

Incumbency Advantage in the Brazilian Open List Proportional System

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Abstract

An emerging literature finds that in developing countries, legislators frequently suffer a negative incumbency advantage, but disagrees as to the causes of this empirical pattern. We examine the Brazilian Chamber of Deputies as a critical test case. The extant literature predicts that Brazilian legislators should face an incumbency disadvantage, given the electoral rules, relatively high rates of corruption, and progressive ambition. Using a new discontinuity approach, we find a large positive incumbency advantage. We leverage within-country variance and find that incumbency is greatest in the least developed areas, suggesting that previous work may be confounding country-specific events with development levels.

Keywords: electoral systems; electoral strategies; incumbency advantage, Brazil

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Research on the comparative incumbency advantage finds a great deal of cross-national variation. In the United States, where the literature originated, a positive incumbency advantage is a widespread and enduring regularity, with incumbents receiving a significant electoral bonus due to their office-holding. But in other countries, scholars have found a diversity of incumbency effects, including cases with a positive incumbency advantage, no advantage, and even a sizable disadvantage. One theme in that literature is that development is positively correlated with the incumbency advantage, and developing countries have small or even negative incumbency effects.

In this paper, we focus on Brazil. One of the largest democracies in the world, Brazil is known for its large districts, party fragmentation, and electoral volatility; contexts that should lead to a negative incumbency advantage. Indeed, limited previous work on Brazilian mayors has found a negative incumbency effect. However, this work has largely overlooked legislative politics, given the complexities of the Brazilian OLPR electoral system used for Congressional elections.

Building a new empirical strategy, we overcome those complexities and exploit both inter and intra party electoral thresholds to estimate the causal effect of incumbency in the Brazilian Chamber of Deputies. We find that, contrary to existing predictions, there is a large and consistent *positive* impact of incumbency on all aspects of political careers, including vote share, re-election, and nomination for other offices. A large part of this advantage appears to come from the campaign resource advantages that incumbents enjoy. We then leverage within-country variance to explore some of the disagreements in the incumbency literature, finding that, contrary to the conventional wisdom, the incumbency advantage is largest in the least developed areas.

The Comparative Incumbency Advantage

The incumbency advantage is a concern in all candidate-centered electoral systems.¹ The

¹ For the distinction between party and candidate-centered electoral systems see (Carey and Shugart 1995; Grofman 2005; and Shugart 2008).

largest literature focuses on the case of the United States. There, analysis suggests the incumbency advantage was small or even negative for the first half of the 1900s (Cox and Katz, 1996; King and Gelman, 1990; Ansolabehere and Snyder, 2002). The advantage begins to climb in the 1950's, jumps in the 1960's, and reaches 8 to 10% in the 1980's and 1990's (Cox and Katz, 1996). Recent evidence suggests that the advantage persists, but has declined (Jacobson, 2015; Fiorina, 2016).

Scholars attribute this advantage to a number of factors. Many of these are particular to US institutional and party configurations; some potentially generalize to other legislatures. Key variables include features of the US' single member district electoral system, including the extension of one-man one vote to Congress and subsequent redistricting engineering (Cox and Katz, 2002); personal vote advantages of incumbents (developed through franking, constituency service, media attention, and pork barreling); and strategic candidate emergence with the deterrence of quality challengers (Jacobson and Kernell, 1981).²

Although most of these studies are limited to examinations of the US House of Representatives, some scholars consider the broader preconditions for an incumbency advantage. Jacobson (2015) argues that weak partisanship and potential ticket splitting are prerequisites for an incumbency advantage, as the advantage relies on incumbents earning votes from voters who would normally support other parties. From comparative analysis across municipalities in the United States, Trounstein (2011) finds that participation and information reduce the advantage.

