Estimation of the Incumbency Effects in the US State Legislatures: A Quasi-Experimental Approach

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Estimating Incumbency Effects in the US State Legislatures: A Quasi-Experimental Study

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Abstract

This paper estimates the incumbency effects in the legislative elections of 45 states in the US during the period 1968-89. I improve upon the existing measures of incumbency by using a quasi-experimental research design that isolates the effect due to incumbency from other contemporaneous factors such as candidate quality. I find that incumbency bestows a significant advantage on incumbents compared with their challengers. The incumbent candidates are about 30 percentage points more likely to win the next election and win 5.3 percentage point more votes than the challengers. However, the advantage is not as large as estimated from the previous methods.

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1 Introduction

Much research points to a significant advantage of incumbency in Congressional and state elections in the United States (Alford and Hibbing (1981); Gelman and King (1990); Breaux (1990); Holbrook and Tidmarch (1991); Cox and Morgenstern (1993,1995)). Though investigation of the reasons for the incumbency advantage has received much attention, little care has been taken to address the first order concerns of estimating the causal effect of incumbency.[1] This is especially true of methods used for estimating the incumbency effects at the state level.[2]

The main issue with the estimation of the incumbency effects, as with the estimation of treatment effects from any observational data, that it is not possible for the researcher to observe candidates both as incumbents and, in the counterfactual state, as non-incumbents at the same time. As a result, we cannot observe how incumbents would have done had they not become incumbents. The drawback of many existing methods is that they estimate the incumbency effects based on differential outcomes of incumbents and non-incumbents without ensuring if non-incumbents could be assumed to represent a good counterfactual case for incumbents. This would not be a problem if the assignment of incumbency status was determined randomly or exogenously. However, in practice, this assumption would most likely not be met, and hence, the estimated incumbency effect will suffer from a selection bias.

The selection bias arises because incumbents and non-incumbents are not likely to be comparable to start with. More specifically, it is highly plausible that incumbents may win in the first place due to their charismatic personality or their better type, and may continue

[1]Many factors are said to contribute to the incumbency advantage: franking privileges (Mayhew (1974)), increased bureaucratic resources available to incumbents (Fiorina (1977)), personal staff and trips back home (Holbrook and Tidmarch (1991)), operating budgets available to the legislators (Cox and Morgenstern (1993)) and salary (Carey, Neimi and Powell (2000)).

[2]Many methods based primarily on Gelman and King (1990) identify the incumbency effects by comparing the vote share in the seats in which incumbents run for a reelection against the vote share in open seats controlling for partisan swings. The idea is that if incumbency has any advantage, the seats in which incumbents run for a reelection should observe greater winning vote share on average than the open seats. The other methods used are sophomore surge, the average vote gain enjoyed by freshman candidates running as incumbents for the first time, and the retirement slump, the average falloff in the party's vote when the incumbent retires (Cover and Mayhew (1977)).

to win due to persistence of these qualities. Also, incumbents may be helped by the quality of challengers they face. It could be that incumbents due to their apparent advantage, either due to higher quality or incumbency, may deter other high quality challengers from running against them, and hence, face weaker challengers. As a result, the so-called incumbency advantage could, at least in part, be an artifact of the selection bias rather than the causal effect of incumbency.

Using district-level election returns of the lower chamber of 45 state legislatures in the United States during 1968-89, this paper estimates the casual effect of incumbency status of a candidate on his or her outcome in the next election[3] I use an innovative empirical methodology, regression discontinuity design (RDD), that is quasi-experimental in nature and allows us to draw causal inferences from real-world observational data. This research design solves the selection problem and achieves an approximate random assignment of incumbency status by comparing winners and losers in closely contested elections. The idea is that the losers of such elections (bare losers) are, on average, similar to the winners (bare winners), and differ only in their incumbency status providing a good counterfactual to how incumbents might have fared without incumbency. However, the outcome of any election also has some random chance component such as weather conditions on the election day or whether postal ballots arrive on time. These random factors are not likely to differ systematically between winners and losers, which coupled with their comparability in close contests implies that the assignment of incumbency status is approximately random. So, any difference in the average outcomes of bare winners and bare losers in the next election will identify what is essentially the causal effect of incumbency.

Thistlethwaite and Cambell (1960) first used a regression discontinuity design to study the effect of student scholarships on career aspirations, given that students are awarded scholarships only if their test score exceeds a certain threshold. Hahn et al (2001) formalize the conditions required for identification and estimation of treatment effects using regression discontinuity design. Lee et al (2004) use regression discontinuity technique

[3]This causal effect is defined as the effect solely due to the perquisites of office such as franking privileges, bureaucratic resources and staff, operating budgets and so on, after isolating the effect due to candidate quality.

on roll-call data for the United States House of Representatives during 1946-1995 to find evidence of a complete divergence between the announced policies of candidates contrary to the predictions of the median voter theorem. Imbens and Lemieux (2007) provides a comprehensive overview of the regression discontinuity technique. (Lee (2008) uses regression discontinuity design to estimate the partisan incumbency effects in elections to the US House of Representatives. He finds that the incumbent party is about 40-45 percentage points more likely to win an election than the non-incumbent party. However, he focuses on the estimation of partisan incumbency effects rather than candidate-level incumbency effects that are more prevalent in the existing literature.

