VOTERSA12 | VOTERSA11 |
|  | Voters with neighborhood radius= 1 mile | |
|  | graph 1.jpg | NEIGA5 |

with clustered standard errors, (2) a fixed effects regression, (3) a random-effects regression, (4) a Hausman test to determine whether the random effects estimation is consistent, and (5) a logit regression.[[6]](#footnote-6) Each of these attempts to control for the omitted variable problem, either by introducing a single fixed-effect score for each census block, or by introducing aggregate data probabilities as control variables. Comparing the estimates produced by each model helps to prevent the idiosyncracies of any one type of correction from going unnoticed. (The use by other scholars of voting history would perhaps correct for some individual-level variation, but would also absorb the affect of neighborhood, since most voters do not move from year to year. In fact, even if they did, it would be difficult to argue that their social circle shifted completely after the move.)

The first thing we notice is that *Neighborhood Effects* have a large and highly significant effect on turnout in every model, even when controlling for other demographic, individual-level variables, and even when including dummies or fixed effects for more localized groups. In fact, the coefficient on *Neighborhood Effects* is consistently greater than any of the other variables on the same scale.

Results from each model are similar, although we reject the random effects model because the Hausman test determines it to be inconsistent. According to the logit model, the difference in the probability of voting for someone who is surrounded by non-voters and someone surrounded by voters is 0.93. The linear probability model estimates the effect to be 0.95; the fixed effects model estimates that the coefficient is 0.97. In every model, we can reject the null that neighborhood has no effect. The results are presented in tables 1-4. (Table 3—the random effects model--includes all demographic probabilities, and is rather unwieldy. Therefore, it can be found in the appendix.)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 1. OLS model with clustered standard errors (census block)  Effect of Neighborhood on Probability of Voting | | | | | | |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
|  | Presidential  General  2008 | Presidential  Primary  2008 | Presidential  Preference  2008 | Midterm  General  2006 | Presidential  General  2004 | Presidential  Primary  2004 |
| **NEIGHBORHOOD** | 0.945\*\*\* | 0.824\*\*\* | 0.723\*\*\* | 0.706\*\*\* | 0.720\*\*\* | 0.781\*\*\* |
| **EFFECT** | (50.17) | (32.72) | (37.90) | (33.03) | (37.72) | (29.82) |
|  |  |  |  |  |  |  |
| WHITE | 0.0320\*\* | 0.0249\*\*\* | 0.0591\*\*\* | 0.0762\*\*\* | 0.0674\*\*\* | 0.0359\*\*\* |
|  | (3.36) | (3.78) | (7.74) | (9.43) | (6.74) | (6.81) |
|  |  |  |  |  |  |  |
| FEMALE | 0.0249\*\*\* | -0.00505 | 0.00531 | -0.00875\* | 0.0270\*\*\* | 0.000162 |
|  | (5.47) | (-1.56) | (1.21) | (-2.06) | (5.95) | (0.04) |
|  |  |  |  |  |  |  |
| DEMOCRAT | 0.0646\*\*\* | 0.0884\*\*\* | 0.169\*\*\* | 0.0993\*\*\* | 0.0736\*\*\* | 0.101\*\*\* |
|  | (9.34) | (17.74) | (26.41) | (16.30) | (11.71) | (18.84) |
|  |  |  |  |  |  |  |
| REPUBLICAN | 0.0906\*\*\* | 0.134\*\*\* | 0.225\*\*\* | 0.135\*\*\* | 0.123\*\*\* | 0.166\*\*\* |
|  | (15.08) | (26.74) | (34.98) | (25.14) | (19.50) | (30.51) |
|  |  |  |  |  |  |  |
| AGE | 0.0188\*\*\* | 0.00757\*\*\* | 0.0224\*\*\* | 0.0252\*\*\* | 0.0276\*\*\* | 0.00511\*\*\* |
|  | (29.69) | (13.35) | (29.57) | (34.90) | (37.97) | (12.20) |
|  |  |  |  |  |  |  |
| AGE2 | -0.000149\*\*\* | -0.0000294\*\*\* | -0.000142\*\*\* | -0.000156\*\*\* | -0.000202\*\*\* | 0.00000141 |
|  | (-25.91) | (-5.41) | (-19.42) | (-21.75) | (-27.45) | (0.32) |
|  |  |  |  |  |  |  |
| Constant | -0.590\*\*\* | -0.377\*\*\* | -0.814\*\*\* | -0.822\*\*\* | -0.758\*\*\* | -0.346\*\*\* |
|  | (-29.84) | (-19.19) | (-32.61) | (-32.89) | (-34.72) | (-22.24) |
| *N*  *R-squared* | 42769  0.0925 | 42769  0.1043 | 42769  0.1919 | 42769  0.2152 | 42769  0.1933 | 42769  0.1328 |

