

# Exploiting Friends-and-Neighbors to Estimate Coattail Effects\*

**Marc Meredith**

University of Pennsylvania  
marcmere@sas.upenn.edu

December 9, 2011

## **Abstract**

Federalist democracies often hold concurrent elections for multiple offices that vary with respect to size and scale. One potential consequence of such an electoral system is that the personal appeal of high profile candidates affects voter behavior in less salient elections. This paper estimates the magnitude of such coattail effects from governors onto other concurrently elected statewide executive officers in the United States using an unique dataset of county-level election returns for all statewide executive office elections from 1987 to 2010. I exploit the disproportionate support that candidates receive from geographically proximate voters, which is often referred to as the friends-and-neighbors vote, to isolate variation in the personal appeal of candidates. The point estimates from my preferred specifications suggest that a one percentage point increase in the personal vote received by a party's gubernatorial candidate increases the vote shares received by a party's secretary of state and attorney general candidates by slightly less than 0.2 percentage points. In contrast, increases in the personal vote received by down-ballot candidates do not affect vote shares received by gubernatorial or other down-ballot candidates from their party.

---

\*I thank Luke Reilly and Aakash Abbi for providing excellent research assistance. I also thank Olle Folke, Alex Gelber, Jason Grissom, Jens Heimuller, Shigeo Hirano, Dan Hopkins, Greg Huber, Luke Keele, Jon Kolstad, John Lapinski, Gabe Lenz, Todd Makse, Erik Snowberg, Jim Snyder, Jim Snyder's file cabinets, and seminar audiences at Caltech, the 2009 Yale Center for the Study of American Politics, 2010 Midwest Political Science Association, and 2010 State Politics and Policy Conferences for useful discussions and/or data gathering assistance.

# 1 Introduction

Understanding how the processes used to select governmental officials affects accountability is one of the central questions in the study of political economy (Besley and Coate, 2003). In federalist countries that use elections to select representatives to serve in multiple political institutions that vary both with respect to their scope and their scale, researchers and policy-makers alike long have debated the costs and benefits of holding elections for lower salience offices concurrently with elections for higher salience offices.<sup>1</sup> Debates over election timing highlight a tension in designing electoral rules that simultaneously encourage broad participation, while also ensuring that voters are informed sufficiently to hold elected officials accountable for their performance in office. A tenant of the Progressive movement in the United States was that elections for low and high salience offices should be held separately to ensure that voters in low salience elections were sufficiently informed to hold elected officials accountable for their performance in office.<sup>2</sup> However, doing so also increases the possibility that groups who make-up a disproportionate percentage of voters in low salience elections will increase their political influence (Anzia, 2011; Berry and Gersen, 2011).

The importance of understanding the consequences of consolidating elections has been magnified by a recent push by policy makers to combine previously separate elections. California and New Jersey passed legislation in 2011 to combine their presidential primaries with other primary elections. Michigan and Nevada passed similar legislation that will result in municipal and school board elections being held concurrently with federal elections. One of the primary motivations for these reforms is to save money.<sup>3</sup> However, some critics of

---

<sup>1</sup>In one of the first volumes of the *American Political Science Review*, Garver (1909) documents a substantial decrease in the number of ballots cast in special elections in Sioux Falls, Iowa. He hypothesizes that holding nine separate elections in the same year could cause voters to lose interest in voting altogether. Berry and Gersen (2010) provide an overview of the more recent literature.

<sup>2</sup>Anzia (In Press) argues this primarily was rhetoric used to justify a policy change that would benefit the Progressives electorally. Similar arguments were made when North Dakota voters passed Measure 2 in 2000, which decoupled elections for some of the state's executive offices, like attorney general and secretary of state, from the top-ballot presidential and gubernatorial elections. Al Jaeger, the North Dakota Secretary of State in 2000 and supporter of Measure 2, argued that “[the public] can get to know the candidates for office somewhat better because there are not so many candidates on the ballot (Wetzel, 2000).

<sup>3</sup>Legislative analysis of Assembly Bill 80 estimates that California spent approximately 97 million to hold

electoral consolidation worry that these cost savings come at the expense of electoral accountability. One concern is that the personal identity of a party's candidate in one election substantially affects the performance of the party's other candidates. Such coattail effects could result in a smaller percentage of voters basing their votes on an incumbent's performance in office. In justifying his vote against a recent bill to consolidate Hoboken, New Jersey's municipal elections with New Jersey's gubernatorial election, city council member Tim Occhipinti argued that "the elections should 'not ride the coattails of the state' by putting the municipal candidates on the same ballot as state candidates (Musat, 2011)."

There are a number of reasons why we might expect the identity of top-ballot candidates to affect the performance of their party's down-ballot candidates. An attractive top-ballot candidate can mobilize a party's marginal voters, who in-turn support the party's down-ballot candidates (Campbell, 1964). Cognitive dissonance may cause supporters of a top-ballot candidate to vote for down-ballot candidates from the same party (Mondak and McCurley, 1994). Ballot designs, like a straight party option or party column ballots, might induce voters to choose candidates from the same party (Rusk, 1970). Finally, voters preferences in one election may depend on expectations about which candidates will win other elections on the ballot (Alesina and Rosenthal, 1996).

The numerous mechanisms that could lead to coattail effects have motivated scholars since the 1940's to try to empirically estimate whether coattails exist and, if so, the magnitude of their influence in a variety of contexts. This work generally follows one of three tracks. The first shows in aggregate time-series data that in elections where a party's top-ballot candidate performs better than normal, the party's down-ballot candidates also generally perform better than normal. The second demonstrates in cross-sectional data that in areas where a party's top-ballot candidate performs better than average in a given election, the party's down-ballot candidates also generally perform better than average. The third illustrates in individual-level survey data that individuals who support a party's top-ballot candidate

---

a separate presidential primary in 2008

disproportionately support that party's down-ballot candidates.

The robust positive associations estimated between a party's top- and down-ballot candidate performance using all three approaches generally is accepted as evidence of coattail effects despite long-standing warnings about potential confounds (Miller, 1955). Because coattail effects are a by-product of the personal appeal of candidates, estimates of the magnitude of coattail effects should be unaffected by voting behavior that is independent of the identity of the candidates. A number of common factors, such as ideology or the general state of the economy, jointly affect voters' preferences over the party in control of both top- and down-ballot elected offices. All of these common factors must be controlled for in order for the aforementioned associations between top- and down-ballot candidate performance to capture only the coattail effect. As it is nearly impossible to precisely measure and specify the correction functional relationship for all of the factors that affect party preferences in both top- and down-ballot races, it is unlikely that coattail effects can be identified using any standard regression analysis.

Overcoming the above identification problem requires isolating variation in the performance of a candidate that results from his or her personal appeal, which is frequently referred to as a candidate's *personal vote*. One source of the personal vote that is well-documented in political science literature is the increased support that candidates receive from geographically proximate voters, which is often referred to as *friends-and-neighbors voting* (Key, 1949; Rice and Macht, 1987*a,b*; Gimpel et al., 2008). My research design exploits the increased personal vote that candidates receive near their place of birth and residence to estimate the effect of coattails. That is, I estimate the extent to which the increased support that a party's top-ballot candidate receives in geographically proximate areas affects the performance of down-ballot candidates from their party.

I show using two different approaches that a candidate receives about a four percentage point increase in his or her vote share in a county that he or she was born or resides in prior to entering a statewide office using a unique dataset of county level election returns

for all statewide executive office elections from 1987 to 2010, which I term the *home-county advantage*. This home-county advantage varies substantially depending on features of the county, office and candidate. Friends-and-neighbors voting is not limited just to candidates' county of birth or residence, as candidates also benefit electorally in counties near their place of birth or residence.

To identify coattail effects, I exploit variation in the location of birth and residence of attorney general, gubernatorial, and secretary of state candidates across time. By instrumenting for candidates vote shares with geographic information, I am able to isolate variation in the performance of both top- and down-ballot candidates that results from variation in the personal vote. The point estimates from my preferred specifications suggest that a one percentage point increase in a county in the personal vote received by a party's gubernatorial candidate increases the party's secretary of state and attorney general candidates' vote shares in a county by slightly less than 0.2 percentage points. This point estimate is roughly 60% as large as the point estimate obtained from the comparable OLS specification. I do not find that secretary of state and attorney general candidates affect the performance of their party's gubernatorial or other down-ballot candidates.

## 2 Contribution to Literature

A substantial body of work exists both on friends-and-neighbors voting and coattail effects. This section details how this paper contributes to each of these literatures.

### 2.1 Friends-and-Neighbors Voting

The study of how the geographic proximity of voters to candidates affects their vote choice has a long history in political science. One of the first, and best-known, treatments of the topic is contained in Key (1949). Key illustrates that in Southern primaries candidates received disproportionate support in counties in which they were born or reside, which he

termed friends-and-neighbors-voting. Although Key's work focused on Southern primaries, subsequent works shows this home county advantage exists across a broad spectrum of elections, including the type of statewide executive office elections studied in this paper (Rice and Macht, 1987*a,b*; Gimpel et al., 2008).

A number of potential mechanisms that could lead to friends-and-neighbors voting have been identified. Key (1949) argues that friends-and-neighbors voting is a symptom of low information and disinterest among voters, although he notes that it could also be caused by voters' perceiving they personally benefit from local representation. Similarly, Lewis-Beck and Rice (1983) contend that voters more strongly identify with geographically proximate candidates, and believe that having local representation might provide distributional benefits. As a consequence, Rice and Macht (1987*b*) posit that marginal voters will be more likely to turnout in order to support local candidates. More recently, Bowler, Donovan and Snipp (1993) argue that friends-and-neighbors voting is likely to, in part, reflect voters being informed more about local candidates. Gimpel et al. (2008) focus on the importance of such information in creating trust between a voter and a candidate.

This paper contributes to the friends-and-neighbors voting literature in two ways. First, it builds on recent work by Gimpel et al. (2008) that looks at how the friends-and-neighbors vote dissipates as a function of the distance between a county and a candidate's home county. My large dataset allows me to take a less parametric approach to estimating the relationship between distance and the friend-and-neighbors vote than Gimpel et al.. As a result, I am able describe the geographic bounds on friends-and-neighbors voting in a more precise manner.

This paper also improves our understanding of the mechanisms leading to the friends-and-neighbors voting. While the aggregated data used in this paper are not ideal for identifying individual-level mechanisms, looking at how friends-and-neighbors voting varies across contexts can provide some suggestive evidence about the role of certain mechanisms. Consistent with Lewis-Beck and Rice (1983) and Rice and Macht (1987*a*), I find the population of an area is an important moderator of friends-and-neighbors voting. However, while candidates

get a larger percentage point increase in their vote share in less-populated home counties, the magnitude is not big enough to offset the larger pool of voters that might potentially be affected in more populated counties, so that, all else equal, it is in a party's strategic interest to nominate candidates from more populated areas. I also find that candidates with previous local or legislative political experience benefit from more friends-and-neighbors voting. Finally, more friends-and-neighbors voting is observed in races for less salient offices. All of these results are consistent with Beck et al.'s (1992) theory that the personal vote in statewide executive office elections is driven largely by candidate visibility.