The primary results of this paper can be summarized as follows. First, an incumbent candidate is about 30 percentage points more likely to win and receives 5.3 percentage point more votes in the next election than a challenger. Second, the incumbency advantage using regression discontinuity technique is not as large as estimated by existing techniques implying a significant selection bias present in the latter techniques. Third, the finding of a significant incumbency advantage also explains why fewer challengers run again after losing once, the so-called deterrent effect of incumbency. The difference in the probability of rerunning between bare winners and bare losers is about 53 percentage points. Fourth, the incumbency advantage is lower in elections at the state level than at the federal level.

The brief outline of the remainder of the paper is as follows. Section 2 lays out the empirical methodology in detail. The complexities of data issues are discussed in section 3. Section 4 estimates the incumbency effects and checks for the validity of the regression discontinuity as a quasi-experimental research design. Section 5 performs the robustness checks of the estimated incumbency effects. Section 6 compares the regression discontinuity estimates of incumbency with some existing methods. Section 7 concludes the paper.

2 Methodology

As discussed in Hahn et al (2001), regression discontinuity design is a quasi-experimental research method that achieves randomized assignment of treatment status using non-random real-world data. The regression discontinuity design exploits a known discontinuity in the treatment assignment mechanism, which is a deterministic function of some underlying variable called the forcing variable. Individuals whose score is greater than a predetermined threshold of the forcing variable get the treatment. The treatment effects are identified locally at the point of the discontinuity where the individuals who get the treatment are likely to be comparable to individuals who do not get the treatment.

Similarly in case of elections, the assignment of incumbency status of a candidate is a deterministic function of the margin of victory. Candidates for whom the margin of victory is positive (winners) become incumbents and those for whom it is negative (losers) are non-incumbents. The assignment of incumbency status is discontinuous at a predetermined threshold of zero margin of victory. This particular feature of elections allows us to use the regression discontinuity design for the estimation of the causal effect of incumbency, which is identified by comparing the next-period electoral outcomes of candidates who are just above the threshold margin of victory with candidates who are just below it.

More formally, consider the following regression model:

$$V_{i,t+1} = N_i + \gamma_{t+1} + \beta * I_{i,t+1} + \varepsilon_{i,t+1} \tag{1}$$

where $V_{i,t+1}$ is the vote share of candidate i in election t+1, N_i is the state specific normal vote for candidate i's party, γ_{t+1} represent the national partisan swings, $I_{i,t+1}$ is an indicator variable for incumbency status of candidate i in election t+1 such that,

$$\begin{aligned} I_{i,t+1} &= 1 \; if \; mov_{i,t} > 0 \\ &= 0 \; if \; mov_{i,t} < 0 \end{aligned} \tag{2}$$

$\varepsilon_{i,t+1}$ is the stochastic error term, and $mov_{i,t}$ is the margin of victory of candidate i in election

t. Though $mov_{i,t}$ is continuously defined, incumbency status is discontinuous at $mov_{i,t} = 0$.

In the ideal case when the assignment of incumbency status is random ($E[\varepsilon_{i,t+1}|I_{i,t+1}$), β is the true incumbency effect as shown in equation (3) and equals the difference in the average vote shares of winners and losers in t+1:

$$E[V_{i,t+1} \mid I_{i,t+1} = 1] - E[V_{i,t+1} \mid I_{i,t+1} = 0] = \beta \tag{3}$$

However, the assignment of incumbency status is likely non-random as there are intrinsic differences in candidate characteristics ($X_{i,t}$). If all candidate characteristics are observable, they can be controlled for in the regression model assuming the latter is correctly specified. However, there is some unobserved heterogeneity among the candidates. For instance, it is difficult to measure how charismatic a candidate is. As a result, the error term ($\varepsilon_{i,t+1}$) in (1) is $\delta * X_{i,t} + \mu_{i,t+1}$ and the model in (1) will suffer from a selection bias arising due to the omitted variables or the omitted variable bias. Since these unobservable characteristics are likely to vary with the margin of victory, incumbency status is correlated with the stochastic error term ($E[\varepsilon_{i,t+1}|I_{i,t+1}] \neq 0$). In this case, the overall effect also includes the effect due to systematic differences in candidate characteristics in addition to the incumbency effect:

$$E[V_{i,t+1} \mid I_{i,t+1} = 1] - E[V_{i,t+1} \mid I_{i,t+1} = 0] = \beta + BIAS_{i,t+1} \tag{4}$$

where

$$\begin{aligned} BIAS_{i,t+1} = \delta * \{E[X_{i,t} \mid I_{i,t+1} = 1] - E[X_{i,t} \mid I_{i,t+1} = 0]\} \\ + \{E[\mu_{i,t+1} \mid I_{i,t+1} = 1] - E[\mu_{i,t+1} \mid I_{i,t+1} = 0]\} \end{aligned} \tag{5}$$

Equations (4) and (5) can alternatively be written as follows:

$$E[V_{i,t+1} \mid mov_{i,t} > 0] - E[V_{i,t+1} \mid mov_{i,t} < 0] = \beta + BIAS_{i,t+1} \tag{6}$$

$$\begin{aligned} BIAS_{i,t+1} = \delta * \{E[X_{i,t} \mid mov_{i,t} > 0] - E[X_{i,t} \mid mov_{i,t} < 0]\} \\ + \{E[\mu_{i,t+1} \mid mov_{i,t} > 0] - E[\mu_{i,t+1} \mid mov_{i,t} < 0]\} \end{aligned} \tag{7}$$