*t* statistics in parentheses

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 2. Fixed Effects model, using Census block as cross-sectional unit  Effect of Neighborhood on Probability of Voting | | | | | | |
|  | (7) | (8) | (9) | (10) | (11) | (12) |
|  | Presidential  General  2008 | Presidential  Primary  2008 | Presidential  Preference  2008 | Midterm  General  2006 | Presidential  General  2004 | Presidential  Primary  2004 |
| **NEIGHBORHOOD** | 0.967\*\*\* | 0.881\*\*\* | 0.768\*\*\* | 0.786\*\*\* | 0.780\*\*\* | 0.823\*\*\* |
| **EFFECT** | (32.08) | (28.69) | (29.35) | (31.02) | (29.74) | (28.37) |
|  |  |  |  |  |  |  |
| WHITE | 0.0332\*\*\* | 0.0282\*\*\* | 0.0625\*\*\* | 0.0794\*\*\* | 0.0709\*\*\* | 0.0385\*\*\* |
|  | (4.29) | (3.89) | (7.28) | (9.32) | (8.60) | (5.41) |
|  |  |  |  |  |  |  |
| FEMALE | 0.0249\*\*\* | -0.00502 | 0.00545 | -0.00871\* | 0.0270\*\*\* | 0.000368 |
|  | (6.34) | (-1.37) | (1.25) | (-2.02) | (6.47) | (0.10) |
|  |  |  |  |  |  |  |
| DEMOCRAT | 0.0646\*\*\* | 0.0872\*\*\* | 0.168\*\*\* | 0.0978\*\*\* | 0.0718\*\*\* | 0.0987\*\*\* |
|  | (11.66) | (16.81) | (27.32) | (16.04) | (12.17) | (19.34) |
|  |  |  |  |  |  |  |
| REPUBLICAN | 0.0906\*\*\* | 0.134\*\*\* | 0.224\*\*\* | 0.133\*\*\* | 0.122\*\*\* | 0.166\*\*\* |
|  | (16.85) | (26.67) | (37.54) | (22.53) | (21.38) | (33.51) |
|  |  |  |  |  |  |  |
| AGE | 0.0189\*\*\* | 0.00759\*\*\* | 0.0224\*\*\* | 0.0251\*\*\* | 0.0276\*\*\* | 0.00508\*\*\* |
|  | (33.61) | (14.50) | (36.41) | (42.26) | (49.83) | (10.67) |
|  |  |  |  |  |  |  |
| AGE2 | -0.000149\*\*\* | -0.0000283\*\*\* | -0.000140\*\*\* | -0.000154\*\*\* | -0.000199\*\*\* | 0.00000357 |
|  | (-28.36) | (-5.76) | (-24.01) | (-26.63) | (-35.66) | (0.74) |
|  |  |  |  |  |  |  |
| Constant | -0.612\*\*\* | -0.394\*\*\* | -0.840\*\*\* | -0.867\*\*\* | -0.803\*\*\* | -0.360\*\*\* |
|  | (-22.34) | (-25.30) | (-41.85) | (-43.48) | (-36.78) | (-26.21) |
| *N*  *R-squared* | 42769  .0925 | 42769  0.1042 | 42769  0.1918 | 42769  0.2149 | 42769  0.1932 | 42769  0.1328 |

*t* statistics in parentheses

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

2.2 Robustness

In order to check for robustness, I run two tests. First, I change double the radius of the neighborhood to determine whether the modifiable areal unit problem (MAUL) is affecting the results. We expect that using a larger radius will generate a weaker predictor of voting behavior, since the neighbors assumed to influence the voter’s behavior are farther away —but only slightly, given the relatively small change

As expected, running the regressions with the new radius yields coefficients on neighborhood effects that are smaller, although only slightly so. The coefficients continue to be highly significant, and we continue to believe that neighborhood does indeed affect one’s voting behavior.

Second, I take the points from the first model and redistribute them randomly. I recalculate the neighborhood score and determine whether the results above might be spurious. Again, if the effect is determined by a true relationship rather than chance, we expect that rearranging the points and calculating neighborhood effects will yield a coefficient of 0.

Also as expected, the coefficients on *Neighborhood effects* are now effectively 0, and very insignificant, which implies that the effect we see is not simply a function of the method of calculation (or some other unknown idiosyncrasy of GIS.) Based on the preceding analysis, we reject the null for Hypothesis 1, and accept that one’s neighbors have an effect on one’s decision to turnout or not.

Lastly, I add in a control for income. The concern here is that the effect we’ve seen is determined not by a “neighborhood effect,” but is, rather, the result of people living near people they’re similar to. If these similarities are also related to voting behavior (if, for example, low-income people live near other low-income people and high-income people live near other high-income people), then failing to control for income is clearly a problem.

Unfortunately, income is not available in our dataset. Therefore, property values (courtesy of the Florida Department of Revenue) are used as a proxy. These, too, can be geocoded, and a “neighborhood property value” can be computed.[[7]](#footnote-7) When added into the regression, this proxy can help us determine whether the effect we see can be largely explained by income differences.

2.2.1 MAUL Robustness check

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| --- | --- | --- | --- | --- | --- | --- |
| Table 3. Big Neighborhood OLS Model with Clustered Standard Errors  Effect of Neighborhood on Probability of Voting | | | | | | |
|  | (25) | (26) | (27) | (28) | (29) | (30) |
|  | Presidential  General  2008 | Presidential  Primary  2008 | Presidential  Preference  2008 | Midterm  General  2006 | Presidential  General  2004 | Presidential  Primary  2004 |
| **NEIGHBORHOOD** | 0.894\*\*\* | 0.762\*\*\* | 0.665\*\*\* | 0.619\*\*\* | 0.690\*\*\* | 0.737\*\*\* |
| **EFFECT** | (28.37) | (20.09) | (22.03) | (19.73) | (23.88) | (18.93) |
|  |  |  |  |  |  |  |
| WHITE | -0.0162\* | 0.0108\* | 0.0418\*\*\* | 0.0617\*\*\* | 0.0492\*\*\* | 0.00626 |
|  | (-2.18) | (2.33) | (7.12) | (9.02) | (5.95) | (1.30) |
|  |  |  |  |  |  |  |
| FEMALE | 0.0255\*\*\* | -0.00449 | 0.00555 | -0.00867\* | 0.0272\*\*\* | 0.000772 |
|  | (5.49) | (-1.40) | (1.27) | (-2.00) | (5.83) | (0.20) |
|  |  |  |  |  |  |  |
| DEMOCRATIC | 0.0725\*\*\* | 0.0924\*\*\* | 0.173\*\*\* | 0.103\*\*\* | 0.0775\*\*\* | 0.106\*\*\* |
|  | (10.30) | (18.02) | (25.89) | (16.81) | (12.00) | (19.96) |
|  |  |  |  |  |  |  |
| REPUBLICAN | 0.0958\*\*\* | 0.139\*\*\* | 0.230\*\*\* | 0.139\*\*\* | 0.127\*\*\* | 0.171\*\*\* |
|  | (15.71) | (27.37) | (35.00) | (26.05) | (20.22) | (31.26) |
|  |  |  |  |  |  |  |
| AGE | 0.0192\*\*\* | 0.00762\*\*\* | 0.0228\*\*\* | 0.0254\*\*\* | 0.0279\*\*\* | 0.00517\*\*\* |
|  | (29.76) | (13.50) | (30.04) | (35.13) | (38.16) | (12.27) |
|  |  |  |  |  |  |  |
| AGE2 | -0.000152\*\*\* | -0.0000282\*\*\* | -0.000143\*\*\* | -0.000156\*\*\* | -0.000203\*\*\* | 0.00000263 |
|  | (-25.78) | (-5.22) | (-19.53) | (-21.39) | (-27.29) | (0.59) |
|  |  |  |  |  |  |  |
| \_cons | -0.520\*\*\* | -0.360\*\*\* | -0.789\*\*\* | -0.779\*\*\* | -0.734\*\*\* | -0.317\*\*\* |
|  | (-20.36) | (-18.79) | (-34.07) | (-32.43) | (-33.49) | (-19.58) |
| *N* | 42769 | 42769 | 42769 | 42769 | 42769 | 42769 |