## 2.2 Coattail Effects

Scholars have tried to estimate how the personal appeal of a party's top-ballot candidate affects the performance of the party's down-ballot candidates since the 1940's. This work generally follows one of three approaches. The first shows in aggregate time-series data that the performance of a party's top-ballot and down-ballot candidates' are positively correlated across time. The second demonstrates in cross-sectional data that the performance of a party's top-ballot and down-ballots candidates are positively correlated across space. The third highlights that individuals who support a party's top-ballot candidate also disproportionately support that party's down-ballot candidates.

The interpretation of these studies is complicated by the fact that there are many factors besides coattail effect that are likely to cause significant positive associations both across time and space in the support received by a party's candidates. For example, ideology and the general state of the economy affect voters' preferences over the party in control of both top- and down-ballot elected offices. As coattail effects are a by-product of the personal appeal of candidates, omitting variables that affect party preferences in both top- and down-ballot offices is likely to cause the associations identified by these studies to overstate the coattail effect. Because it is unlikely all of the variables that affect party preferences can ever be observed and measured properly, any relationship estimated between top- and down-

ballot candidate performance using a standard regression-based approach will be plagued by omitted variable bias concerns.

To overcome these identification concerns, I use an instrumental variable approach to estimate coattail effects. This requires finding an instrument or set of instruments that isolates variation in the vote shares of candidates caused by variation in the personal vote. My specific instruments are candidates' place of birth and residence prior to entering statewide office. The first-stage regression estimates the increase in the personal vote that candidates receive in counties near their place of birth and residence. The second-stage regression then relate the increased personal vote that candidates receive in counties where they have a friends-and-neighbors advantage to the vote shares that other candidates from their party receive in concurrent elections.

My approach builds on previous work that attempts to isolate the effect of the personal identity of the top-ballot candidate in order to identify the coattail effect. In the study closest to this one, Calvert and Ferejohn (1983) use an instrumental variable approach to assess how an individual's presidential vote choice affects their House vote choice. They try to isolate the president's personal vote by instrumenting for presidential vote choice with a measure of the difference across candidates in the content of responses to the survey question "is there anything in particular about (name of candidate for president) that might make you want to vote for or against him". Their estimates suggest that one percentage point increase in the personal vote received by a presidential candidate increase the vote share of a House candidate from their party by 0.5 percentage points.<sup>4</sup>

Structural models are also used to estimate the coattail effect of the president on House

---

<sup>4</sup>A related recent literature looks at how the identity of the party of incumbent elected officials affects voting in other races using close election regression discontinuity designs. Hainmueller and Kern (2008) find that German voters are more likely to support the party of their current single-member district representative in the next proportional representation election. Similarly, Ade and Freier (2011) find that German voters are more likely to support the party of the incumbent mayor in the next town council election in provinces with concurrent mayoral and town council elections, but not in provinces with separate mayoral and town council elections. In contrast, Folke and Snyder (2011) find that the party winning the governor's office loses seats in midterm US state legislative election. Finally, Broockman (2009) find that US voters are no more likely to support the party of their House representative elected in the midterm election in the next presidential election.

candidates. Kramer (1971) estimates a joint model of aggregate presidential and House candidate vote shares which includes a coattail effect of presidential on House vote share. The model is identified by the functional form assumptions about the distribution of the unobservable determinants of these vote shares, which include an assumption that the unobservable determinants of a party's House vote share have an equal effect on the party's presidential vote share. Kramer's results imply that a one percentage point increase in the personal vote received by a presidential candidate increases the vote share of House candidates from their party by 0.3 percentage points. Ferejohn and Calvert (1984) weaken Kramer's assumption about a common unobservable determinant of presidential and House vote shares, which causes them to estimate a range of coattail effects depending on the assumed correlation of the unobservable determinants of presidential and House vote shares. Their estimates range from a 0.24 to a 0.51 percentage point increase in a party's House vote share from a one percentage point increase in the personal vote received by their presidential candidate.

My paper has a number of advantages over these previous attempts to isolate coattail effects. Rahn, Krosnick and Breuning (1994) argue that reported likes and dislikes are, in part, rationalizations for vote choice. As a result, reported likes and dislikes are likely related to omitted variables resulting from imperfect measurement of variables like party identification. This brings into question whether this instrument isolates variation in personal vote received by top-ballot candidates, which is necessary in order for this instrument to satisfy the exclusion restriction necessary for instrumental variables to consistently estimate the coattail effect. I believe a stronger case is made that my instruments satisfy this exclusion restriction. Moreover, Fair (2009) shows that the structural models discussed above are sensitive to model specification. Using a similar model to Kramer (1971), Fair estimates a one percentage point increase in the personal vote received by a presidential candidate *reduces* his party's House vote share by almost 0.5 percentage points. Using the approach of Ferejohn and Calvert (1984) he finds estimates that range from a -0.71 to a 0.8 percentage point change in House vote share from a one percentage point increase in the party's presidential candidate's

personal vote. In contrast, my results estimates are robust across model specifications using different combinations of instruments.

While my results show that the identity of a party's top-ballot candidate affects the performance of the party's down-ballot candidates, the magnitude of the effect is significantly smaller than what is found by this previous work. Like this previous work, my OLS specifications show that a one percentage point increase in a party's vote share in one statewide executive office race associates with a 0.25 to a 0.50 percentage point increase in the party's vote share in another statewide executive office race. However, the point estimates from my preferred instrumental variable specification indicate that a one percentage point increase the personal vote for a gubernatorial candidate increases the vote shares of their party's secretary of state and attorney general candidates by a little less than 0.2 percentage points. Slightly smaller point estimates are found when a broader set of down-ballot races are considered. In contrast, personal votes for a secretary of state or attorney general candidate are not found to affect the performance of other candidates from their party.

### 3 Data

Two new datasets are collected to estimate the effect of gubernatorial coattails on down-ballot statewide executive office elections. County-level election returns are collected and coded for all partisan statewide executive office election outcomes from 1987 to 2010.<sup>5</sup> These data are supplemented with a dataset containing the county of birth and residence for attorney general, governor, and secretary of state candidates over the same time horizon. Data on the county of birth and residence are collected for all statewide executive office candidates in 2010.

---

<sup>5</sup>I exclude all races for multi-member boards like a Corporation Commission or a Board of Regents.

### 3.1 Election Data

The primary source of county-level election return data are records maintained by the office in charge of running a state's elections, which is typically the Secretary of State's office. Data were first collected from the websites of these offices. Data that were unavailable on state websites, which is often the case for the 1980's and 1990's, were collected from a variety of sources including hard copies obtained from the election officials, state Blue Books, the R.O.A.D. dataset, and other Internet election archives. Using these data I construct  $off_{s,c,t}$ , the two-party vote share of the Democratic candidate running for office  $off$  in state  $s$  and county  $c$  at time  $t$ .<sup>6</sup>

Two down-ballot vote share measures are constructed using these data. As I discuss in section 3.2, I collect the place of birth and residence before entering statewide office of candidates for one down-ballot race in each state. I focus on the secretary of state race in states where the secretary of state is elected concurrently with the governor, and the attorney general in states where the attorney general, but not the secretary of state, is elected concurrently with the governor. The variable  $select\_db_{s,c,t}$  is the Democratic candidate's percentage of the two-party vote share in state  $s$  and county  $c$  at time  $t$  in this selected down-ballot race. I also construct  $all\_db_{s,c,t}$ , an aggregated Democratic percentage of the two-party vote cast in all down-ballot races (i.e., all races besides governor) in state  $s$  and county  $c$  at time  $t$ . All state-year-office observations where only one of the two major parties competed or a third-party candidate received more than 15% of the vote are excluded when constructing  $all\_db_{s,c,t}$ . After excluding 14 state-year observations where a third party gubernatorial candidate received more than 15% of the vote, I am left with a final dataset of 15,608 state-county-year observations across 232 state-years where at least one contested

---

<sup>6</sup>I exclude observations from Alaska, Hawaii, Maine, New Hampshire, New Jersey, and Tennessee are excluded because these states do not hold any elections for down-ballot statewide executive offices. Observations are also excluded from Oregon and Pennsylvania because none of their down-ballot statewide executive office elections are held concurrently with their gubernatorial election. Observations from Louisiana are excluded because of the unique electoral system used to select statewide executive officers. Finally, observations from Delaware are excluded because there are only three counties in the state

down-ballot race is observed, and 14,045 across 196 state-years where a contested selected down-ballot race is observed.

### 3.2 Home County Data

I collect data on county of birth and county of residence for three different types of candidates: gubernatorial candidates from 1987 to 2010, candidates in a selected down-ballot race from 1987 to 2010, and candidates for all statewide executive offices in 2010. The primary source of data on county of birth and county of residence of attorney general, gubernatorial, and secretary of state candidates from 1987 to 2009 are the biennial editions of Who'sWho in American Politics. Each edition of Who'sWho in American Politics has thousands of short biographical records for individuals active in politics. I extract from these records both a candidate's county of birth and county of residence. The primary source of data for 2010 candidates are questionnaires distributed by the website Project Vote Smart to all statewide executive office candidates. These questionnaires included fields where candidates could include their place of birth and residence. When the biography or questionnaire indicate that the candidate is an incumbent or has previously held another statewide political office, I code the candidate's county of residence based on the place of residence prior to entering a statewide political position.

A number of secondary sources are used to obtain place of birth and residence for candidates who are not listed in Who'sWho in American Politics or don't provide information to Project Vote Smart. The two main secondary sources of information are archived newspaper articles and Wikipedia.<sup>7</sup> When information could not be found in either of these sources, I used additional sources like Ballotpedia, Political Graveyard, and archived candidate websites.

Table 1 presents descriptive statistics about candidates' birth places and residences. It indicates that about 60% of gubernatorial candidates between 1987 and 2010 were born in the

---

<sup>7</sup>See Brown (2011) for a discussion of the merits of using Wikipedia for candidate biographical information.

state in which they are running for governor, and about 34% still resided in the county that they were born in when they first entered state politics. Similar numbers are observed in the cross-section of candidates running for all statewide executive offices in 2010. Comparing the percentage of candidates that come from less-populated counties with the percentage of candidates that would be expected to come from less-populated counties if candidates were randomly selected from the population reveals that less-populated counties are slightly underrepresented in the pool of candidates.

The types of counties that Democratic and Republican candidates come from are similar in a number of ways. Democratic and Republican candidates do not differ in their probability of being born in the state in which they are running for office. While Republican gubernatorial candidates are more likely to come from less-populated counties than Democratic gubernatorial candidates, Democratic down-ballot candidates are just as, if not more, likely to come from less-populated counties. The results in sections 4 and 5 also show that a party's candidates are more likely to be born and reside in counties that tend to disproportionately support their party.