However, the regression discontinuity design does not require any characteristics to be included in the regression model, and hence, bypass any concerns of correct specification of model. The systematic differences between incumbents and non-incumbents can be factored out by comparing the two sets of candidates within an arbitrary close neighborhood of the discontinuity:

$$E[V_{i,t+1} \mid 0 < mov_{i,t} \leq \psi] - E[V_{i,t+1} \mid -\psi \leq mov_{i,t} < 0] = \beta + BIAS^{*}_{i,t+1} \tag{8}$$

where

$$\begin{aligned} BIAS^{*}_{i,t+1} = \delta * \{E[X_{i,t} \mid 0 < mov_{i,t} \leq \psi] - E[X_{i,t} \mid -\psi \leq mov_{i,t} < 0]\} \\ + \{E[\mu_{i,t+1} \mid 0 < mov_{i,t} \leq \psi] - E[\mu_{i,t+1} \mid -\psi \leq mov_{i,t} < 0]\} \end{aligned} \tag{9}$$

and ψ represents the closeness of the elections. In the limit or as we examine closer elections,

$$\begin{aligned} \delta * \left\{ \lim_{\psi \to 0^+} E[X_{i,t} \mid 0 < mov_{i,t} \leq \psi] - \lim_{\psi \to 0^-} E[X_{i,t} \mid -\psi \leq mov_{i,t} < 0] \right\} \\ + \left\{ \lim_{\psi \to 0^+} E[\mu_{i,t+1} \mid 0 < mov_{i,t} \leq \psi] - \lim_{\psi \to 0^-} E[\mu_{i,t+1} \mid -\psi \leq mov_{i,t} < 0] \right\} = 0 \end{aligned} \tag{10}$$

$$\lim_{\psi \to 0^+} E[V_{i,t+1} | 0 < mov_{i,t} \leq \psi] - \lim_{\psi \to 0^-} E[V_{i,t+1} | -\psi \leq mov_{i,t} < 0] = \beta \tag{11}$$

$BIAS^{*}_{i,t+1}$ goes to zero and β gives us the true incumbency effect, which is the size of discontinuity at the threshold.

Though RDD is a simple research design, its validity depends on the condition given by equation (10), which implies that candidates just above the threshold are similar to candidates just below it. This, in turn, implies that the distribution of candidate characteristics is continuous. The continuity of observable characteristics can be readily checked with the data and any differences at the threshold should show up as indicators of a failure to achieve a random assignment of incumbency status. The only assumption made here is that the unobservable characteristics are continuous functions of the margin of victory, which is a much weaker restriction on the stochastic error term and implies $g(\mu|mov)$, the conditional density function of μ, is continuous.

3 Data Description

This paper uses revised district-level data on state legislative elections available from the Inter-University Consortium of Political Science Research (ICPSR). This dataset covers the state legislative elections held between 1968 and 1989, and provides the following information: candidates' names, vote shares, party affiliation and incumbency status. There is also information on the number of people who voted and the number of candidates contesting for a seat. The incumbency effects are estimated for the general election results of the lower chamber (the State House or Assembly as it is called in some states) of 45 states. The analysis includes all the single member and multi-member post district elections.[4] There is no clear way to compute the margin of victory in other types of multi-member districts, so I omitted them from the analysis.

The state elections suffer from frequent redistricting. The problems associated with the comparison of the election preceding the change of the district lines with the one succeeding it are quite well known, and hence, such elections are excluded from the analysis. Also, I exclude the seats in which a candidate contested unopposed as the actual vote share of the candidate is not observed in such elections. After stacking up the elections in the pairs of consecutive elections at t and $t + 1$ and other exclusions mentioned above, the final count of total candidate-level observations is 40,120. The existing literature uses either vote-denominated measures of incumbency (Erikson (1972), Mayhew (1974), Cover and Mayhew (1977), Alford and Hibbing (1981)) or outcome-denominated measures of incumbency (Jacobson (1985, 1987)). I estimate the incumbency effect using both measures.

The RDD requires that bare winners and bare losers be comparable on all characteristics other than their incumbency status. A check based on all possible characteristics is, however, constrained by the available data. But the original data file from the ICPSR can be used to derive some measures of candidate quality which are standard in the litera-

[4]Many districts at the state level elect more than one legislator. These districts are divided in to multi-member post seats and multi-member free-for-all districts. Since multi-member post seats districts elect a single member for each post, they are treated as single member districts. However, Multi-member free-for-all districts elect more than one candidate for one seat and, hence, have multiple *winners*.

ture. I compare incumbent and non-incumbent candidates on the following characteristics: electoral experience at t defined as the number of times a candidate has been nominated before election in t; political experience at t defined as the number of times a candidate has won an election before election in t; vote share in $t-1$; the indicator variable representing victory in $t-1$; proportion of candidates belonging to the Democratic Party; proportion of candidates belonging to the Republican Party; number of people who voted in election t and number of candidates running for election in t. The data on characteristics such as campaign spending that may be important are not available. Due to this reason, I am unable to check for the differences in campaign spending in the close elections. However, I compare candidates on various measures of candidate quality (mentioned above) which is a major determinant of the campaign money collected by a candidate (Jacobson (1978, 1980), Lott (1986, 1991), Levitt (1994).