*t* statistics in parentheses

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 4. Big Neighborhood Fixed Effects | | | | | | |
|  | (31) | (32) | (33) | (34) | (35) | (36) |
|  | Presidential  General  2008 | Presidential  Primary  2008 | Presidential  Preference  2008 | Midterm  General  2006 | Presidential  General  2004 | Presidential  Primary  2004 |
| **NEIGHBORHOOD** | 0.877\*\*\* | 0.847\*\*\* | 0.699\*\*\* | 0.679\*\*\* | 0.800\*\*\* | 0.811\*\*\* |
| **EFFECT** | (17.28) | (15.79) | (16.18) | (15.92) | (18.15) | (15.71) |
|  |  |  |  |  |  |  |
| WHITE | -0.0185\*\* | 0.0157\*\* | 0.0429\*\*\* | 0.0627\*\*\* | 0.0542\*\*\* | 0.00973 |
|  | (-3.11) | (2.84) | (6.51) | (9.59) | (8.58) | (1.78) |
|  |  |  |  |  |  |  |
| FEMALE | 0.0252\*\*\* | -0.00455 | 0.00544 | -0.00892\* | 0.0269\*\*\* | 0.000815 |
|  | (6.38) | (-1.23) | (1.24) | (-2.05) | (6.42) | (0.22) |
|  |  |  |  |  |  |  |
| DEMOCRAT | 0.0731\*\*\* | 0.0909\*\*\* | 0.172\*\*\* | 0.102\*\*\* | 0.0755\*\*\* | 0.104\*\*\* |
|  | (13.18) | (17.58) | (28.10) | (16.71) | (12.84) | (20.48) |
|  |  |  |  |  |  |  |
| REPUBLICAN | 0.0956\*\*\* | 0.139\*\*\* | 0.229\*\*\* | 0.138\*\*\* | 0.126\*\*\* | 0.171\*\*\* |
|  | (17.61) | (27.51) | (38.15) | (23.07) | (21.93) | (34.26) |
|  |  |  |  |  |  |  |
| AGE | 0.0192\*\*\* | 0.00760\*\*\* | 0.0226\*\*\* | 0.0253\*\*\* | 0.0278\*\*\* | 0.00513\*\*\* |
|  | (33.91) | (14.44) | (36.63) | (42.25) | (49.99) | (10.70) |
|  |  |  |  |  |  |  |
| AGE2 | -0.000151\*\*\* | -0.0000269\*\*\* | -0.000140\*\*\* | -0.000153\*\*\* | -0.000200\*\*\* | 0.00000473 |
|  | (-28.52) | (-5.44) | (-23.90) | (-26.29) | (-35.55) | (0.97) |
|  |  |  |  |  |  |  |
| Constant | -0.508\*\*\* | -0.383\*\*\* | -0.805\*\*\* | -0.811\*\*\* | -0.812\*\*\* | -0.337\*\*\* |
|  | (-12.28) | (-22.10) | (-32.92) | (-31.89) | (-26.15) | (-21.69) |
| *N* | 42769 | 42769 | 42769 | 42769 | 42769 | 42769 |

*t* statistics in parentheses

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 5. Logit model using larger neighborhood  Effect of Neighborhood on Probability of Voting | | | | | | |
|  | (37) | (38) | (39) | (40) | (41) | (42) |
|  | Presidential  General  2008 | Presidential  Primary  2008 | Presidential  Preference  2008 | Midterm  General  2006 | Presidential  General  2004 | Presidential  Primary  2004 |
| **NEIGHBORHOOD** | 5.427\*\*\* | 5.492\*\*\* | 3.431\*\*\* | 3.423\*\*\* | 4.329\*\*\* | 5.577\*\*\* |
| **EFFECT**  ***Marginal Effect*** | (17.19)  .913 | (14.88)  .6773 | (15.74)  .7875 | (15.67)  .7647 | (17.86)  .8027 | (14.98) |
|  |  |  |  |  |  |  |
| WHITE | -0.104\*\* | 0.148\*\*\* | 0.225\*\*\* | 0.324\*\*\* | 0.263\*\*\* | 0.102\* |
| *MFX* | (-2.97)  -.017 | (3.41)  .0142 | (6.62)  .0527 | (9.62)  .0781 | (8.06)  .0526 | (2.28) |
|  |  |  |  |  |  |  |
| FEMALE | 0.153\*\*\* | -0.0360 | 0.0245 | -0.0446\* | 0.144\*\*\* | -0.000422 |
| *MFX* | (6.39)  .026 | (-1.39)  -.0047 | (1.13)  .0062 | (-2.04)  -.0107 | (6.37)  .0324 | (-0.02) |
|  |  |  |  |  |  |  |
| DEMOCRATIC | 0.388\*\*\* | 0.946\*\*\* | 0.925\*\*\* | 0.523\*\*\* | 0.366\*\*\* | 1.301\*\*\* |
| *MFX* | (12.30)  .063 | (20.09)  .1369 | (28.40)  .2248 | (16.75)  .1308 | (12.02)  .0816 | (23.90) |
|  |  |  |  |  |  |  |
| REPUBLICAN | 0.538\*\*\* | 1.238\*\*\* | 1.183\*\*\* | 0.696\*\*\* | 0.645\*\*\* | 1.708\*\*\* |
| *MFX* | (17.12)  .089 | (27.09)  .1762 | (37.26)  .2847 | (22.92)  .1738 | (21.44)  .1405 | (32.16) |
|  |  |  |  |  |  |  |
| AGE | 0.0995\*\*\* | 0.113\*\*\* | 0.135\*\*\* | 0.141\*\*\* | 0.125\*\*\* | 0.109\*\*\* |
| *MFX* | (30.76)  .017 | (23.65)  .0148 | (38.06)  .0328 | (40.47)  .0352 | (40.65)  .0276 | (23.17) |
|  |  |  |  |  |  |  |
| AGE2 | -0.000783\*\*\* | -0.000698\*\*\* | -0.000902\*\*\* | -0.000920\*\*\* | -0.000872\*\*\* | -0.000640\*\*\* |
| *MFX* | (-25.36)  -.000 | (-17.18)  -.0000 | (-28.21)  -.0002 | (-28.26)  -.0002 | (-27.79)  -.0002 | (-15.09) |
|  |  |  |  |  |  |  |
| \_cons | -6.071\*\*\* | -7.418\*\*\* | -7.109\*\*\* | -7.032\*\*\* | -6.514\*\*\* | -7.655\*\*\* |
|  | (-22.76) | (-37.73) | (-42.71) | (-42.37) | (-34.58) | (-39.76) |
| *N*  *Pseudo R-squared* | 42769  0.006 | 42769  0.080 | 42769  0.140 | 42769  0.160 | 42769  0.014 | 42769  0.145 |