Besides theoretical contributions, this literature also develops a series of methodologies for studying the incumbency advantage. Recognizing the strategic nature of candidate emergence, scholars have sought compensating methods to produce unbiased estimates of the incumbency advantage and to distinguish between the personal vote versus other components of the

² This is a rich literature that we only briefly reference herein. For a nice overview, we refer the interested reader to Fiorina (1989) and to Carson and Roberts (2013).

incumbency advantage (Gelman and King, 1990; Ansolabehere and Snyder 2002, Petrocik and Desposato, 2003). Most relevant for this study has been the development and application of regression discontinuity designs which take advantage of close elections to approximate random assignment and measure the causal impact of incumbency as suggested by Lee (2008) and others.

However, a growing literature shows that far from being a paradigmatic case, the US' incumbency advantage is an exceptional outlier globally. Scholars have examined the incumbency advantage in many countries and have found broadly divergent patterns. In most cases, the incumbency advantage is much smaller than in US. Indeed, in many countries there is a *negative* incumbency where incumbents receive, on average, fewer votes than challengers and are less likely to win than challengers. These results have appeared in diverse settings with very different electoral environments. Core findings from this literature are reported below in Table 1.

[INSERT TABLE 1 HERE]

One empirical pattern that has drawn attention is that less developed countries tend to have negative incumbency advantages (Mexico, Peru, Zambia, India, Colombia) while more developed countries have positive incumbency advantages (USA, UK, Finland, Denmark, Canada), although there are obvious exceptions. Scholars have speculated about the causes of this pattern and have generated a series of tentative explanations. Some suggest that voters reject incumbents due to misuse of public resources (Klasnja and Titunuk, 2017). Formal theorists have explored this possibility, with Kartik and Van Weelden (2017) showing how widespread corruption could create a negative incumbency advantage especially in developing countries.

Another explanation for the relationship between development and incumbency relies on legislative resources and professionalization. Eggers and Spirling (2015) note that in legislatures in the developing world, limited staff, weaker committees, and fewer position-taking opportunities

reduce incumbents' ability to build a personal vote, which should also reduce incumbents' advantage. A third possibility is examined in Uppal (2007) who ties the advantage to performance, finding that increased public goods provision reduces incumbents' disadvantage in India.

Others have focused on institutions, especially single and multimember districts. Examining Japan, Ariga (2015) finds null and negative incumbency advantages and suggests that intraparty competition and multimember districts facilitate voters' shifting away from incumbents to similar competitors. Cross-national comparisons suggest that while intraparty competition generates a negative individual incumbency advantage, it generates a positive partisan advantage (Ariga, 2010). Scholars writing on Italy have shown that proportional representation and multimember districts can empower parties to reward loyalty and restrict personal vote-seeking, thus reducing or eliminating the incumbency advantage (Golden and Picci, 2015).³

Brazilian OLPR System

We contribute to this literature through an examination of the Brazilian case. Brazil is a federal presidential democracy, composed of twenty-six states and a federal district, Brasília. The bicameral national congress consists of a Senate and Chamber of Deputies; herein we focus on the Chamber of Deputies. Legislators to that body are elected via Open-List Proportional Representation, with states (or the federal district) acting as large, multimember districts

Features of the Brazilian system match the extant literature's profile of a country with a negative incumbency advantage. Brazil's electoral system, open-list proportional representation (OLPR) promotes intra party competition and facilitates within-party vote transfers.⁴ Brazil is a developing country and previous research has found that development is correlated with the incumbency advantage. Corruption scandals in Congress have been frequent and massive. Finally,

³ For a broad survey of the comparative literature on the incumbency advantage, see Macdonald (2014).

⁴ Among others, see Ames (1995a, 1995b, and 2001), and Mainwaring (1991, 1995, and 1998, and 1999).

participation rates in Brazil are relatively high, which should reduce the incumbency advantage

There is some empirical evidence that Brazil should have a negative incumbency advantage. Previous work finds a negative advantage in Brazilian mayoral elections (Titunik, 2011; Klasnja and Titunik, 2017). Regarding legislative politics, a key finding in the literature is that of progressive ambition - instead of seeking legislative careers, politicians build nonlinear and local careers - frequently leaving congress to run for local offices or to take local bureaucracy positions (Samuels, 2003). This progressive ambition is attributed in part to the difficulty of winning re-election.⁵ Incumbency is often attributed to the personal vote, yet evidence suggests that incumbents have fairly limited name recognition. Surveys undertaken just a few weeks after elections recurrently show that a large fraction of voters do not remember who they voted for.⁶