Another issue is that many candidates, particularly losers, do not rerun, and hence, are more likely to be unobserved in the next election. Ideally, the solution to this problem would require one to model the rerunning decisions of the candidates independently of the prospects of winning. Since the data to achieve this task is not available and the decision to run is heavily determined by the chances of winning, I condition my estimates of the incumbency effect on candidates who run in the next election. This solution, however, does not come without any price. The estimates based on this conditional sample may suffer from a sample selection bias. For example, it is highly plausible that the losers who rerun are stronger than the losers who do not rerun, which would cause my estimates of the incumbency effect to be biased downwards. The appendix to the paper shows that there is no such bias present in my estimates as the losers who rerun and who do not rerun are comparable on all candidate characteristics in the data.

4 Estimation of the Incumbency Effects

In Figure 1, Panel(a) plots the probability of winning in $t+1$ against the margin of victory in t (mov_t) conditional on candidates who rerun. The scatter plot (local averages) depicts the raw probability of winning computed by averaging an indicator variable for victory in t+1 over an interval of 0.5% of margin of victory, which is the proportion of winners in each interval. The solid curve exhibits the predicted probability of winning using a logistic regression of the indicator variable for victory in $t+1$ on an indicator variable for victory in t, a fourth-order polynomial of margin of victory in t, the interaction of the polynomial terms with the indicator variable for victory in t, and the state-year fixed effects.[5] The incumbency effect is the size of the discontinuity, which is the difference in the predicted probabilities of the winners and the losers evaluated at the threshold margin of victory of zero.

⟨Figure 1 about here⟩

There is a clear discontinuous jump in the probability of winning at the threshold. The size of the discontinuity measuring the incumbency advantage is about 0.3, which implies that bare winners are about 30 percentage points more likely to win the next election than bare losers. Also, the fourth-order polynomial fit used here fits the raw data well, and no discontinuity is evident in the predicted probabilities except at the threshold. Panel(b), which plots the vote share in t+1 against the margin of victory in t using local averages and the polynomial fit, also confirms a significant advantage to incumbency. The incumbency advantage is about 5.3 percentage points of votes implying that bare winners win about 5.3 percentage points more votes in the next election than bare losers.

This is a significant advantage and may provide incumbents enormous security of tenure, which has given impetus to debate about enactment of term limits in state legislatures.[6] However, the incumbency advantage found here at the state level is smaller than

[5]This specification of left hand side variables is referred to as the polynomial fit and will be used for the following regressions unless stated otherwise.

[6]Gilmour and Rothstein (1996) attribute decreased turnover in the Congress solely to the incumbency advantage. Furthermore, the control of the office by incumbents that is implied by the incumbency advantage

found at the federal level. Lee (2008) estimates the incumbency effect to be 45 percentage points of probability of winning and 8 percentage points of votes for the House of Representatives at the federal level. However, we should note that Lee estimates the incumbency effects for the party rather than for a candidate. So the two sets of estimates are not directly comparable.

⟨Figure 2 about here⟩

The incumbency advantage also has a strong deterrent effect as it might force challengers of similar quality not to run against the incumbent. Figure 2 plots the probability of rerunning in $t + 1$ against the margin of victory in t using the local averages and the polynomial fit. There is large difference between the probability of rerunning for winners and losers. Bare winners are about 53 percentage points more likely to rerun than bare losers. This reinforces the argument in this paper to account for the bias due to selection effects as the races featuring incumbent candidates may deter the high quality challengers and attract only weak challengers artificially driving the incumbency advantage up.

However, the causal nature of the estimated incumbency effects depends heavily on the assumption that bare losers provide a good counterfactual to how bare winners would have fared had they not won the election. This requires that bare losers and bare winners are comparable in all predetermined characteristics except their incumbency status implying that all characteristics at t vary continuously with margin of victory in t. Figure 3 plots the predetermined candidate characteristics against the margin of victory in t using local averages and the polynomial fit. Many characteristics are increasing functions of margin of victory. The vote share in t-1 of an incumbent who wins by a margin of victory of 20 percent is much higher than that of a non-incumbent who lost by 20 percent indicating preexisting quality differences between candidates who are away from the threshold, and hence, the non-comparability of such candidates. This underscores the need to account for the selection bias that arises due to such differences. However, all the characteristics are

is at the heart of the debate about the term limits. Adams and Kenny (1986) argue that term limits could be costly to the voters as the more experienced representatives vacate office. However, a politician who has held the office long enough may become entrenched and transfer resources away from the voters to certain interest groups.

continuous function of margin of victory indicating there will be virtually no differences in quality between candidates who barely won and who barely lost. This validates the regression discontinuity design used in this paper and identifies the incumbency effects estimated above as the causal effects of incumbency isolating any quality differences between candidates.

⟨Figure 3 about here⟩

Table 1 further highlights presence of selection bias due to systematic differences between incumbents and non-incumbents and the usefulness of the regression discontinuity design in overcoming this bias. Columns (2)-(4) show the average differences in the probability of winning in $t+1$, the vote share in $t+1$ and all predetermined characteristics for winners and losers in the full sample (All), when the margin of victory is within 25 percent, and when it is within 5 percent, respectively. In column (2), winners, on average, have better outcomes in the next election compared to losers. Winners are 73 percentage points more likely to win and have about 29 percentage points more votes in the next election than losers. The magnitude of differences in the probability of winning and the vote share in t+1 is large and implies a large advantage for winners. However, it will be wrong to attribute the whole difference to incumbency because we also see that winners, on average, win more votes in the previous election, are more likely to win the previous election, have greater electoral and political experiences, are more likely to be a Democrat, run from districts with less turnout, and face fewer candidates than losers. These differences in candidate characteristics illustrate that a simple comparison of t and $t+1$ election outcome (e.g. vote shares) as an estimate of the incumbency effect is fraught with bias as incumbents and non-incumbents are not comparable.