A final observation from Table 1 is that I am able to collect place of birth and place of residence for most candidates in the sample. Specifically, I observe place of birth for 99% of governors, 83% of selected down-ballot candidates, and 92% of 2010 candidates, and place of residence for 100% of governors, 97% of selected down-ballot candidates, and 100% of 2010 candidates.<sup>8</sup>

I use these data on place of birth and residence to construct a geographic proximity measure between a county and the candidates running in a given election. Define  $DistBorn_{s,c,t,off,p}$  as the distance between county  $c$  in state  $s$  and the county in which the

---

<sup>8</sup>There are some systematic patterns to the missing data. Winning candidates are more likely to be listed in Who'sWho in American Politics or Wikipedia, making it easier to find information about them. Because newspaper archives are less comprehensive in the 1980's and 1990's, there is more missing data from earlier time periods. Finally, place of birth information was more difficult to obtain for candidates who were not born in the state in which they are running for office, so I suspect that a disproportionate number of the remaining missing places of birth are for observations where the candidate was not born in the state in which they are running.

candidate running for office *off* from party *p* at time *t* was born.<sup>9</sup> If a candidate was not born within the state they are running,  $DistBorn_{s,c,t,off,p}$  is set equal to a missing value. Similarly, define  $DistReside_{s,c,t,off,p}$  as the distance between county *c* in state *s* and the county in which the candidate running for office *off* from party *p* at time *t* resides. These two variables are used to construct  $Dist_{s,c,t,off,p}$ , which equals the minimum of  $DistBorn_{s,c,t,off,p}$  and  $DistReside_{s,c,t,off,p}$ .  $Dist_{s,c,t,off,p}$  is then used to construct variables indicating whether one party's candidate has a locational advantage over the other party's candidate in a county in a given election. The most straightforward,  $Home_{s,c,t,off}$ , indicates whether one of the candidates for office *off* in state *s* at time *t* was born or resides in a county *c* that the other was neither born nor resides in. Specifically,

$$Home_{s,c,t,off} = \begin{cases} 1 & \text{if } Dist_{s,c,t,off,dem} = 0 \cup Dist_{s,c,t,off,rep} > 0 \\ -1 & \text{if } Dist_{s,c,t,off,dem} > 0 \cup Dist_{s,c,t,off,rep} = 0 \\ 0 & \text{if } Dist_{s,c,t,off,dem} > 0 \cup Dist_{s,c,t,off,rep} > 0 \\ \emptyset & \text{if } Dist_{s,c,t,off,dem} = 0 \cup Dist_{s,c,t,off,rep} = 0 \end{cases}.$$

Setting  $Home_{s,c,t,off}$  to a missing value when both candidates were either born or reside in the county causes these observations to be excluded from analyses in which this variable is included.

I construct a similar variable,  $WithinX_{s,c,t,off}$ , to indicate whether one of the candidates for office *off* in state *s* at time *t* was born or resides within *X* miles of county *c*, while the other candidate neither was born nor resides within *X* miles of the county. Specifically,

$$WithinX_{s,c,t,off} = \begin{cases} 1 & \text{if } Dist_{s,c,t,off,dem} < X \cup Dist_{s,c,t,off,rep} > X \\ -1 & \text{if } Dist_{s,c,t,off,dem} > X \cup Dist_{s,c,t,off,rep} < X \\ 0 & \text{if } Dist_{s,c,t,off,dem} > X \cup Dist_{s,c,t,off,rep} > X \\ \emptyset & \text{if } Dist_{s,c,t,off,dem} < X \cup Dist_{s,c,t,off,rep} < X \end{cases}.$$

---

<sup>9</sup>The spatial position of the centroid of each county is measured using the coordinates provided by the US Census at <http://www.census.gov/tiger/tms/gazetteer/county2k.txt>. The number of miles between county A and county B is calculated using the formula  $arccos(\sin(lat_a * \pi/180) * \sin(lat_b * \pi/180) + \cos(lat_a * \pi/180) * \cos(lat_b * \pi/180) * \cos((long_a - long_b) * \pi/180)) * 6371 * 0.621371192$ .

## 4 Friends-and-Neighbors Voting in 2010 Elections

This section examines friends-and-neighbors voting in statewide executive office elections in 2010. Because I observe the home counties of candidates for all statewide executive office elections in 2010, I am able to estimate the magnitude of friends-and-neighbors voting using a within election-year design. Specifically, I use a difference-in-difference approach that looks at differences across races in how the Democratic vote share in a county compares to the statewide mean in concurrent races when one party's candidate does and does not have a geographic advantage.

The results presented in this section are applied in three ways in the next section when I estimate the effect of coattails. First, the identification strategy used to identify coattail effects requires that I specify the distance away from a candidate's home county that he or she receives additional personal votes as a result of friends-and-neighbors voting. The results in this section provide an out-of-sample method for choosing this distance. Second, the estimates of the home-county advantage presented in this section provide a benchmark to compare my first-stage regressions in the next section. Specifically, these estimates are used to investigate the role of mobilization as a mechanism leading to friends-and-neighbors voting. Finally, looking at how the home-county advantage varies across different types of counties, races, and candidates helps to illuminate the mechanisms that lead to friends-and-neighbors voting. The contextual patterns observed in friends-and-neighbors voting suggest that friends-and-neighbors voting is caused by increased candidate visibility, which helps justify the assumption of my instrumental variable model that candidates' home counties are unrelated to unmeasured party preferences.

### 4.1 Empirical Specification

Most previous work estimates the magnitude of friends-and-neighbors voting by comparing the vote shares that candidates' receive near their home counties to the vote shares that

they receive in counties further away from their home counties conditional on some observables. A weakness of this approach is that candidates also receive greater support in their home counties for reasons other than friends-and-neighbors voting. For example, my results indicate that candidates are more likely to reside in areas that disproportionately support all candidates from their party. If the observables imperfectly capture this relationship, the magnitude of friends-and-neighbors voting will be overstated. I overcome this identification problem by exploiting variation within states in the home counties of candidates across different statewide executive office races in 2010. The intuition behind my identification strategy is that the differences in how Democratic candidates perform in county A and county B when no candidate has a friend-and-neighbors voting advantage in the county provides an estimate of the counterfactual difference I would expect to observe in races when one candidate does have a geographic advantage in county A, but not county B, if there was no friends-and-neighbors voting. Thus, any systematic differences that are observed in how a party’s candidates perform when they have a geographic advantage can be attributed to friends-and-neighbors voting.

The intuition presented in the previous paragraph is formalized in equation 1. Equation 1 models the vote share received by the Democratic candidate for office  $off$  in state  $s$  in county  $c$  in 2010,  $off_{s,c,2010}$ , as a function of an election-specific fixed effect,  $\lambda_{s,off}$ , a county-specific fixed effect,  $\lambda_{s,c}$ , the home county indicators described in section 3.2,  $Home_{s,c,2010,off}$  and  $WithinX_{s,c,2010,off}$ , the home county indicators interacted with a vector of county, election, and candidate characteristics,  $Z_{s,c,2010,off}$ , and an unobservable component,  $\epsilon_{s,c,2010,off}$ , which is clustered by county. The variables contained in  $Z_{s,c,2010,off}$  are the population of the county, the population of the surrounding area, the previous political experience of the candidates, and the salience of the office.<sup>10</sup>

---

<sup>10</sup>Following Ansolabehere and Snyder (2002), I classify attorney general, lieutenant governor, and secretary of state as high salience down-ballot offices, and all others as low salience down-ballot offices.

$$\begin{aligned}
off_{s,c,2010} &= \lambda_{s,off} + \lambda_{s,c} + (\beta + \theta Z_{s,c,2010,off}) Home_{s,c,2010,off} + \\
&\quad \Sigma_X(\gamma_X + \phi_X Z_{s,c,2010,off}) WithinX_{s,c,2010,off} + \epsilon_{s,c,2010,off}
\end{aligned} \tag{1}$$

By capturing the difference in the average Democratic vote shares across races, the election-specific fixed effects account for differences in the relative quality of candidates across races within a state. The county-specific fixed effects capture the normal deviation off the average statewide Democratic vote share that is observed in a county. The home county effects are estimated by comparing vote shares received by candidates near their home counties to the vote shares implied by the fixed effects. The main effects are identified from variation in the home counties of candidates across the offices. The interactions are also identified off variation in the types of counties that candidates are from, the salience of different statewide executive offices, and variation in the previous political experiences of candidates.

## 4.2 Results

The first two columns of Table 2 illustrate that a party’s candidates tend to come from counties that disproportionately support the party relative to other counties in the state. The first column shows that candidates receive a 7.1 percentage point (s.e. 0.9 percentage points) greater vote share in their home counties than they do in counties where neither candidate has a home county advantage. However, this point estimate goes down by more than 50%, to 3.2 percentage points (s.e. 0.4 percentage points), when county fixed effects are included in column two. This attenuation suggests that a party’s candidates tend to come from counties within the state where that party is more popular than average, and so any method used to measure the home county advantage that does not fully account for the types of counties that candidates come from is likely to overstate the magnitude of

friends-and-neighbors voting.

The remainder of Table 2 illustrates that this advantage attenuates, but does not disappear, in counties close to a candidate's home counties. Relative to counties more than 25 miles away, candidates receive a 1.5 percentage point (s.e. 0.2 percentage points) increase in their vote share in counties within 25 miles of a home county, as compared to a 3.6 (i.e., 1.5 + 2.1) percentage point increase in their home county. The friends-and-neighbors advantage appears to taper off after about 50 miles, although even in counties between 75 and 100 miles away candidates receive about a 0.4 percentage point (s.e. 0.1 percentage points) greater vote share as compared to counties over 100 miles away. Based on these results, I use a radius of 50 miles to define a candidate's home area in my instrumental variable regressions in Section 5.

I next turn to looking at the moderators of the home county advantage. Previous work identifies population and incumbency as two important moderators, with less-populated areas demonstrating more, and incumbents benefiting less, from friends-and-neighbors voting (Lewis-Beck and Rice, 1983; Rice and Macht, 1987*a*). I also consider two additional moderators not considered in previous analyses: previous local political experience and the salience of the office. Previous work finds that candidate visibility is an important determinant of the personal vote in statewide executive office elections (Beck et al., 1992). As candidates with local or legislative political experience are likely to be relatively more visible in their home areas, this experience should increase the home county advantage. Expectations about how the salience of the office affects the home-county advantage are more ambiguous. The home county advantage may be larger in elections for less salient offices because there are fewer ways for non-local candidates to become visible. Voters also may put more weight on valence relative to ideological preferences in less salient elections, because office-holders have less policy influence. However, voters may be less aware of the hometowns of candidates in less salient elections. Also, voters may perceive that they benefit less from a local representation in an office that controls fewer resources.

Consistent with previous work, I find population is an important moderator of the magnitude of friends-and-neighbors voting. Figure 1 illustrates the relationship between the home candidate advantage and the size of the county. It shows that nearly all candidates perform better than non-local candidates from their party in their home county, with the greatest advantage coming in less populated counties. Table 3 shows that the increase in vote share ranges from 11.6 percentage points (s.e. 3.4 percentage points) in counties with less than 10,000 residence to 1.1 percentage points (s.e. 0.4 percentage points) in counties with more than 1,000,000 residents. The population of the area has less effect on the magnitude of friend-and-neighbors voting in nearby counties, with candidates averaging a 1.6 percentage point increase vote share in counties within 50 miles of their home county when the total population is less than 100,000 residents, but only a 0.6 percentage point increase when the total population is above 100,000 residents.