*t* statistics in parentheses

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 6. Robustness Test 2: Rearrangement of points | | | | | | |
|  | (43) | (44) | (45) | (46) | (47) | (48) |
|  | Presidential  General  2008 | Presidential  Primary  2008 | Presidential  Preference  2008 | Midterm  General  2006 | Presidential  General  2004 | Presidential  Primary  2004 |
| **NEIGHBORHOOD** | 8.94e-40 | 1.83e-40 | 2.07e-40 | 1.01e-40 | 2.48e-40 | 7.59e-40 |
| **EFFECT** | (1.66) | (0.36) | (0.35) | (0.17) | (0.44) | (1.49) |
|  |  |  |  |  |  |  |
| WHITE | -0.00254 | -0.0385\*\*\* | -0.0868\*\*\* | -0.111\*\*\* | -0.104\*\*\* | -0.0244\*\*\* |
|  | (-0.42) | (-6.88) | (-13.09) | (-16.76) | (-16.47) | (-4.32) |
|  |  |  |  |  |  |  |
| FEMALE | -0.0334\*\*\* | 0.00564 | 0.00233 | 0.0120\*\* | -0.0303\*\*\* | -0.000154 |
|  | (-8.04) | (1.45) | (0.51) | (2.61) | (-6.88) | (-0.04) |
|  |  |  |  |  |  |  |
| DEMOCRAT | -0.0871\*\*\* | -0.0932\*\*\* | -0.172\*\*\* | -0.105\*\*\* | -0.0820\*\*\* | -0.0877\*\*\* |
|  | (-14.85) | (-17.02) | (-26.55) | (-16.15) | (-13.21) | (-15.83) |
|  |  |  |  |  |  |  |
| REPUBLICAN | -0.125\*\*\* | -0.152\*\*\* | -0.242\*\*\* | -0.149\*\*\* | -0.132\*\*\* | -0.158\*\*\* |
|  | (-21.78) | (-28.25) | (-37.96) | (-23.51) | (-21.63) | (-29.02) |
|  |  |  |  |  |  |  |
| AGE | -0.0190\*\*\* | -0.00816\*\*\* | -0.0242\*\*\* | -0.0259\*\*\* | -0.0282\*\*\* | -0.00561\*\*\* |
|  | (-31.91) | (-14.73) | (-37.15) | (-40.88) | (-48.35) | (-10.79) |
|  |  |  |  |  |  |  |
| AGE2 | 0.000151\*\*\* | 0.0000329\*\*\* | 0.000153\*\*\* | 0.000160\*\*\* | 0.000202\*\*\* | 0.00000136 |
|  | (27.13) | (6.34) | (24.83) | (26.15) | (34.42) | (0.26) |
|  |  |  |  |  |  |  |
| Constant | 0.865\*\*\* | 1.254\*\*\* | 1.572\*\*\* | 1.529\*\*\* | 1.359\*\*\* | 1.176\*\*\* |
|  | (55.00) | (85.91) | (92.53) | (94.06) | (93.43) | (91.10) |
| *N* | 39193  .057 | 39193  .020 | 39193  .171 | 39193  .184 | 39193  .175 | 39193  .095 |