⟨Table 1 about here⟩

However, the differences particularly in various characteristics become smaller as we compare closer elections. In the contests which are decided by a margin of victory of 5 percent or less, winners are 36 percentage points more likely to win and win about 8.7 percentage points more votes in the next election than losers. The differences in many predetermined characteristics are either statistically insignificant or become much smaller (in the absolute value) strengthening the intuition behind the regression discontinuity technique that in the limit at the threshold all differences would vanish.

In column (4), I examine the differences between winners and losers in the limiting case at the threshold. The differences are estimated using the polynomial fit and evaluated at margin of victory of zero. The estimate of the incumbency effect based on the difference in the probability of winning is 0.30 percentage points and the difference in the vote share is 5.3 percentage points as was suggested in Figures 1 and 2 earlier. Though the differences in the probability of winning and vote share in t+1 are statistically significant, the differences in the predetermined candidate characteristics become insignificant.[7]

5 Robustness Checks

The regression discontinuity design also provides us with some robustness checks to further ascertain its validity. I claim above that the regression discontinuity estimates of incumbency are unbiased, and hence, bypass the need to include the candidate characteristics in the regression model. We can check the robustness of this claim by including all the characteristics as the covariates in the polynomial fit and see if the estimate of the incumbency effect changes significantly. Since the estimated incumbency effects are unbiased, the inclusion of any predetermined candidate characteristics as covariates should not affect the estimate of incumbency. Table 2 estimates the incumbency effect based on different specifications. Column (1) re-presents the incumbency effect estimated above using the polynomial fit. In column (2), I include the electoral experience and political experience as the covariates in the polynomial fit. The estimate of the incumbency effect does not change significantly from the estimate in the column (1). In column (3), the vote share and the

[7]Table A.1 in the appendix deals with the issue of selection bias that might arise due to conditioning my estimates of incumbency on candidates who rerun. It is plausible that the losers who rerun could be stronger than the ones who do not rerun. To check this, I compare rerunning losers and non-rerunning losers on all candidate characteristics in the data around the threshold. As can be seen, rerunning losers and non-rerunning losers are comparable on all the characteristics around the threshold as none of the differences are significant.

indicator variable for a victory in the previous election are included as the covariates and the incumbency effect remains virtually unchanged. The same is the case in column (4) where I include proportion of Democrats and proportion of Republicans as additional regressors and column (5) where I include all predetermined candidate characteristics. This shows that the estimated incumbency effect is robust to different specifications and reliably estimates the causal effect of incumbency.

⟨Table 2 about here⟩

⟨Table 3 about here⟩

As a last check of robustness, in column (6) I run the same regression with all the characteristics included but the only difference is that the dependent variable is the indicator variable for victory in $t-1$. This is to check if the outcome in $t-1$ was equally likely as the candidates are comparable. Also, the outcome in $t-1$ is already determined, and hence, should not be affected by the characteristics in t. The probability difference in column (6) is very small and statistically insignificant providing further support for my estimates of incumbency. Table 3 does the robustness checks with the vote share as the dependent variable. The results are the same and pass all robustness issues.

6 Comparisons of the RD estimates with previous meaures

There are three methodologies, namely the sophomore surge (SS), the retirement slump (RS) and the Gelman-King method (GK) that have been widely used in the political science literature to estimate the incumbency effects. I estimate the incumbency effects using these three techniques and compare them with the estimated incumbency effects in this paper using the regression discontinuity design to gauge the extent of the selection bias in these techniques. The sophomore surge is defined as the average vote gain enjoyed by freshman candidates running as incumbents for the first time (Cover and Mayhew (1977)). The intuition behind this measure is that if incumbency has any effect on the fortunes of the incumbents, it should show up in their vote share in the second election net of any party advantage (vote share of the incumbent in her first election). The retirement slump is the average falloff in the party's vote when the incumbent retires. This is based on the logic that if incumbency has any effect, the new party nominee should not be expected to do as well as the retired incumbent did.

⟨Table 5 about here⟩

In Table 5, the sophomore surge is about 1.8 percentage points of votes for a freshman incumbent implying that an incumbent gains about 1.8 percentage points of votes in his or her first reelection. The retirement slump is about 10.0 percentage points of votes implying that the incumbent's party on average loses 10.0 percentage point votes when he or she retires. However, as argued by Gelman and King (1990), the sophomore surge underestimates and the retirement slump overestimates the incumbency effect. This is indeed the case here as the sophomore surge is lower and the retirement slump is greater than the regression discontinuity estimate of incumbency. Following Gelman and King (1990), I run a regression of percentage of total vote won by the incumbent party in election t+1 in district i on an incumbency dummy which takes a value of one if the incumbent candidate runs of reelection and zero if it is an open seat, percentage of total vote won by the incumbent party in election t in district i, and another dummy which is equal to 1 if the Democrats were the incumbent party, -1 if the Republicans were the incumbent party and 0 otherwise. The coefficient on incumbency dummy provides the size of the incumbency effect, which is the vote differential in seats in which incumbents run and in the open seats.