While the percentage point increase in vote share is greatest in less populated home counties, these point estimates suggest that the total number of friends-and-neighbors votes is maximized in large counties. For example, about 1,700 total votes were cast on average in a home county with a population under 10,000, implying that a home county candidate received about 200 more votes (i.e.,  $1700 \cdot .116$ ) in these counties. As a point of comparison, about 122,000 total votes were cast in home counties with populations between 100,000 and 1,000,000, implying that a home county candidate received about 2,000 more votes in these counties. The difference in the total number of friends-and-neighbors votes becomes even more pronounced when neighboring counties are considered in this calculation. This suggests that, holding all else constant, it is in a party's strategic interest to nominate candidates from more populated areas

The differences in the home county advantage observed with respect to previous political experience also largely line-up with expectations. Current local political office holders get about a 2.6 (i.e.,  $.021 + .005$ ), 2.1, and 1.2 percentage point greater increase in their vote share in their home counties than candidates who currently hold no political office, hold a

statewide office, and hold a legislative office respectively.<sup>11</sup> Current state legislators receive the greatest benefit in counties' within 50 miles of their home county, receiving about a 0.9, 0.9, and 0.4 percentage points larger increase in their vote share in these counties than candidates who currently hold no political office, hold a statewide office, and hold a local political office respectively.<sup>12</sup> These results are consistent with candidates who hold regional office getting disproportionate support from those voters among whom they are relatively more visible.

Finally, Table 3 shows that there is more friends-and-neighbors voting in elections for low salience offices. Candidates running for a low salience statewide executive office receive about a 2.2 percentage point ( $p = 0.113$ , two-tailed) greater home county advantage than candidates running for governor and about a 1.5 percentage point ( $p = 0.096$ , two-tailed) greater home county advantage than candidate running for high salience down-ballot offices. Likewise, candidates in low salience elections receive 0.4 percentage points ( $p = 0.128$ , two-tailed) greater advantage than gubernatorial candidates and 0.4 percentage points ( $p = 0.080$ , two-tailed) in counties within 50 miles of a candidate's home county.

It is important to consider the implications of using a within election-year design when interpreting these results. As these are concurrent elections, the same subset of the electorate has turned out to vote in all of races in a given state. Auxiliary analyses show that home county candidates do not significantly affect abstention or support for third party candidates.<sup>13</sup> Thus, the results in this section provide a benchmark of magnitude of the friends-and-neighbors voting conditional on nearly a common set of voters participating in each race.

Coattails may cause me to underestimate the magnitude of friends-and-neighbors voting

---

<sup>11</sup>These three differences are statistically different from zero using a two-tailed test at the  $p = 0.007$ ,  $p = 0.017$ , and  $p = 0.057$  levels respectively.

<sup>12</sup>These three differences are statistically different from zero using a two-tailed test at the  $p = 0.001$ ,  $p = 0.005$ , and  $p = 0.118$  levels respectively.

<sup>13</sup>I show this by estimating a modified version of equation 1 where I change the dependent variable to be the natural log of the total number of Democratic and Republic votes and I change the home county indicator to be equal to one if either a Democratic or Republican candidate has a home county advantage in the county. The estimated coefficient on the modified home county indicator is 0.0057 (s.e. 0.0043).

using a within election-year design. An assumption necessary for equation 1 to identify the home county advantage is that the differences in the Democratic vote share in a county and the rest of the state in a race where neither candidate has a geographic advantage in the county provides a good estimate of what the the difference would be in races where one candidate does have a geographic advantage in the county, but for friends-and-neighbors voting. Coattails cause this assumption to be violated because some of the increase in the personal vote received by candidates in their home county is reflected in the vote shares of candidates from their party who don't have a locational advantage. A consequences is that equation 1 underestimates the magnitude of friend-and-neighbors voting in the presence of positive coattails. Indeed, if gubernatorial coattails affect down-ballot races, but down-ballot coattails do not affect gubernatorial races, this could contribute to the negative interaction between governor and friends-and-neighbors voting highlighted in the previous paragraph.<sup>14</sup>

## 5 Coattail Effects

### 5.1 Empirical Specification

The section focuses on estimating:

$$select\_db_{s,c,t} = g(gov_{s,c,t}, X_{s,c,t}, Z_{s,c,t}), \quad (2)$$

where  $X_{s,c,t}$  and  $Z_{s,c,t}$  are vectors of the observable and unobservable determinants of down-ballot vote shares in state  $s$  and county  $c$  at time  $t$  respectively. Estimating equation 2 is difficult as both the elements of  $X_{s,c,t}$  and the function relationship of  $g()$  are largely

---

<sup>14</sup>The results in Table 3 indicate that the magnitude of the home county advantage is 22% lower in gubernatorial elections than in high salience down-ballot elections. One explanation for this result is that gubernatorial and high-salience down-ballot candidates receives an equal home county advantage, but while gubernatorial candidates do not benefit electorally from friends-and-neighbors voting for down-ballot candidates from their party, every friends-and-neighbors vote for a gubernatorial candidate translates into 0.22 additional votes for the high-salience down-ballot candidates from his or her party. The point estimates reported in the next section describe something very close to this scenario.

unknown to the researcher. Moreover, it is likely that at least some elements of  $Z_{s,c,t}$  also affect  $gov_{s,c,t}$ . This creates concern that any estimated relationship between  $select\_db_{s,c,t}$  and  $gov_{s,c,t}$  suffers from omitted variable bias.

I exploit my panel data and knowledge of candidates' county of birth and county of residence to overcome these identification problems. Panel data is used to estimate a *normal vote* in each county, which Converse (1966) defines as the long-run tendency of an area to support a party's candidate. This is estimated by comparing how a party's vote share in a county compares to the party's vote share statewide across multiple elections. Having a relatively long time-series within the panel allows me to overcome Miller's (1979) critique of measures of the normal vote that do not account for the possibility of time trends. I use knowledge of candidates' county of birth and county of residence to isolate deviations off this normal vote that are due to an increase in the personal vote. I then look at whether the increase in personal vote that a candidate receives in and near their county of birth and residence causes other candidates from their party to perform better than would be expected given the normal down-ballot vote in county.

Equation 3 shows the approach used to model down-ballot vote shares. Following previous work by Levitt and Wolfram (1997) and Ansolabehere and Snyder (2002), I use a combination of fixed effects to estimate the normal vote in a county.<sup>15</sup> In Equation 3,  $\lambda_{s,t}$  captures a uniform shift in Democratic vote share across all counties in state  $s$  at time  $t$  relative to an excluded state-year. Similarly,  $\lambda_{s,c}$  captures the normal difference in the Democratic vote share in county  $c$  in state  $s$  related to an excluded county in state  $s$ . In some specifications  $\tau_{s,c}$  is included to allow this fixed effect to trend linearly with respect to time.

$$select\_db_{s,c,t} = \lambda_{s,t} + \lambda_{s,c}(1 + \tau_{s,c,t}) + \phi f(Dist_{s,c,t,select,dem}, Dist_{s,c,t,select,rep}) + \beta gov_{s,c,t} + \eta_{s,c,t} \quad (3)$$

---

<sup>15</sup>This approach dates back to at least Bean (1948), who shows how presidential elections could have been successfully predicted by looking at the deviation off the normal vote in Maine's statewide elections three months prior.

A concern with estimating (3) with OLS is that it is likely that  $E[\eta_{s,c,t} \mid gov_{s,c,t}] \neq 0$ , violating one of the identification assumptions necessary for OLS to produce consistent estimates. This identification assumption is likely to fail because at least some of the short-term forces causing down-ballot vote shares to deviate from their normal vote in a county are likely to reflect general party preferences. To overcome this identification problem, I instrument for  $gov_{s,c,t}$  using Equation 4. The exclusion restriction necessary for Equation 4 to be a valid instrument is that  $E[\eta_{s,c,t} \mid f(Dist_{s,c,t,gov,dem}, Dist_{s,c,t,gov,rep})] = 0$ , where  $f(Dist_{s,c,t,gov,dem}, Dist_{s,c,t,gov,rep})$  is a vector of variables indicating which, if either, gubernatorial candidate has a geographic advantage in county  $c$ .

$$gov_{s,c,t} = \gamma_{s,t} + \gamma_{s,c}(1 + \theta_{s,c,t}) + \zeta f(Dist_{s,c,t,gov,dem}, Dist_{s,c,t,gov,rep}) + \psi f(Dist_{s,c,t,select,dem}, Dist_{s,c,t,select,rep}) + \epsilon_{s,c,t} \quad (4)$$

I parametrize  $f(Dist_{s,c,t,gov,dem}, Dist_{s,c,t,gov,rep})$  in a number of different ways in order to test the robustness of the results to different specifications. The baseline specification defines  $f(Dist_{s,c,t,gov,dem}, Dist_{s,c,t,gov,rep}) = Home_{s,c,2010,gov}$ , so a candidate is defined to have a geographic advantage if he or she was born or resides in a county that the other candidate was neither born nor resides in. Building off the results in Table 2, a second specification also includes the indicator  $Within50_{s,c,2010,gov}$  to exploit the increased personal vote that candidates receive in counties that are within 50 miles of a home county of one candidate, but not the other. A final specification builds off the results in Table 3 and includes the interaction between  $Home_{s,c,2010,gov}$  and the population of the county to exploit the fact that friends-and-neighbors voting is more prevalent in less populated counties.

## 5.2 Results

### 5.2.1 Baseline Results

Consistent with previous work, Table 4 and Table 5 show positive associations in deviations off the normal vote in a county in top- and down-ballot races across time. Table 4 reports that when Equation 3 is estimated using OLS, a one percentage point increase in the Democratic gubernatorial vote share in a county associates with a 0.425 and 0.257 percentage point increase in the Democratic vote share in the secretary of state and attorney general races when county time trends are excluded and included respectively. It is on the basis of these types of regressions that much of the previous work infers that top-ballot candidate coattails affect down-ballot races. Interestingly, similar associations are reported in Table 5 when Equation 3 is reversed so that gubernatorial vote shares are regressed on down-ballot vote shares: a one percentage increase in Democratic down-ballot vote share is associated with a 0.425 and 0.320 percentage point increase in Democratic gubernatorial vote share when time trends are excluded and included respectively. If these associations are capturing coattails, this would imply that down-ballot candidates have a similar influence on top-ballot races as top-ballot candidates have on down-ballot races.

Column two of Table 4 shows that I continue to find significant relationship of gubernatorial vote share on down-ballot vote share using my baseline instrumental variable approach. The point estimate from my first-stage regression indicates that gubernatorial candidates receive a 3.79 percentage point (s.e. 0.45 percentage point) increase in their vote share in counties where they were born in or resided in prior to entering statewide office when county time trends are excluded. Using this as my source of variation in the personal vote received by gubernatorial candidates, I estimate that a one percentage point in the personal vote for governor increases the vote share of down-ballot candidates by 0.227 percentage points (s.e. 0.081 percentage points). Including county time trends causes the estimated effect size to decrease slightly from 0.227 to 0.171 (s.e. 0.074).