*t* statistics in parentheses

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 7. Robustness test 3: Inclusion of Property Values (Logit)  Effect of Neighborhood on Probability of Voting (Census block variables included in this model, but omitted from the table below). | | | | | | |
|  | (19) | (20) | (21) | (22) | (23) | (24) |
|  | Presidential  General  2008 | Presidential  Primary  2008 | Presidential  Preference  2008 | Midterm  General  2006 | Presidential  General  2004 | Presidential  Primary  2004 |
| **NEIGHBORHOOD** | 5.903\*\*\* | 5.770\*\*\* | 3.892\*\*\* | 4.095\*\*\* | 4.253\*\*\* | 5.688\*\*\* |
| **EFFECT**  ***Marginal Effect*** | (30.39)  .9316 | (26.38)  .7084 | (27.99)  .8696 | (29.81)  .8893 | (28.59)  .8422 | (26.38)  .6440 |
| WHITE | -0.0947\*\* | 0.127\*\* | 0.208\*\*\* | 0.291\*\*\* | 0.244\*\*\* | 0.0826 |
| *MFX* | (-2.69)  -.0170 | (2.89)  .0105 | (6.09)  .0443 | (8.56)  .0643 | (7.45)  .0450 | (1.83)  .0007 |
|  |  |  |  |  |  |  |
| FEMALE | 0.156\*\*\* | -0.0401 | 0.0238 | -0.0456\* | 0.147\*\*\* | -0.00410 |
| *MFX* | (6.44)  .0261 | (-1.54)  -.0052 | (1.09)  .0058 | (-2.06)  -.0112 | (6.45)  .0328 | (-0.15)  -.0007 |
|  |  |  |  |  |  |  |
| DEMOCRATIC | 0.392\*\*\* | 0.945\*\*\* | 0.934\*\*\* | 0.530\*\*\* | 0.368\*\*\* | 1.314\*\*\* |
| *MFX* | (12.30)  .0637 | (19.97)  .1350 | (28.45)  .2279 | (16.83)  .1340 | (12.01)  .0826 | (23.98)  .1805 |
|  |  |  |  |  |  |  |
| REPUBLICAN | 0.527\*\*\* | 1.220\*\*\* | 1.177\*\*\* | 0.691\*\*\* | 0.635\*\*\* | 1.703\*\*\* |
| *MFX* | (16.60)  .0856 | (26.56)  .1711 | (36.81)  .2833 | (22.54)  .1721 | (20.95)  .1379 | (31.86)  .2301 |
|  |  |  |  |  |  |  |
| AGE | 0.100\*\*\* | 0.113\*\*\* | 0.134\*\*\* | 0.142\*\*\* | 0.126\*\*\* | 0.109\*\*\* |
| *MFX* | (30.72)  .0166 | (23.55)  .0146 | (37.87)  .0327 | (40.50)  .0354 | (40.65)  .0277 | (23.08)  .0130 |
|  |  |  |  |  |  |  |
| AGE2 | -0.000794\*\*\* | -0.000704\*\*\* | -0.000907\*\*\* | -0.000935\*\*\* | -0.000885\*\*\* | -0.000646\*\*\* |
| *MFX* | (-25.50)  -.0001 | (-17.25)  -.0000 | (-28.26)  -.0000 | (-28.55)  -.0002 | (-28.06)  -.0002 | (-15.17)  -.0000 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Constant | -6.407\*\*\* | -7.510\*\*\* | -7.288\*\*\* | -7.330\*\*\* | -6.462\*\*\* | -7.763\*\*\* |
|  | (-32.94) | (-40.13) | (-48.45) | (-49.09) | (-42.61) | (-41.63) |
| *N*  *Pseudo R-squared* | 42769  0.1211 | 42769  0.0829 | 42769  0.1601 | 42769  0.1765 | 42769  0.1565 | 42769  0.1567 |

*t* statistics in parentheses

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

|  |
| --- |
| **Map 8: Property Values** |
| Property values.jpg |

The property values of Brevard County (see above) actually show very little variation, although the northern part of the county is slightly more expensive than the south. What we do not find, however, is clustering at a smaller level—that is, we do not see very expensive housing surrounded by inexpensive housing. When property values are entered into the regression, the variable is not significant, and does not diminish the significance of the neighborhood variable. (See Appendix.)

Analysis: Party Clustering—Hypothesis 2

Turning to party: what is the relationship between the partisanship of an individual’s neighbors, and the individual’s own partisanship? Given that context does seem to have an effect on political behavior (as we see in the analysis of Hypothesis 1), can we explain part of a voter’s partisanship by knowing how his neighbors have registered? We use a similar method of analysis, mapping each voter’s registered party onto the county map, and creating a neighborhood likelihood score. This neighborhood effect is entered into a regression to determine the relationship between neighborhood partisanship and individual partisanship. (See the party map on the next page.)

Again, the relationship is tested in three models. (Table 7). As the hypothesis predicts, the models show that the partisanship of an individual’s neighbors does have an effect on an individual’s choice of registered party. As before, demographic variables are controlled for as much as possible by the addition of fixed effects and clustered standard errors.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table 9. Comparison of models for Effect of Neighborhood on Party (Probability of being Democratic) | | | |  |  |
|  | (49) | (50) | (51) | (52) |  |
|  | OLS (Clustered SE) | Fixed Effects | Random Effects | Logit | Marginal Effects | |
| **NEIGHBORHOOD** | 0.786\*\*\* | 0.751\*\*\* | 0.685\*\*\* | 3.633\*\*\* | 0.8647\*\*\* |
| **PARTISANSHIP** | (22.73) | (17.33) | (18.01) | (17.26) | (29.84) |
|  |  |  |  |  |  |
| WHITE | -0.239\*\*\* | -0.243\*\*\* | -0.238\*\*\* | -1.048\*\*\* | -.2496\*\*\* |
|  | (-18.10) | (-35.96) | (-35.24) | (-34.43) | (-34.99) |
|  |  |  |  |  |  |
| FEMALE | 0.0693\*\*\* | 0.0699\*\*\* | 0.0693\*\*\* | 0.322\*\*\* | 0.0745\*\*\* |
|  | (15.47) | (15.46) | (15.34) | (15.40) | (15.37) |
|  |  |  |  |  |  |
| AGE | 0.000487 | 0.000395 | 0.000500 | 0.00311 | 0.0008 |
|  | (0.60) | (0.61) | (0.77) | (1.03) | (1.18) |
|  |  |  |  |  |  |
| AGE2 | 0.0000179\* | 0.0000195\*\* | 0.0000185\*\* | 0.0000768\*\* | 0.0000\*\* |
|  | (2.17) | (3.21) | (3.05) | (2.75) | (2.51) |
|  |  |  |  |  |  |
| Constant | 0.167\*\*\* | 0.184\*\*\* | 0.445\* |  |  |
|  | (5.86) | (7.53) | (2.47) |  |  |
| *N*  *R-squared* | 42769  .0801 | 42769  .0800 | 42751  .0816 | 42769  .0613 |  |

*t* statistics in parentheses

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

Conducting a Hausman test yields a chi-squared value of 36.62, and a Prob>chi2 of 0.0000. We therefore use the fixed effects model rather than the random effects model, due to inconsistency on the part of the latter.