The estimate of the incumbency effect based on this method is about 8.7 percentage points of the votes and is about 3.4 percentage points of the votes higher than the regression discontinuity estimate of incumbency. This amounts to an overestimation of about 64 percent over the regression discontinuity estimate of the incumbency effect. The Gelman-King method does not ensure that candidates are comparable and hence also includes the effect due to other contemporaneous factors such as candidate quality. This estimate is biased upwards because the seats in which incumbents run will have higher vote share just because of higher quality of incumbents and lower quality of challengers they face when compared with the vote share in the open seats. However, this bias is not present in the regression discontinuity estimates of incumbency as incumbents and non-incumbents are similar in quality to each other.

7 Conclusions and Extensions

This paper estimates the causal effect of incumbency using a quasi-experimental research design, the regression discontinuity technique. The causal effect is identified by comparing winners and losers in closely contested elections. In such contests, incumbents and non-incumbents are similar in quality, and hence, any difference in their electoral outcome in the next election provides an unbiased estimate of the incumbency effect. I find that there is a large advantage to incumbency in the elections to the lower chamber at the state level. An incumbent candidate is about 30 percentage points more likely to win an election and wins 5.3 percentage points more votes in the next election compared with a challenger. However, the incumbency effect estimated in this paper is lower than the estimates from other existing methods. These methods suffer from a significant selection bias as I show that there are preexisting quality differences between incumbents and non-incumbents. Incumbency also bestows a strong deterrent effect as the difference between the probability of rerunning for incumbents and non-incumbents of similar quality is about 53 percentage points.

The results of this paper may be extended to study the following issues. First, it will be interesting to examine how the incumbency effects changes overtime and across states. This would throw light on whether the incumbency effect has increased recently as some studies have found. Second, how can the variation in the incumbency effects across states be explained? At the state level, the incumbency advantage is found to depend on a factor called professionalisation. Different measures of professionalisation are said to affect the incumbency advantage. These include personal staff and trips back home, operating budgets available to the legislator and salary. Based on the regression discontinuity estimates of the incumbency effects, the extension will weigh the relative effect of different measures of professionalisation. Finally, one important implication of the positive incumbency effect is the longer tenure of the elected officials. It will be interesting to examine if the longer tenure of the incumbents results in political shirking.

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Figure 1: The Incumbency Effects: Conditional on Rerunning