Similar results are observed in Table 4 when indicators for being within 50 miles of a home county are also used as instruments. Candidates are estimated to receive an additional 1.44 percentage points (s.e. 0.13 percentage points) and 1.53 percentage points (s.e. 0.16 percentage points) in these counties when county time trends are excluded and included respectively. The corresponding estimated coattail effect is that a one percentage point increase in the personal vote received by a gubernatorial candidate increases the vote share of secretary of state and attorney general candidates by 0.188 percentage points (s.e. 0.052 percentage points) and 0.172 percentage points (s.e. 0.050 percentage points) when county time trends are excluded and included respectively.

### **5.2.2 Robustness Tests**

I believe that my instruments are well-suited for identifying coattail effects. One concern when using instrumental variables is that estimates may be biased if the instruments lack sufficient explanatory power over the instrumented variable or variables. The F-statistics on the hypothesis test that the place of birth and residence of gubernatorial candidates have no explanatory power on gubernatorial vote shares demonstrate that my instruments have five to ten times the explanatory power necessary to satisfy the rule-of-thumb suggested by Stock, Wright and Yogo (2002) to alleviate such weak instrument concerns. Moreover, the findings in Section 4.1 suggest that candidates are performing better in their home counties because of their increased visibility, which is idiosyncratic to individual races. However, these instruments are subject to the standard concerns about using observational instrumental variables highlighted by Sovey and Green (2011). The primary threat to the internal validity of my approach is that candidates may come from counties where a party is going to perform better than my model predicts absent any coattail effects. The results in Table 2 suggest that a party's candidates in 2010 were more likely to come from counties where non-local candidates from their party also perform better than average. While county fixed effects and time-trends are included to control for this relationship, they may do so imperfectly. This

could occur, for example, if candidates win primaries on the basis on their local area being unusually supportive of their party in a given election cycle.

While I cannot directly test whether the place of birth and residence of candidates are related to unobserved party preferences, I perform a number of indirect tests in this subsection to investigate this possibility. One initial piece of evidence comes from looking at whether estimates of the home county advantage are affected by the inclusion of county specific time trends. If a party's gubernatorial candidates tend to come from areas where the party is currently popular, then shifts in the place of birth and residence of a party's candidates across time may relate to shifts in the relative popularity of the party across counties. Such a pattern would result in the first-stage relationship of gubernatorial home county on gubernatorial vote share being attenuated by the inclusion of county specific time trends. In contrast, Table 4 shows that the estimated increase in a gubernatorial candidate's personal vote in their home counties is a nearly identical 3.79 percentage points (s.e. 0.45 percentage points) and 3.80 percentage point (s.e. 0.52 percentage points) when time trends are excluded and included respectively. Likewise, the estimated increase in a candidate's vote share in counties within 50 miles of their home counties is 1.44 percentage points (s.e. 0.13 percentage points) and 1.53 percentage points (s.e. 0.16 percentage points) when time trends and excluded and included respectively. Finding similar relationships when county time trends are excluded and included indicates that changes across time in the home counties of candidates are not related to linear trends in a party's vote share.

I also explore whether heterogeneity in the increase in down-ballot candidates' vote shares in the home counties of their party's gubernatorial candidate is consistent with the heterogeneity that would be expected if this relationship was caused by coattail effects. The first test exploits variation across states in whether the gubernatorial election is held concurrently with the presidential election. Because gubernatorial coattails are expected to be largest in elections where the governor is running at the top of the ticket, I expect to observe smaller estimates of gubernatorial coattails in gubernatorial elections held concurrently with

the presidential election. The second test exploits variation in the magnitude of the home county advantage across different types of counties. The results in Table 3 indicate candidates receive a greater home county advantage in less populated counties. If the increase in a party's down-ballot vote share in the home counties of gubernatorial candidates is caused by coattail effects, I expect that the largest increase in down-ballot vote share should be observed in the less-populated home counties of governors.

Table 4 presents some suggestive evidence that gubernatorial coattails are smaller when the governor is elected concurrently with the president. Using a variety of different specifications, I estimate a significant coattail effect when gubernatorial elections are separately from the presidential election, and a smaller, insignificant coattail effect when gubernatorial elections are held concurrently with the presidential election. The coefficients and standard errors on the interaction term between gubernatorial vote share and presidential election in Table 4 indicate that the difference in the estimated coattail effects in gubernatorial elections that are concurrent and non-concurrent with the presidential election is usually just shy of obtaining statistical significance at conventional levels. Thus, while the evidence is not conclusive, the patterns are consistent with my expectations about which sort of gubernatorial elections should generate the largest coattail effects.

Table 4 also shows that similar coattail effects estimates are obtained when information about the population of home counties is incorporated into the analysis. Just like in the previous section, Table 4 indicates that home county candidates receive a larger increase in their vote share in less populated counties. For example, gubernatorial candidate's vote shares are estimated to increase by about seven percentage points in home counties with a population under 10,000, as compared to about two percentage point increase in home counties with populations above 100,000. The point estimates obtained when the interactions of home county and population are used as instruments are very similar to the point estimates obtained using the baseline model, although incorporating the additional information reduces

the standard errors.<sup>16</sup>

Two additional tests further investigate whether the home counties of gubernatorial candidates relate to unmeasured party preferences. If the process that selects gubernatorial candidates causes their place of birth and residence to relate to unmeasured party preferences, then I also expect that the down-ballot candidate selection process would cause their place of birth and residence to relate to unmeasured party preferences. Thus, I examine whether the home counties of down-ballot candidates positively associate with the vote shares received by gubernatorial candidates from their party. The second test looks at whether the home counties of governors significantly relate to the performance of candidates from their party in non-concurrent elections that occur in relatively close proximity to the gubernatorial election. If home counties are proxying for unmeasured party preferences, then I expect that these unmeasured party preferences would also relate to how the county votes in other elections that are held in close proximity. Specifically, I investigate whether presidential candidates perform better in the home counties of gubernatorial candidates who participate in a gubernatorial election in the years immediately preceding or following a presidential election.

Table 5 shows that governors do not perform significantly better in the home counties of down-ballot candidates from their party. Much like gubernatorial candidates, Table 5 shows that secretary of state and attorney general candidates receive about a four percentage point increase in their vote share in their home counties. However, estimates of the coattail effect are generally statistically insignificant and negative, indicating that gubernatorial candidates perform no better than expected in these counties.<sup>17</sup> If the candidate selection process resulted in candidates coming from counties where a party is unusually popular in a given election-year, then it would be expected that the home counties of down-ballot candidates

---

<sup>16</sup>Table A.1 shows the reduced form of down-ballot vote share on the instruments on the interaction between home county and population.

<sup>17</sup>In some specifications without time trends, a significant *negative* effect of down-ballot vote share on gubernatorial vote share is estimated. These estimates are not robust to the inclusion of time trends.

would also positively relate to gubernatorial candidate performance.<sup>18</sup> Thus, the results in Table 5 suggest both that there are not reverse coattails from down-ballot candidates onto gubernatorial candidates and that candidates are not generally selected from counties where their party is going to run particularly strong in a given election-year.

I also find that presidential candidates do not perform significantly better in the home counties of gubernatorial candidates running in non-concurrent elections in close proximity to the presidential election. Specifically, I reestimate the first-stage regressions in Table 4 using two-party Democratic presidential vote share as my dependent variable.<sup>19</sup> The results shows that presidential candidates do 0.07 percentage points (s.e. 0.32 percentage points) and 0.07 percentage points (s.e. 0.20 percentage points) worse in the home counties of gubernatorial candidates when time trends are excluded and included respectively. Similar patterns are found when indicators for being within 50 miles of a home county are included. Observing that a party's candidate do not perform better than expected in the home counties of gubernatorial candidates in elections held in relatively close proximity to the gubernatorial election again suggests that home counties of gubernatorial candidates are not proxying for unmeasured party preferences.

This subsection concludes by looking at whether the effect of gubernatorial coattails on secretary of state and attorney general races generalizes across a broader set of down-ballot races. One disadvantage of looking at a broader set of races is that I do not observe the home counties of candidates for other down-ballot races. This is problematic because there is reason to expect that the home counties of gubernatorial and down-ballot candidates will be related. Because gubernatorial candidates often hold down-ballot office prior to running for governor, I expect there to be a negative relationship between when gubernatorial and down-ballot candidates have a geographic advantage from a county. Not accounting for the

---

<sup>18</sup>A significant positive relationship could also indicate a coattail effect of secretary of state and attorney general on gubernatorial performance.

<sup>19</sup>I regress presidential vote share on the home counties of gubernatorial candidates in elections that take place one year prior to two year after a presidential election. Thus, presidential vote share in 1988 is regressed on the home counties of gubernatorial candidates in 1987, 1989, and 1990, dropping gubernatorial elections that take place in 1988 from the analysis.

decrease in down-ballot vote share that occurs when a hometown down-ballot candidate runs for governor will likely cause me to underestimate the coattail effect. This prediction is born out in Table A.2, which shows how the estimated coefficients in Table 4 attenuate towards zero when information about the home counties of down-ballot candidates is omitted, particularly when time trends are included.<sup>20</sup>

Table 6 shows that the estimated coattail effects are slightly smaller when we look across all races rather than just the secretary of state and attorney general race. When home counties of the gubernatorial candidate are used to instrument for gubernatorial vote share, a one percentage point increase in gubernatorial vote share is estimated to increase their party's average down-ballot vote share by 0.160 percentage points (s.e. 0.063 percentage points) and 0.087 percentage points (s.e. 0.053 percentage points) when county time trends are excluded and included respectively.<sup>21</sup> As a point of comparison, the corresponding results when I just focus on the secretary of state or attorney general race in Table A.2 is 0.204 (s.e 0.084) and 0.119 (s.e. 0.076) respectively. This general pattern holds across almost all of the different combinations of instruments. In contrast, Table A.4 shows that other candidates perform no better in the home counties of down-ballot candidates. Observing that the patterns in Table 4 and 5 hold across all down-ballot races provides additional support that my instruments are capturing a coattail effect.

### 5.2.3 Mechanisms

The first-stage increase in a candidate's vote share near their place of birth and residence is caused by some combination of supporters of a home county candidate's party being more likely to vote, opponents of a home-county candidate's party being less likely to vote, and opponents of a home county candidate's party being persuaded to change their vote. These different potential sources of the home-county advantage have implications for the

---

<sup>20</sup>When home county is used as the instrument, the estimated coattail effect drops from 0.227 to 0.204 when time trends are excluded, and 0.171 to 0.119 when time trends included. Similar patterns are found when other combinations of instruments are used.

<sup>21</sup>The reduced form results underlying the estimates in Table 6 are displayed in Table A.3.

mechanisms causing down-ballot candidates to perform better in their party's gubernatorial candidate's home counties. An increase in the proportion of voters who support the party of the local candidate is consistent with Campbell's (1964) theory that coattails are caused by top-ballot candidates mobilizing a party's marginal voters, who in-turn support the party's down-ballot candidates. In contrast, observing that individuals who are persuaded to support local gubernatorial candidates are also persuaded to support down-ballot candidates from the party of the local gubernatorial candidate is consistent with Mondak and McCurley's (1994) cognitive dissonance theory.