3.2 Party Clustering and Turnout

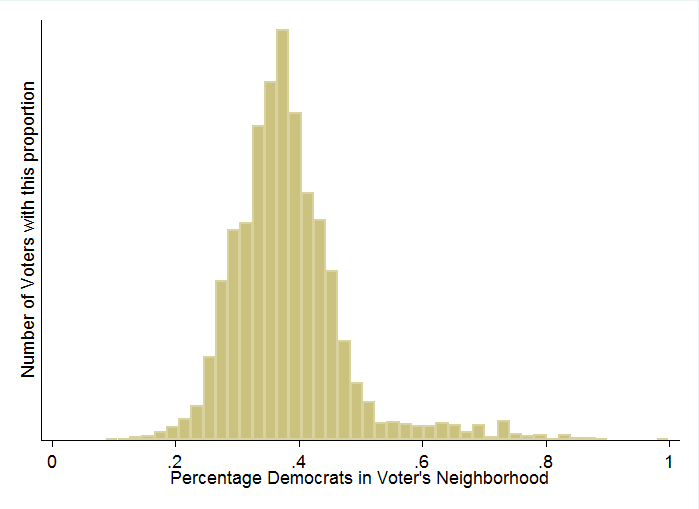
Gimpel, Dyck and Shaw (2004) hypothesize that neighborhood partisanship also has an indirect effect on turnout. They find that “neighborhoods influence voting by interacting with the partisan affiliation to dampen turnout among voters we might otherwise expect to participate,” and that “Republican partisans in enemy territory tend to vote less than expected, even after accounting for socioeconomic status” (343). To test this sub-hypothesis, I regress the voter’s turnout (Vote/ Non-vote) on his neighborhood partisanship score, separately for Democrats and Republicans. Are Democrats more or less likely to vote when surrounded by other democrats? How about Republicans?

There seem to be no significant (or consistent) effects on Democrats. However, Republicans do seem to react strongly; the higher the percentage of Democrats in their neighborhood, the less likely they are to vote. This finding is consistent with Gimpel, Dyck and Shaw, who also find that Republican turnout is substantially depressed in highly-Democratic areas, and offer a number of alternative explanations. The first of these explanations is that the Republicans, who are a minority party in their sample, may be more sensitive to neighborhood effects when they are clearly a minority in both their neighborhood and the larger context. In support of this explanation, Gimpel, Dyck and Shaw reference Ada Finifter’s (1974) study of Detroit factory workers, which found that adherents to the minority party were sensitive to the partisan orientation of their closest associates, whereas majority partisans were not. However, this explanation does not seem to fit our sample, since Republicans are, in fact, the plurality of registered voters in Brevard County (41% compared to 38% Democrats), and for most of the study, a majority both state-wide and nationally.

The second explanation concerns the distribution of Republicans, arguing that they were more likely to find themselves in heavily Democratic districts (over 95%) than Democrats were to find themselves in heavily Republican districts. However, in our sample, the distribution is approximately normal, with a mean proportion of Democrats in each voter’s neighborhood of 0.38.

|  |  |  |  |
| --- | --- | --- | --- |
| Party Voting Neighborhood Effects | | | |
| **Map 9: Democratic Voters** | **Map 10: Democratic Neighborhood Density** | **Map 11: Republican Voters** | **Map 12: Republican Neighborhood Density** |
| Dems | NEIGDems | Reps | NEIGReps |

The above maps show Democratic voters and their densities. In Map 9 and Map 11, only Democratic and Republican voters are shown, respectively. Map 10 and Map 12 show densities, where dark blue and dark red indicate highly Democratic and Republican areas.



The third explanation hypothesizes that party organizations did not reach out to like-minded Republicans residing in Democratic territory. In order for this story to explain why we see a variation in Republican voting but not Democratic voting, however, we would need a reason to believe that the Democratic party *did*  reach out to potential Democrats in Republican areas. In the end, this may very well be the case, especially if Republicans and Democrats residing in “enemy territory” differed in some important demographic way. Unfortunately, the individual-level data necessary to test this hypothesis is not available here.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 10. Effect of Neighborhood Partisanship on Turnout  REPUBLICANS ONLY | | | | | | |
|  | (53) | (54) | (55) | (56) | (57) | (58) |
|  | Presidential  General  2008 | Presidential  Primary  2008 | Presidential Preference  2008 | Midterm General  2006 | Presidential General  2004 | Presidential General  2004 |
| **NEIGHBORHOOD** | -0.252\*\*\* | -0.143\*\* | -0.323\*\*\* | -0.195\*\* | -0.198\*\* | -0.0830 |
| **PARTISANSHIP** | (-4.30) | (-2.60) | (-4.93) | (-3.01) | (-3.17) | (-1.52) |
|  |  |  |  |  |  |  |
| WHITE | 0.0395\*\*\* | 0.0514\*\*\* | 0.0964\*\*\* | 0.0909\*\*\* | 0.0777\*\*\* | 0.0513\*\*\* |
|  | (4.42) | (6.11) | (9.62) | (9.21) | (8.16) | (6.16) |
|  |  |  |  |  |  |  |
| FEMALE | 0.0220\*\*\* | -0.00709 | -0.00441 | -0.0112\* | 0.0201\*\*\* | -0.000592 |
|  | (4.37) | (-1.50) | (-0.78) | (-2.02) | (3.76) | (-0.13) |
|  |  |  |  |  |  |  |
| AGE | 0.0193\*\*\* | 0.00755\*\*\* | 0.0230\*\*\* | 0.0257\*\*\* | 0.0281\*\*\* | 0.00498\*\*\* |
|  | (26.37) | (10.99) | (28.36) | (32.97) | (38.93) | (7.91) |
|  |  |  |  |  |  |  |
| AGE2 | -0.000147\*\*\* | -0.0000219\*\*\* | -0.000135\*\*\* | -0.000151\*\*\* | -0.000201\*\*\* | 0.0000128\* |
|  | (-21.19) | (-3.35) | (-17.39) | (-19.70) | (-27.16) | (1.98) |
|  |  |  |  |  |  |  |
| Constant | 0.258\*\*\* | -0.112\*\*\* | -0.292\*\*\* | -0.358\*\*\* | -0.165\*\*\* | -0.0818\*\* |
|  | (8.75) | (-4.06) | (-8.94) | (-11.32) | (-5.56) | (-3.16) |
| *N* | 26493 | 26493 | 26493 | 26493 | 26493 | 26493 |