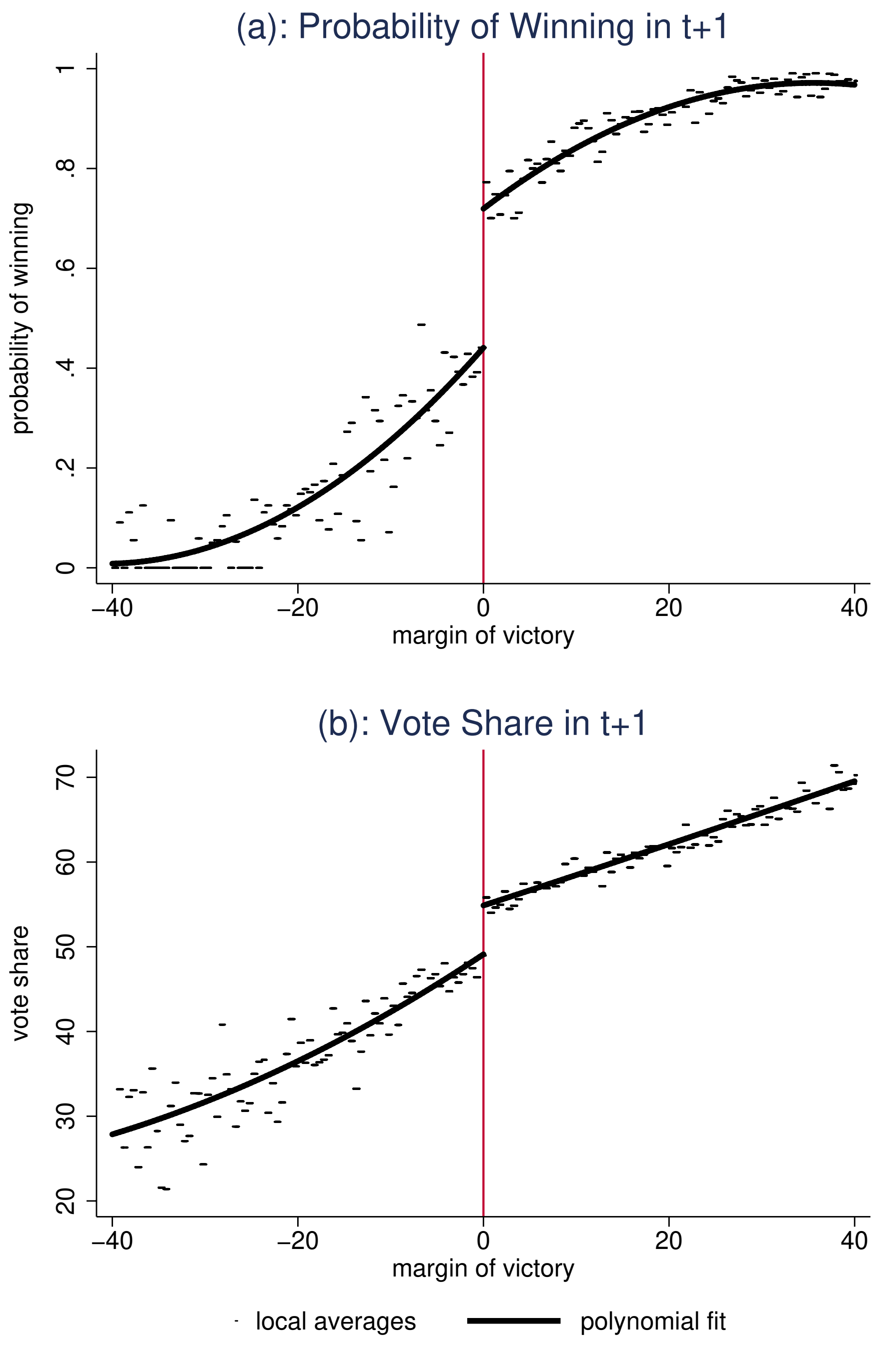

Figure 2: Probability of Rerunning in t+1

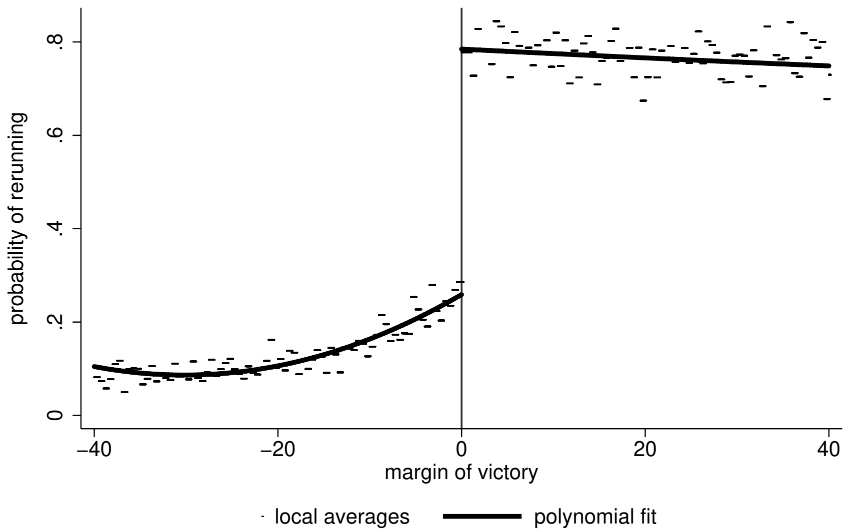

Figure 3: Continuity of Candidate Characteristics

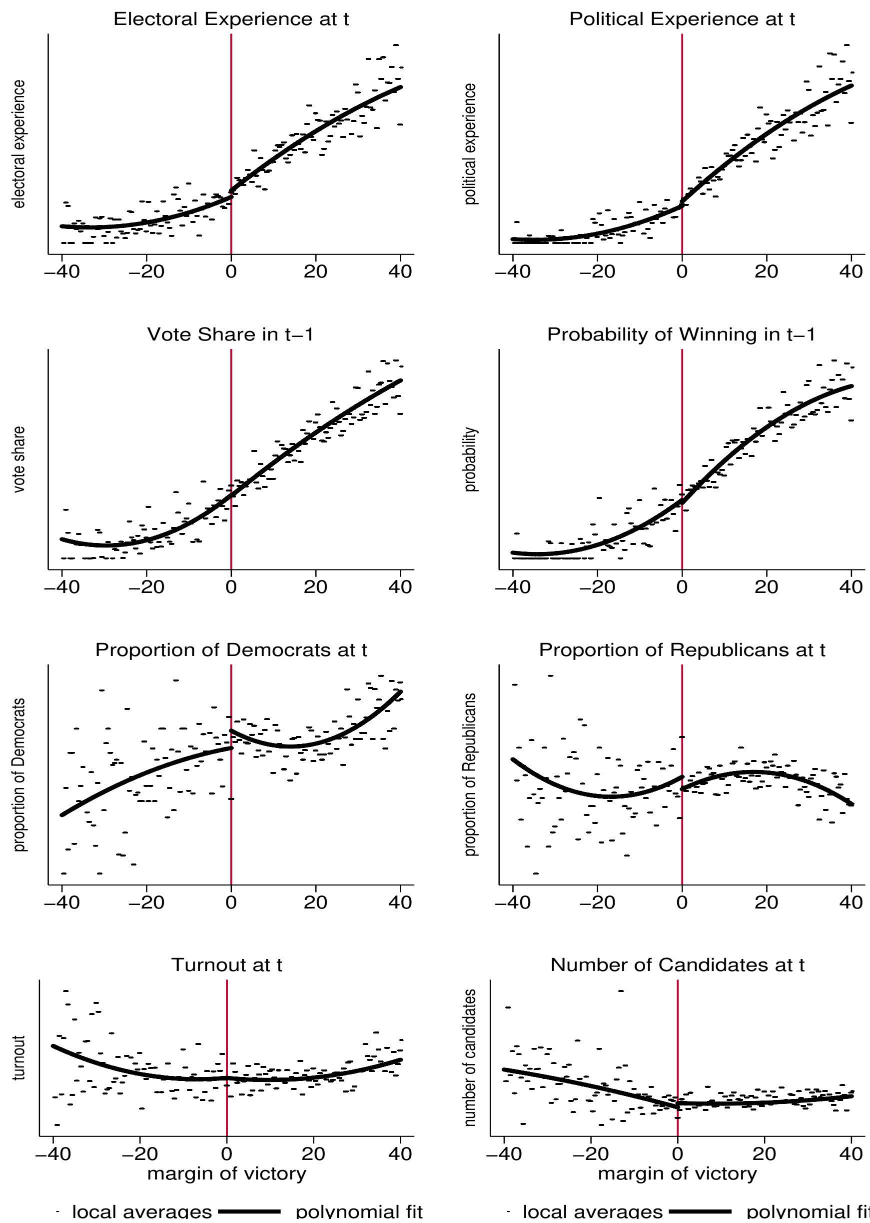

Table 1: Estimation of the Incumbency Effects and Continuity Checks

(1)	(2)	(3)	(4).	(5)
	Differences between winners and losers			
	All	$\lvert$margin$\rvert \leq 25$ %	$\lvert$margin$\rvert \leq 5$ %	Polynomial fit
Probability of winning in *t+1*	0.73* (0.006)	0.58* (0.01)	0.36* (0.02)	0.30* (0.04)
Vote share in *t+1*	29.1* (0.31)	16.3* (0.32)	8.7* (0.51)	5.3* (0.84)
Vote share in *t-1*	27.0* (0.67)	15.3* (0.76)	4.7* (1.3)	0.7 (1.9)
Probability of winning in *t-1*	0.41* (0.01)	0.25* (0.01)	0.07* (0.02)	0.01 (0.03)
Electoral experience	0.82* (0.03)	0.50* (0.03)	0.20* (0.05)	0.11 (0.07)
Political experience	0.89* (0.03)	0.53* (0.03)	0.19* (0.05)	0.08 (0.07)
Proportion of Democrats	0.175* (0.01)	0.03* (0.01)	0.03 (0.03)	0.03 (0.04)
Proportion of Republicans	-0.04* (0.01)	0.04* (0.01)	-0.01 (0.02)	-0.03 (0.04)
Turnout	-741 (460)	-141 (619)	-569 (1,223)	394 (1,253)
Number of candidates	-0.11* (0.01)	-0.04** (0.02)	0.00 (0.03)	0.01 (0.05)
Observations	16,468	9,015	2,260	16,468

Table 2: Incumbency Effects Measured by the Probability Difference: Alternative Specifications

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	Difference in probability of winning in *t+1* between winners and losers					Probability difference in *t-1*
	0.302* (0.040)	0.306* (0.037)	0.300* (0.037)	0.298* (0.036)	0.300* (0.037)	0.001 (0.003)
Electoral experience	No	Yes	No	No	Yes	Yes
Political experience	No	Yes	No	No	Yes	Yes
Vote share in *t-1*	No	No	Yes	No	Yes	Yes
Win in *t-1*	No	No	Yes	No	Yes	
Proportions of Democrats	No	No	No	Yes	Yes	Yes
Proportion of Republicans	No	No	No	Yes	Yes	Yes
Turnout	No	No	No	No	Yes	Yes