The aggregated data I use to estimate coattail effects in this paper are not well suited for identifying these individual-level mechanisms. However, it can provide some evidence about the possible role of mobilization in causing friends-and-neighbors voting. The first piece of evidence comes from comparing the magnitude of the home county advantage estimated in Section 4.2 and Section 5.2.1. As previously discussed, the 3.2 percentage point increase in vote share received by candidates in their home counties in 2010 is conditional on nearly the same subset of the electorate voting. In contrast, the estimates of the home county advantage in Section 5.2.1 can result from a different subset of the electorate turning out to vote in elections with local candidates. However, the fact that the estimates of the home county advantage in this section are only slightly larger (e.g., 3.8 percentage points for gubernatorial candidates, 4.3 percentage points for down-ballot candidates) suggests that mobilization is not the primary mechanism leading to the home county advantage.

To further investigate the effect of local candidates on turnout, I reestimate equation 4, replacing the home county indicators with their absolute values and the dependent variable with the natural log of the total votes cast in the selected down-ballot race. The results in Table 7 suggest that the total number of votes cast in a down-ballot race is significantly higher in the home county of gubernatorial candidates. This finding suggests that Rice and Macht's (1987*b*) conclusion that having local candidates increases turnout generalizes beyond the 24 gubernatorial elections in 1982 that they study. The point estimates suggest that the

number of down-ballot votes cast increases by a little over two percent in a gubernatorial candidate's home counties, which when assuming a turnout rate of about 50% translates into just over a one percentage point increase in turnout. Unless having a local candidate demobilizes voters who would otherwise vote against the local candidate, this suggests that mobilization cannot explain a majority of the home-county advantage. Rather, it suggests that the home-county advantage primarily is caused by people voting for the local candidate who would otherwise support the non-local candidate's party.

While these findings suggest that persuasion is the primary mechanism causing the home county advantage, I cannot rule out that mobilization is an important source of the coattail effect. The estimates of the coattail effect are based on down-ballot candidates performing about one percentage point better in the home counties of gubernatorial candidates from their party. Thus, mobilization could explain all of the coattail effect if the results in Table 7 are caused by an increase in turnout among supporters of the local gubernatorial candidate's party. However, the characteristics of voters whose turnout is marginal with respect to having a local candidate could also roughly mirror the average voter in the county. Thus, I leave it to future research using individual-level data to better sort out the mechanisms that lead to these coattail effects.

## 6 Discussion

In this paper I estimate the effect of gubernatorial coattails in down-ballot statewide executive office elections. My point estimates indicate that a one percentage point increase in the personal vote received by a gubernatorial candidate increases the vote share of secretary of state and attorney general candidates from their party by a little less than 0.2 percentage points. Slightly smaller estimates are obtained when I look at a broader set of down-ballot races. In contrast, increases in the personal vote received by down-ballot candidates have no effect on the performance of other candidates from their party.

These results have implications for the design of electoral institutions. From an electoral design perspective, coattail effects are important when holding two elections concurrently affects the outcome of the less salient election. A large coattail effect could result in lower quality candidates from the victorious gubernatorial candidate's party being elected to down-ballot office instead of a higher quality candidate from from the losing gubernatorial candidate's party. Previous work generally finds that a one percentage point increase in the personal vote received by a presidential candidate increases the vote share of his party's House candidates by 0.3 to 0.5 percentage points. These estimates imply that presidential candidates that receive ten percentage points more of the personal vote can cause House candidates from their party to win office that would otherwise lose by somewhere between three and five percentage points. The associations I estimate in my data using OLS imply a similar relationship between gubernatorial and down-ballot statewide executive office candidates. In contrast, my instrumental variable point estimates indicate that a ten percentage point increase in the personal vote received by a gubernatorial candidate only will affect the outcome of down-ballot elections where his or her party would otherwise lose by less than two percentage points. This constitutes a substantially smaller share of races than either previous research or the OLS relationship between gubernatorial on down-ballot vote shares would suggest. The difference between my OLS and instrumental variable estimates also suggest that previous estimates of presidential coattails may substantially overstate their substantive significance.

Coattail effects could also significantly affect the incentives of down-ballot office holders. The existence of a significant coattail effect raises the question of whether the electoral fortunes of down-ballot office holders are tied too closely to concurrently elected gubernatorial candidates for them to have incentive to represent their constituents interests. In the extreme case where down-ballot votes are simply a reflection of vote choice in the top-ballot election, there is no relationship between an incumbent's performance in office and whether he or she is reelected. Under such a scenario, coattail effects eliminate the incentive for down-ballot

candidates to better represent their constituents in order to gain personal votes. A more complete model of elections is needed to understand the consequences of my estimates on the coattail effect on the incentives of down-ballot office holders to represent their constituents. However, my estimates do suggest that down-ballot statewide executive office elections are sufficiently independent from gubernatorial elections that down-ballot office holders still have incentive to cultivate a personal vote.

When thinking about the implications of my coattail effect estimates for the design of electoral institutions, it is useful to benchmark the effect of coattails relative to the effect of changing the pool of voters that show-up to vote in concurrent versus separate elections. McDonald (2010) shows that the average turnout rate drops by about 20 percentage points in recent midterm elections relative to presidential elections. Moreover, this turnout drop is not uniformly distributed across groups, as young, minority, and less education citizens comprise a smaller percentage of the voter pool in recent midterm elections relative to recent presidential elections.<sup>22</sup> The turnout consequences are likely to be even relatively more important as a result of local reforms like the Hoboken, New Jersey's municipal election consolidation discussed in Section 1 (Hajnal and Lewis, 2003). Thus, unless there is a particularly strong gubernatorial candidate on top of the ticket, the turnout effects of switching from on-cycle to off-cycle election are likely to be more consequential than coattail effects.

My findings also have implications for the research designs used to study the personal vote. An intuitive empirical strategy to study the personal vote is to look how elections results vary across concurrent elections as a function of characteristics of a race. For example, in section 4 of this paper I estimated the effect of friends-and-neighbors voting by looking at how hometown candidates perform in a home county as compared to other candidates from their party without a geographic advantage in the county (see Ansolabehere and Snyder (2002); Gerber, Kessler and Meredith (2011) for other studies using a similar design). An advantage of such an approach, which is highlighted by this paper, is that party preferences

---

<sup>22</sup>Author calculation from Consumer Population Survey turnout data at <http://www.census.gov/hhes/www/socdemo/voting/publications/historical/index.html>.

tend to be stable across races, so that variation in the vote share of a party's candidate in one race usually explains a significant amount of variation in the vote share of a party's candidate in another race. However, a potential for post-treatment bias is introduced if the performance in the party in the first race affects the performance of party in the second race. In particular, the finding of significant gubernatorial coattail effects suggest that down-ballot races, particularly those that are high salience, do not make good control races from which to benchmark the personal vote in gubernatorial races. However, the finding that personal votes for down-ballot candidates do not affect the performance of other candidates from their party suggest that down-ballot races do make good control races from which to benchmark the personal vote in other down-ballot races

One caveat when considering these results is the local average treatment effect, or LATE, property of instrumental variable regression (Imbens and Angrist, 1994). The LATE property states that the effects identified by instrumental variables are for those units whose treatment assignment is affected by the instrument. As the instrument in this paper is the geographic proximity of candidates, this means that I am identifying coattail effects for those voters whose political behavior is influenced by the county of birth or residence of candidates. There is no guarantee that the magnitude of the coattail effects for these types of voters will necessarily be the same as the magnitude of the coattail effects for voters whose gubernatorial votes are influenced by other features of candidates like their religion or previous political experience. More research is needed to understand the extent to which coattail effects vary depending on the source of the personal vote for the top-ballot candidate

Finally, while the focus of this study is on statewide executive office elections, the method I use is portable to other types of elections both in the United States and elsewhere. Geography has been shown to affect voter behavior in numerous electoral contexts. This creates the potential for friends-and-neighbors voting to be exploited in other contexts in order to benchmark how the magnitude of coattail effects compare across different types of offices, electoral systems, and types of voters.

## References

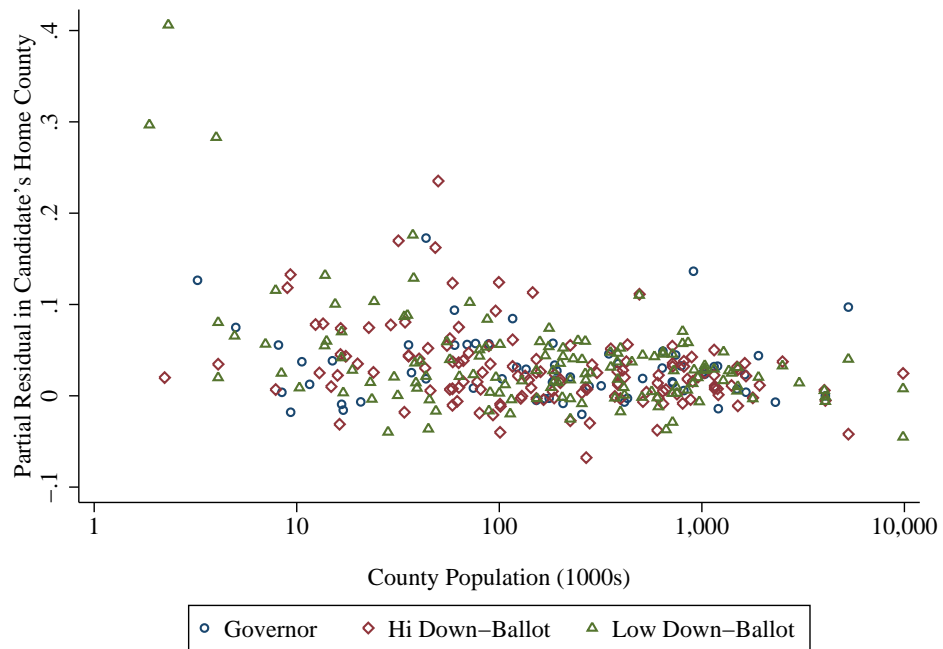
- Ade, Florian and Ronny Freier. 2011. Divided government versus incumbency externality effect: Quasi-experimental evidence on multiple voting decisions. German Institute for Economic Research Discussion Paper 1121.
- Alesina, Alberto and Howard Rosenthal. 1996. "A theory of divided government." *Econometrica* 64(6):1311–1341.
- Ansolabehere, Stephen and James M. Snyder. 2002. "The incumbency advantage in U.S. elections: An analysis of state and federal offices, 1942-2000." *Election Law Journal* 1(3):315–338.
- Anzia, Sarah F. 2011. "Election timing and the electoral influence of interest groups." *Journal of Politics* 73(2):412–427.
- Anzia, Sarah F. In Press. "Partisan power play: The origins of local election timing as an american political institution." *Studies in American Political Development* .
- Bean, Louis H. 1948. *How to predict elections*. New York : Alfred A. Kropf.
- Beck, Paul Allen, Lawrence Baum, Aage R. Clausen and Charles E. Smith, Jr. 1992. "Patterns and sources of ticket splitting in subpresidential voting." *American Political Science Review* 86(4):916–928.
- Berry, Christopher R. and Jacob E. Gersen. 2010. "The timing of elections." *University of Chicago Law Review* 77(1):37–64.
- Berry, Christopher R. and Jacob E. Gersen. 2011. "Election timing and public policy." *Quarterly Journal of Political Science* 6(2):103–135.
- Besley, Timothy and Stephen Coate. 2003. "Elected versus appointed regulators: Theory and evidence." *Journal of the European Economic Association* 1(5):1176–1206.
- Bowler, Shaun, Todd Donovan and Joseph Snipp. 1993. "Local sources of information and voter choice in state elections." *American Politics Research* 21(4):473–489.
- Broockman, David E. 2009. "Do congressional candidates have reverse coattails? Evidence from a regression discontinuity design." *Political Analysis* 17(4):418–434.
- Brown, Adam R. 2011. "Wikipedia as a data source for political scientists: Accuracy and completeness of coverage." *PS: Political Science & Politics* 44(2):339–343.
- Calvert, Randall L. and John A. Ferejohn. 1983. "Coattail voting in recent presidential elections." *American Political Science Review* 77(2):407–419.
- Campbell, Angus. 1964. "Voters and elections: Past and present." *Journal of Politics* 26(4):745–757.