*t* statistics in parentheses

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Table 11. Effect of Neighborhood Partisanship on Turnout  DEMOCRATS ONLY | | | | | | | |
|  |  | (59) | (60) | (61) | (62) | (63) | (64) |
|  |  | Presidential  General  2008 | Presidential  Primary  2008 | Presidential Preference  2008 | Midterm General  2006 | Presidential General  2004 | Presidential  Primary  2004 |
| **NEIGHBORHOOD** |  | -0.130 | 0.0254 | -0.166\* | -0.239\*\* | -0.101 | 0.0287 |
| **PARTISANSHIP** |  | (-1.89) | (0.39) | (-2.14) | (-3.16) | (-1.39) | (0.45) |
|  |  |  |  |  |  |  |  |
| WHITE |  | -0.0395\*\*\* | 0.0140 | 0.0408\*\*\* | 0.0743\*\*\* | 0.0705\*\*\* | 0.0154 |
|  |  | (-4.59) | (1.74) | (4.21) | (7.87) | (7.72) | (1.94) |
|  |  |  |  |  |  |  |  |
| FEMALE |  | 0.0354\*\*\* | 0.00370 | 0.0318\*\*\* | 0.000269 | 0.0441\*\*\* | 0.00857 |
|  |  | (5.42) | (0.60) | (4.32) | (0.04) | (6.36) | (1.42) |
|  |  |  |  |  |  |  |  |
| AGE |  | 0.0203\*\*\* | 0.00958\*\*\* | 0.0252\*\*\* | 0.0265\*\*\* | 0.0292\*\*\* | 0.00727\*\*\* |
|  |  | (22.13) | (11.17) | (24.76) | (27.31) | (32.37) | (9.30) |
|  |  |  |  |  |  |  |  |
| AGE2 |  | -0.000163\*\*\* | -0.0000423\*\*\* | -0.000161\*\*\* | -0.000161\*\*\* | -0.000207\*\*\* | -0.0000129 |
|  |  | (-19.15) | (-5.29) | (-16.73) | (-17.24) | (-22.84) | (-1.64) |
|  |  |  |  |  |  |  |  |
| \_cons |  | 0.272\*\*\* | -0.199\*\*\* | -0.352\*\*\* | -0.340\*\*\* | -0.260\*\*\* | -0.154\*\*\* |
|  |  | (7.29) | (-5.71) | (-8.49) | (-8.53) | (-6.94) | (-4.72) |
| *N* |  | 16276 | 16276 | 16276 | 16276 | 16276 | 16276 |

4 Distance to the Polls—Hypothesis 3

Are people who live near the polling place more likely to turn out than people who don’t? Placement of polling locations may seem to be a relatively minor institutional detail; however, the manipulations of these sorts of institutional details (polling taxes and literacy tests, restrictions on registration like the “motor voter” law, lengthening of poll hours, design of the ballot, and so forth) have often led to major changes in turnout rates. Returning to the cost-benefit analysis referenced earlier, such changes are thought to affect the voters’ calculation of voting costs (C).

Niemi writes that “if the B or PB term is indeed quite small, then a small increase in the costs of voting—such as driving a mile instead of a half-mile to the polls—would significantly reduce turnout (Niemi 1976, 117). This is worrisome insofar as access disadvantages some voters, in line with Down’s argument that “the returns from voting are usually so low that tiny variations in cost may have tremendous effects on the distribution of political power” (1957, 266).

In attempting to answer this question, Haspel and Knotts (2005) analyze a “natural experiment” using data from before and after redistricting in 2000, and find that moving a polling place can indeed affect the decision to vote. As Haspel and Knotts, I do not expect distance to affect voters monotonically, since some voters will have access to a car while others will not. Nor do I expect a linear relationship, since the marginal effect is likely to be greater for smaller distances than larger distances. Rather, the hypothesis is that on average, voters who live farther away from their polling place are less likely to vote.

In order to test this hypothesis, the polling locations in Brevard County are geocoded onto the county map, and the distance of each voter to their assigned precinct is calculated. This distance is then entered into a regression as log(distance). Since we have information for the polling places in 2008, only the 2008 Primary and 2008 General are used to test the hypothesis. (See map on the next page.)

Contrary to the findings of Haspel and Knotts, I find that distance to the following place generally has little or no effect on turnout behavior. In all of the analyses, no model had a statistically significant coefficient on log(DISTANCE). The cause of this disparate findings may very well be in the sample being analyzed. Since most rural voters have been excluded from my study (either in order to facilitate neighborhood analysis, or because the addresses could not be found in the GIS geocoding database), the variation within the sample is small. Although we predicted that the marginal effect would be higher for small distances than larger one, it may still be the case that the exclusion of large distances biased the estimate.

|  |  |
| --- | --- |
| **Map 13: Polling locations** | **Map 14: Location of voters** |
| Polling places | Distance to polling place |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | OLS (CSE) | | Fixed Effects | | Logit (with census dummies) | |
|  | (1) | (2) | (1) | (2) | (1) | (2) |
|  | Presidential  Primary  2008 | Presidential  General  2008 | Presidential  Primary  2008 | Presidential  General  2008 | Presidential  Primary  2008 | Presidential  General  2008 |
| log (DISTANCE) | -0.103 | 0.0705 | -0.0218 | 0.0757 | -0.00151 | 0.0142 |
|  | (-0.55) | (0.43) | (-0.20) | (0.66) | (-0.08) | (0.95) |
|  |  |  |  |  |  |  |
| WHITE | 0.0252\*\*\* | 0.00581 | 0.0175\*\* | -0.0145\* | 0.613\*\*\* | 0.235\*\*\* |
|  | (4.38) | (0.65) | (3.05) | (-2.36) | (9.59) | (5.36) |
|  |  |  |  |  |  |  |
| FEMALE | -0.00529 | 0.0256\*\*\* | -0.00500 | 0.0252\*\*\* | 0.191\*\*\* | 0.151\*\*\* |
|  | (-1.60) | (5.41) | (-1.32) | (6.17) | (4.28) | (6.20) |
|  |  |  |  |  |  |  |
| DEMOCRATIC | 0.0914\*\*\* | 0.0659\*\*\* | 0.0919\*\*\* | 0.0709\*\*\* | 0.150\*\*\* | 0.305\*\*\* |
|  | (17.12) | (8.73) | (17.29) | (12.43) | (6.12) | (9.49) |
|  |  |  |  |  |  |  |
| REPUBLICAN | 0.144\*\*\* | 0.104\*\*\* | 0.142\*\*\* | 0.0978\*\*\* | 0.329\*\*\* | 0.572\*\*\* |
|  | (28.95) | (16.07) | (27.26) | (17.54) | (10.11) | (18.03) |
|  |  |  |  |  |  |  |
| AGE | 0.00766\*\*\* | 0.0199\*\*\* | 0.00759\*\*\* | 0.0194\*\*\* | 0.543\*\*\* | 0.101\*\*\* |
|  | (13.24) | (29.18) | (14.03) | (33.33) | (16.90) | (30.76) |
|  |  |  |  |  |  |  |
| AGE2 | -0.0000261\*\*\* | -0.000156\*\*\* | -0.0000260\*\*\* | -0.000153\*\*\* | 0.0997\*\*\* | -0.000785\*\*\* |
|  | (-4.63) | (-25.30) | (-5.11) | (-27.95) | (30.13) | (-25.16) |
|  |  |  |  |  |  |  |
| \_cons | -0.231\*\*\* | 0.119\*\*\* | -0.222\*\*\* | 0.152\*\*\* | -2.367\*\*\* | -2.177\*\*\* |
|  | (-15.07) | (6.00) | (-15.31) | (9.69) | (-15.33) | (-19.66) |
| *N* | 40643 | 40643 | 40643 | 40643 | 40610 | 40610 |