Number of candidates	No	No	No	No	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16,468	16,449	16,449	16,449	16,449	16,449

Table 3: Incumbency Effects Measured by the Vote Differences: Alternative Specifications

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	Difference in vote shares in *t+1* between winners and losers					Vote share difference in *t-1*
	5.3* (0.84)	5.4* (0.86)	5.2* (0.88)	5.1* (0.82)	5.3* (0.90)	-0.11 (0.62)
Electoral experience	No	Yes	No	No	Yes	Yes
Political experience	No	Yes	No	No	Yes	Yes
Vote share in *t-1*	No	No	Yes	No	Yes	
Win in *t-1*	No	No	Yes	No	Yes	Yes
Proportions of Democrats	No	No	No	Yes	Yes	Yes
Proportion of Republicans	No	No	No	Yes	Yes	Yes
Turnout	No	No	No	No	Yes	Yes
Number of candidates	No	No	No	No	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16,468	16,449	16,449	16,449	16,449	16,449

Note: Standard errors are in the parentheses and are clustered at the state level. Each regression includes an indicator variable for victory in t, a fourth-order polynomial in margin of victory and their interactions, and state-year fixed effects as the right-hand-side variables in addition to the covariates being included in this table. One star (*), two stars (**) and three stars (***) indicate significant at 1%, 5% and 10% levels of significance, respectively.

Table 4: A Comparison of RDD with Previous Methodologies

METHODOLOGY	SIZE OF THE INCUMBENCY EFFECT
Sophomore surge	1.8
Retirement slump	10.0
Gelman-King	8.7
RDD	5.3

Appendix A

Table A.1: Rerunning Losers vs Non-rerunning Losers

(1)	(2)
	Difference= (Losing Rerunners – Losing Non-Rerunners)
Electoral experience	-0.08 (0.06)
Political experience	-0.04 (0.05)
Vote share in *t-1*	0.7 (1.7)
Win in *t-1*	0.03 (0.04)
Proportions of Democrats	0.05 (0.05)
Proportion of Republicans	0.06 (0.04)
Turnout	111.0 (1,281)
Number of candidates	0.04 (0.35)
Observations	22,302