- Converse, Philip E. 1966. The concept of the normal vote. In *Elections and the political order*, ed. Angus Campbell, Philip E. Converse, Warren E. Miller and Donald E. Stokes. New York: John Wiley and Sons, Inc.
- Fair, Ray C. 2009. "Presidential and congressional vote-share equations." *American Journal of Political Science* 53(1):55–72.
- Ferejohn, John A. and Randall L. Calvert. 1984. "Presidential coattails in historical perspective." *American Journal of Political Science* 28(1):127–146.
- Folke, Olle and James M. Snyder. 2011. Gubernatorial midterm slumps. Columbia *mimeo*.
- Garver, F. H. 1909. "Nine elections in one year." *American Political Science Review* 3(3):433–435.
- Gerber, Alan S., Daniel P. Kessler and Marc Meredith. 2011. "The persuasive effects of direct mail: A regression discontinuity based approach." *Journal of Politics* 73(1):140–155.
- Gimpel, James G., Kimberly A. Karnes, John McTague and Shanna Pearson-Merkowitz. 2008. "Distance-decay in the political geography of friends-and-neighbors voting." *Political Geography* 27(2):231–252.
- Hainmueller, Jens and Holger Lutz Kern. 2008. "Incumbency as a source of spillover effects in mixed electoral systems: Evidence from a regression-discontinuity design." *Electoral Studies* 27(2):213–227.
- Hajnal, Zoltan L. and Paul G. Lewis. 2003. "Municipal institutions and voter turnout in local elections." *Urban Affairs Review* 38(5):645–668.
- Imbens, Guido W. and Joshua D. Angrist. 1994. "Identification and estimation of local average treatment effects." *Econometrica* 62(2):467–475.
- Key, V. O. 1949. *Southern politics in state and nation*. New York: A. A. Knopf.
- Kramer, Gerald H. 1971. "Short-term fluctuations in US voting behavior, 1896-1964." *American Political Science Review* 65(1):131–143.
- Levitt, Steven D. and Catherine D. Wolfram. 1997. "Decomposing the sources of incumbency advantage in the U.S. house." *Legislative Studies Quarterly* 22(1):45–60.
- Lewis-Beck, Michael S. and Tom W. Rice. 1983. "Localism in presidential elections: The home state advantage." *American Journal of Political Science* 27(3):548–556.
- McDonald, Michael P. 2010. "Voter turnout in the 2010 midterm election." *Forum* 8(4):Article 8.
- Miller, Arthur H. 1979. "Normal vote analysis: Sensitivity to change over time." *American Journal of Political Science* 23(2):406–425.

- Miller, Warren E. 1955. "Presidential coattails: A study in political myth and methodology." *Public Opinion Quarterly* 19(4):353–368.
- Mondak, Jeffery J. and Carl McCurley. 1994. "Cognitive efficiency and the congressional vote: The psychology of coattail voting." *Political Research Quarterly* 47(1):151–175.
- Musat, Stephanie. 2011. "Hoboken council majority moves next election from May 2013 to November 2013." *Jersey Journal*, pp. July 21, D23.
- Rahn, Wendy M., Jon A. Krosnick and Marijke Breuning. 1994. "Rationalization and derivation processes in survey studies of political candidate evaluation." *American Journal of Political Science* 38(3):582–600.
- Rice, Tom W. and Alisa A. Macht. 1987a. "Friends and neighbors voting in statewide general elections." *American Journal of Political Science* 31(2):448–452.
- Rice, Tom W. and Alisa A. Macht. 1987b. "The hometown advantage: Mobilization or conversion?" *Political Behavior* 9(3):257–262.
- Rusk, Jerrold G. 1970. "The effect of the Australian ballot reform on split ticket voting: 1876-1908." *American Political Science Review* 64(4):1220–1238.
- Sovey, Allison J. and Donald P. Green. 2011. "Instrumental variables estimation in political science: A readers guide." *American Journal of Political Science* 55(1):188–200.
- Stock, James H, Jonathan H Wright and Motohiro Yogo. 2002. "A survey of weak instruments and weak identification in generalized method of moments." *Journal of Business and Economic Statistics* 20(4):518–529.
- Wetzel, Dale. 2000. "June primary offers choices." *Bismarck Tribune*, May 15, 1A.

## 7 Figures and Tables

Figure 1: Partial Residual on Vote Share in Candidates' Home Counties in 2010



Notes: Partial residuals from regression in second column of Table 2

Table 1: Descriptive Statistics on Candidates' Home Counties

	Obs.	Born In-State			Reside in Birth County	Quartile of Population in County of Residence				
		Yes	No	Unknown		1st	2nd	3rd	4th	Unknown
Democratic governors (1987- 2010)	233	152	81	0	77	4	6	27	196	0
Republican governors (1987 -2010)	233	139	93	1	82	11	11	32	179	0
Total		62.45%	37.34%	0.21%	34.12%	3.22%	3.65%	12.66%	80.47%	0.00%
Proportional Representation						2.83%	6.47%	15.26%	75.44%	
Democratic Down-Ballot (1987-2010)	206	101	70	35	53	7	12	14	169	4
Republican Down-Ballot (1987-2010)	206	112	60	34	52	1	7	23	169	6
Total		51.70%	31.55%	16.75%	25.49%	1.94%	4.61%	8.98%	82.04%	2.43%
Proportional Representation						2.83%	6.44%	15.13%	75.60%	
All 2010 Democratic Candidates	150	92	47	11	44	3	6	17	124	0
All 2010 Republican Candidates	150	91	47	12	45	4	5	17	124	0
Total		61.00%	31.33%	7.67%	29.67%	2.33%	3.67%	11.33%	82.67%	0.00%
Proportional Representation						2.49%	5.91%	15.04%	76.55%	

Notes: Quartile of population refers to the percentile of a county's population within its state (e.g., the 2nd quartile refers to those counties with a population size that falls between the 25th and 50th percentile among all counties within the state). The "Expected if Proportional Representation" represents the expected percentage of candidates that would reside in counties in that quartile of the population size distribution if candidates were randomly selected from the population.

Table 2: Radius of the Home County Advantage in 2010

County Fixed Effects	No	Yes	Yes	Yes	Yes	Yes
Exclude Observation If	From County	From County	From Within 25	From Within 50	From Within 75	From Within 100
Both Candidates Are			Miles of County	Miles of County	Miles of County	Miles of County
# Of Excluded Observations	30	30	147	631	1,463	2,608
Home County	0.071 (0.009)	0.032 (0.004)	0.021 (0.005)	0.020 (0.006)	0.021 (0.007)	0.018 (0.008)
Within 25 Miles			0.015 (0.002)	0.007 (0.002)	0.007 (0.003)	0.010 (0.004)
Within 50 Miles				0.012 (0.001)	0.010 (0.001)	0.010 (0.002)
Within 75 Miles					0.005 (0.001)	0.002 (0.001)
Within 100 Miles						0.004 (0.001)

Notes: N = 10,297 observation in 2,101 counties in 150 elections. All specifications are implemented via OLS regressions including election fixed effects. Robust standard errors clustered by county in parentheses.

Table 3: Moderators of the Home County Advantage in 2010

Exclude Observation If Both Candidates Are # of Excluded Observations	From County 30	From Within 50 Miles of County 631	From Within 50 Miles of County 631
Home County X :			
Population <10,000	0.119 (0.034)	0.106 (0.035)	0.107 (0.036)
10,000 < Population < 100,000	0.049 (0.006)	0.036 (0.007)	0.040 (0.009)
100,000 < Population < 1,000,000	0.016 (0.003)	0.008 (0.005)	0.009 (0.006)
1,000,000 < Population	0.011 (0.004)	0.000 (0.005)	0.000 (0.008)
Currently Holds Statewide Office			0.005 (0.011)
Currently Holds Legislative Office			0.005 (0.011)
Currently Holds Local Office			0.021 (0.010)
Running for Governor			-0.018 (0.014)
Running for "Hi" Office			-0.011 (0.009)
Within 50 Miles X:			
Total Population < 100,000		0.016 (0.001)	0.016 (0.002)
100,000 < Total Population < 1,000,000		0.006 (0.004)	0.006 (0.004)
1,000,000 < Total Population		0.006 (0.002)	0.004 (0.002)
Currently Holds Statewide Office			0.000 (0.003)
Currently Holds Legislative Office			0.009 (0.003)
Currently Holds Local Office			0.005 (0.003)
Running for Governor			-0.004 (0.003)
Running for "Hi" Office			-0.004 (0.002)

Notes: N = 10,297 observation in 2,101 counties in 150 elections. All specifications are implemented via OLS regressions including election and county fixed effects. Omitted category is a candidate running for a statewide executive office besides attorney general, governor, lieutenant governor, and secretary of state that is not currently holding an elected office. Robust standard errors clustered by county in parentheses.

Table 4: Effect of Democratic Governor's Vote Share on Democratic Vote Share in Selected Down-Ballot Race

Estimation Type	OLS	IV	IV	IV	IV	IV	IV	OLS	IV	IV	IV	IV	IV
County Time Trends				No							Yes		
# of Excluded Observations	86	86	1,440	86	1,440	86	104	104	1,652	104	1,652	104	
% Dem. Governor	0.425 (0.012)	0.226 (0.081)	0.188 (0.052)	0.279 (0.098)	0.230 (0.066)	0.267 (0.064)	0.257 (0.014)	0.171 (0.074)	0.172 (0.050)	0.187 (0.092)	0.208 (0.058)	0.175 (0.064)	
% Dem. Governor X Presidential Election Year				-0.229 (0.151)	-0.134 (0.094)					-0.072 (0.172)	-0.155 (0.107)		
<b>First Stage Instruments:</b>													
Governor Home County		0.038 (0.005)	0.035 (0.006)						0.038 (0.005)	0.037 (0.007)			
Governor Within 50 Miles			0.014 (0.001)							0.015 (0.002)			
Governor Home County X Presidential Election Year				0.039 (0.007)	0.026 (0.008)					0.043 (0.009)	0.037 (0.010)		
Governor Home County X Not Presidential Election Year				0.038 (0.005)	0.039 (0.007)					0.037 (0.006)	0.037 (0.008)		
Governor Within 50 Miles X Presidential Election Year					0.021 (0.002)						0.013 (0.003)		
Governor Within 50 Miles X Not Presidential Election Year					0.013 (0.002)						0.016 (0.002)		
Governor Home County X Population < 10,000							0.073 (0.019)						0.066 (0.027)
Governor Home County X 10,000 < Population < 100,000							0.060 (0.007)						0.059 (0.009)
Governor Home County X 100,000 < Population < 1,000,000							0.017 (0.006)						0.022 (0.022)
Governor Home County X 1,000,000 < Population							0.026 (0.013)						0.016 (0.012)
First-Stage F-Statistic		69.52	97.20	37.88	57.11	23.95			52.93	78.47	29.49	40.80	16.11

Notes: N = 14,045 observation in 2,734 counties in 196 elections. Regressions also include county fixed effects, state-year fixed effects. and equivalent home county indicators for down-ballot candidates' home counties. Robust standard errors clustered by county in parentheses.