5 Results and Implications

To summarize, we have found that:

H1: REJECTED NULL: A registered voter is more likely to turnout on election day if he lives around other voters who vote.

H2: REJECTED NULL: A voter is more likely to register for the party that the majority of her neighbors register for.

H2B: REJECTED NULL: Neighborhood partisanship has a party-specific effect on voter’s turnout. Republicans in highly Democratic areas are significantly less likely to turn out than Republicans in less Democratic areas. (The higher the proportion of democrats, the lower the Republican’s probability of voting.) Interestingly, there is no corresponding effect for Democrats.

H3: FAILED TO REJECT THE NULL: Distance to the poll seems to have no significant effect on turnout on an individual level, after controlling for other demographic variables.

The preceding analysis has demonstrated the large roll that social factors—specifically, the characteristics of one’s neighborhood—have on an individual voter’s political behavior. This knowledge has potentially useful implications for Get Out the Vote and political campaigns, since focusing on certain areas (such as “enemy territory) may produce a large-scale effect in the network. Controlling for property cost (as a proxy for income) does not seem to diminish the neighborhood effect.

Additionally, such findings should be seen as encouraging non-traditional network frameworks for understanding voter behavior. Technology has enabled these sorts of networks to extend well beyond small geographic boundaries, and it seems likely to expect that the importance of geography will be replaced in time with a more symbolic “community.”

6 Opportunities for future research

A variety of opportunities exist for expanding this analysis. First, the concept of “neighborhood”—that is, the set of people one is most likely to interact with—could be redefined. Although geographic proximity is a useful proxy, there are reasons to believe that other definitions might yield interesting results. For example, using data from a larger area, a sample could be broken up by school district. Adjacent school districts with similar demographic characteristics could be chosen, and voters on the edge of these districts compared using regression discontinuity analysis. It could be argued that this method of partitioning gets closer to measuring actual social interaction, since children and parents are often more likely to know other children and parents in their school district, even if they live further away. A statistically-significant discontinuity on the school district line would imply that, for some reason, the group in School District A has a developed a different voting norm than School District B.

Second, 2010 census data will also work wonders for our confidence in applying aggregate demographic data to voterfiles; once released, this data could replace the outdated data in this paper to produce a more precise result. In almost every analysis the demographic variables were insignificant—suggesting that they are not as correlated as we would like with actual population figures.

Third, the next step in this research path would be to apply the analyses to larger areas, such as the state of California to determine whether hypotheses hold in a large number of localities. Adding additional states, counties or cities would produce a more generalizable result.

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1. Obviously, we cannot assume that one’s social circle is determine completely by proximity to home. Work, religion, clubs and hobbies, family ties and many other types of groups are strong (perhaps stronger) predictors of who is likely to associate with whom the most. However, describing these complex webs of relationships accurately and on a large scale is not possible. Geographic proximity, then, is a reasonable (and realistic) approximation of the likelihood of interacting with another person, though not a guarantee. [↑](#footnote-ref-1)
2. Although the data I’ve used is convenient, clean and informative, the realistic purpose of this exercise is to test out a method that could be used with larger datasets. For this purpose, I have also obtained complete voter registration records from the state of California, which include much of the same data and have a number of advantages (which I will discuss in the concluding section). The analysis of this data, however, is likely to be time consuming, and is not included in this paper. [↑](#footnote-ref-2)
3. Using the entire dataset, although theoretically possible, is cumbersome, and runs up against the processing power of GIS and my laptop. Using a sample allows our results to be checked out-sample. [↑](#footnote-ref-3)
4. The success rate of this geocoding was 87%. Some areas in the western part of the state were unmatched at a much higher rate, suggesting that the addresses in these areas were simply not reliably included in the GIS address-matching software. [↑](#footnote-ref-4)
5. Because a very small number of voters in a neighborhood could create an unrealistically biased sample, any voter with fewer than 10 other points in his neighborhood was excluded from this analysis. As a result, the rural area in the western part of the county has been underrepresented. [↑](#footnote-ref-5)
6. Ideally, we would use a random effects estimator, since we could then include both census data and a group-effect. However, I determine that the random effects model is not consistent, so the fixed effects model (using the census block as the cross-sectional group) is the better estimator. Because of the large sample size, efficiency is not a major issue. [↑](#footnote-ref-6)
7. Admittedly, this is not a perfect control. It takes as given that the people living at a certain address have an income proportional to the property value, which may not always be the case—for example, when renting a unit in an apartment building—the building itself may be quite expensive, but the rent may be fairly low. At best, this proxy will pick up major variation in property values. [↑](#footnote-ref-7)