Table 5: Effect of Selected Down-Ballot Democratic Vote Share on Democratic Gubernatorial Vote Share

Estimation Type	OLS	IV	IV	IV	OLS	IV	IV	IV
County Time Trends			No				Yes	
# of Excluded Observations	86	86	1440	86	104	104	1652	104
% Dem. Down-Ballot	0.425 (0.013)	-0.042 (0.080)	-0.162 (0.073)	-0.082 (0.069)	0.320 (0.018)	0.005 (0.078)	-0.013 (0.060)	-0.049 (0.091)
<b>First Stage Instruments:</b>								
Down-Ballot Home County		0.042 (0.005)	0.034 (0.006)			0.044 (0.005)	0.033 (0.007)	
Down-Ballot Within 50 Miles			0.014 (0.001)				0.017 (0.002)	
Down-Ballot Home County X Population < 10,000				0.057 (0.027)				0.053 (0.041)
Down-Ballot Home County X 10,000 < Population < 100,000				0.070 (0.008)				0.066 (0.010)
Down-Ballot Home County X 100,000 < Population < 1,000,000				0.023 (0.006)				0.028 (0.006)
Down-Ballot Home County X 1,000,000 < Population				0.031 (0.014)				0.035 (0.014)
First-Stage F-Statistic		81.01	76.71	25.03		67.71	80.06	14.30

Notes: N = 14,045 observation in 2,734 counties in 196 elections. Regressions also include county fixed effects, state-year fixed effects, and equivalent home county indicators for gubernatorial candidates' home counties. Robust standard errors clustered by county in parentheses.

Table 6: Effect of Democratic Governor's Vote Share on Democratic Vote Share in All Down-Ballot Races

County Fixed Effects	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County Time Trends	No	No	Yes	No	No	Yes	No	Yes	No	Yes	Yes
# of Excluded Observations	0	0	2	51	52	58	993	1,079	52	58	
Instruments:											
None	X	X	X								
Home County				X	X	X	X	X	X	X	X
Within 50							X	X			
Population Interactions									X	X	
% Dem. Governor	0.870 (0.006)	0.432 (0.010)	0.252 (0.009)	0.542 (0.052)	0.160 (0.063)	0.087 (0.053)	0.120 (0.044)	0.059 (0.033)	0.202 (0.048)	0.105 (0.045)	
First Stage F-Statistic				151.04	85.95	66.08	98.47	86.89	26.48	19.72	

Notes: N = 15,608 observation in 2,762 counties in 232 elections. All specifications include state-year fixed effects. Robust standard errors clustered by county in parentheses.

Table 7: Correlates of the Natural Log of Votes Cast in Selected Down-Ballot Races

County Time Trends	No	Yes	Yes	Yes
# of Excluded Observations	86	104	1,652	104
Governor Home County	0.0256 (0.0072)	0.0221 (0.0062)	0.0216 (0.0081)	
Down-Ballot Home County	0.0121 (0.0071)	0.0116 (0.0053)	0.0064 (0.0070)	
Governor Within 50 Miles			0.0052 (0.0026)	
Down-Ballot Within 50 Miles			0.0032 (0.0027)	
Governor Home County X Population < 10,000				0.0343 (0.0277)
Governor Home County X 10,000 < Population < 100,000				0.0294 (0.0092)
Governor Home County X 100,000 < Population < 1,000,000				0.0189 (0.0094)
Governor Home County X 1,000,000 < Population				-0.0063 (0.0187)
Down-Ballot Home County X Population < 10,000				0.0023 (0.0414)
Down-Ballot Home County X 10,000 < Population < 100,000				0.0095 (0.0090)
Down-Ballot Home County X 100,000 < Population < 1,000,000				0.0158 (0.0065)
Down-Ballot Home County X 1,000,000 < Population				0.0060 (0.0180)

Notes: N = 14,045 observation in 2,734 counties in 196 elections. Regressions also include county fixed effects and state-year fixed effects. Robust standard errors clustered by county in parentheses.

Table A.1: Reduced Form of Governor Home Counties on Selected Down-Ballot Vote Shares

County Fixed Effects	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County Time Trends	No	No	Yes	No	Yes	No	Yes	No	Yes
# of Excluded Observations	86	86	104	1440	1652	86	104	1440	1652
Governor Home County	0.0358 (0.0069)	0.0086 (0.0035)	0.0065 (0.0034)	0.0079 (0.0041)	0.0092 (0.0044)				
Governor Within 50 Miles				0.0023 (0.0011)	0.0018 (0.0012)				
Governor Home County X Population < 10,000						0.0300 (0.0114)	0.0256 (0.0154)	0.0245 (0.0119)	0.0264 (0.0150)
Governor Home County X 10,000 < Population < 100,000						0.0148 (0.0049)	0.0063 (0.0057)	0.0093 (0.0054)	0.0057 (0.0064)
Governor Home County X 100,000 < Population < 1,000,000						-0.0066 (0.0046)	0.0002 (0.0046)	-0.0066 (0.0055)	0.0066 (0.0061)
Governor Home County X 1,000,000 < Population						0.0284 (0.0158)	0.0184 (0.0134)	0.0213 (0.0245)	0.0230 (0.0179)
Governor Within 50 Miles X Total Population < 100,000								0.0102 (0.0064)	-0.0027 (0.0069)
Governor Within 50 Miles X 100,000 < Total Population < 1,000,000								0.0019 (0.0014)	0.0008 (0.0016)
Governor Within 50 Miles X 1,000,000 < Total Population								0.0018 (0.0018)	0.0034 (0.0019)

Notes: N = 14,045 observation in 2,734 counties in 196 elections. All specifications include state-year fixed effects. Robust standard errors clustered by county in parentheses.

Table A.2: Alternate Version of Table 4 when Controls for Down-Ballot Home Counties are Excluded

Estimation Type	OLS	IV	IV	IV	OLS	IV	IV	IV
County Time Trends		No				Yes		
% Dem. Governor	0.424 (0.013)	0.204 (0.083)	0.164 (0.052)	0.282 (0.065)	0.256 (0.014)	0.119 (0.075)	0.128 (0.050)	0.185 (0.063)
First Stage Instruments:								
Governor Home County		0.038 (0.005)	0.035 (0.006)			0.038 (0.005)	0.037 (0.007)	
Governor Within 50 Miles			0.015 (0.001)				0.015 (0.002)	
Governor Home County X Population < 10,000				0.073 (0.019)				0.066 (0.027)
Governor Home County X 10,000 < Population < 100,000				0.060 (0.007)				0.059 (0.009)
Governor Home County X 100,000 < Population < 1,000,000				0.017 (0.006)				0.022 (0.006)
Governor Home County X 1,000,000 < Population				0.024 (0.013)				0.012 (0.011)
First-Stage F-Statistic		69.64	98.21	23.52		52.86	79.00	15.81

Table A.3: Reduced Form of Governor Home Counties on All Down-Ballot Vote Shares

County Fixed Effects	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County Time Trends	No	No	Yes	No	Yes	No	Yes	No	Yes
# of Excluded Observations	51	51	51	955	955	51	51	955	955
Home County	0.0339 (0.0057)	0.0060 (0.0027)	0.0031 (0.0022)	0.0058 (0.0030)	0.0045 (0.0024)				
Within 50 Miles				0.0010 (0.0011)	0.0000 (0.0008)				
Home County X Population < 10,000						0.0161 (0.0074)	0.0119 (0.0075)	0.0148 (0.0075)	0.0119 (0.0077)
Home County X 10,000 < Population < 100,000						0.0112 (0.0034)	0.0053 (0.0035)	0.0097 (0.0038)	0.0036 (0.0036)
Home County X 100,000 < Population < 1,000,000						-0.0048 (0.0037)	0.0000 (0.0035)	-0.0051 (0.0042)	0.0038 (0.0035)
Home County X 1,000,000 < Population						0.0247 (0.0136)	0.0026 (0.0070)	0.0214 (0.0167)	0.0050 (0.0083)
Within 50 Miles X Total Population < 100,000								0.0010 (0.0011)	-0.0005 (0.0009)
Within 50 Miles X 100,000 < Total Population < 1,000,000								-0.0008 (0.0023)	0.0008 (0.0021)
Within 50 Miles X 1,000,000 < Total Population								0.0023 (0.0033)	0.0024 (0.0023)

Notes: N = 15,608 observation in 2,762 counties in 232 elections. All specifications include state-year fixed effects. Robust standard errors clustered by county in parentheses.

Table A.4: Reduced Form of Selected Down-Ballot Home Counties on Vote Shares in All Other Races

County Fixed Effects	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County Time Trends	No	No	Yes	No	Yes	No	Yes	No	Yes
# of Excluded Observations	46	46	46	868	868	46	46	868	868
Home County	0.0319 (0.0071)	0.0012 (0.0027)	-0.0014 (0.0036)	0.0015 (0.0034)	0.0014 (0.0048)				
Within 50 Miles				-0.0002 (0.0010)	-0.0025 (0.0014)				
Home County X Population < 10,000						0.0053 (0.0078)	-0.0192 (0.0294)	0.0057 (0.0092)	-0.0224 (0.0391)
Home County X 10,000 < Population < 100,000						0.0003 (0.0038)	-0.0047 (0.0060)	-0.0009 (0.0047)	0.0001 (0.0077)
Home County X 100,000 < Population < 1,000,000						0.0009 (0.0043)	-0.0001 (0.0054)	0.0027 (0.0057)	0.0025 (0.0073)
Home County X 1,000,000 < Population						0.0043 (0.0087)	0.0073 (0.0084)	0.0064 (0.0094)	0.0066 (0.0079)
Within 50 Miles X Total Population < 100,000								-0.0016 (0.0011)	-0.0023 (0.0015)
Within 50 Miles X 100,000 < Total Population < 1,000,000								0.0027 (0.0031)	-0.0035 (0.0049)
Within 50 Miles X 1,000,000 < Total Population								0.0048 (0.0026)	-0.0028 (0.0036)

Notes: N = 14,045 observation in 2,734 counties in 196 elections. All specifications include state-year fixed effects. Robust standard errors clustered by county in parentheses.