Arrayed against these incumbency-weakening features are others that may strengthen incumbents. The weak partisanship of this personalistic system should support an incumbency advantage (Jacobson, 2015). In addition, Brazilian deputies typically are supported by a staff of up to twenty-five assistants and can direct significant public resources to pet projects and constituencies in their districts.⁷ And while many voters cannot recall the name of their candidate, incumbents should at least have much more visibility, media access, and public presence than a non-office holder. Our analysis will contribute to and clarify these relationships.

Brazil's large and diverse democracy also provides for several within-country tests of hypotheses about incumbency, specifically the broad relationship between development and the

⁵ Other scholars, however, have suggested that the progressive nature of ambition may have been overstated, as many legislators do run for re-election (Leoni, Pereira, and Rennó, 2004; Pereira and Rennó, 2013).

⁶ For instance, the ESEB data (Estudo Eleitoral Brasileiro/Brazil Electoral Survey) for the 2014 elections show that 36.1% of voters did not recall the name of their candidate about a month after the elections. (http://www.cesop.unicamp.br/cesop/csp_databases/view/3716 - Question Q5CDA). This "electoral amnesia" tends to increase between elections. According to (Almeida 2006), just before the 2006 elections, the share of voters that did not recall their candidate in the 2002 elections had increased to almost 75%.

⁷ See: <http://congressoemfoco.uol.com.br/noticias/lista-todos-os-salarios-e-beneficios-de-um-deputado/>

incumbency advantage as well as the role of party strength. Brazilian states serve as electoral districts and vary dramatically in development indicators. The poorest states have profiles not unlike sub-Saharan Africa, while the most developed states have levels similar to Southern Europe. Regarding party strength, Golden and Picci (2015) found that strong party organizations could control nominations and reduce incumbency advantage, and Jacobson (2016) argued that low mass partisanship was a prerequisite for an incumbency advantage. In Brazil, while the party system is generally described as weak, there are exceptions that can be exploited for testing. There are some parties, most notably the Worker's Party or PT that exercise control over nominations and discipline members, and whose followers display attitudes and behaviors typical of dedicated partisans (Guarnieri 2011; Samuels 1999; Samuels and Zucco 2015). Finally, the degree of personalistic incentives should vary with district magnitude (Carey and Shugart, 1995), which we can partly explore via the large differences in number of seats per district (currently ranging from 8 to 70). We will exploit these differences in our analysis to provide within-country tests of the impact of party, district magnitude, and development on the incumbency advantage.

Empirical Strategy

Following others, we define the incumbency advantage as the additional electoral support enjoyed due to tenure in office. Measurement of this advantage is made difficult primarily due to selection bias, as candidates often choose not to run when the odds are against them. Strong incumbents deter challengers, and weak incumbents often simply retire. The effect of both of these is to inflate estimates of the incumbency advantage. Recently, scholars have employed regression discontinuity designs (RDD) to estimate the causal impact of incumbency on electoral outcomes (Lee, 2008). When elections are very close, candidates' assignment to winner or loser can be treated as-if random and the causal impact of holding office can be measured.

This framework is elegant and simple when used in two-candidate, single-member district elections, but there are challenges when using this in more complicated electoral systems. In particular, Brazil's OLPR system with many parties and predominantly personal voting creates many possible thresholds or discontinuities, including both intra- and inter-party list thresholds. Brazil's Open-List PR is well-discussed in the literature, and its benefits and weaknesses widely debated, and we refer the interested reader to that literature.⁸ We present the basics of the system to illustrate the many possible thresholds for analysis.

Table 2 shows a hypothetical election result under Brazil's OLPR system, with four parties, 100 voters, four seats, and 19 candidates. Voters cast a single vote either for an individual candidate or for the entire party list. Seats allocated to parties based on the total votes received by the party (combining votes cast for candidates and party list) following a Hare quota. After the distribution of seats among parties, seats are allocated to individual candidates based on the number of votes they received in the party list. For example, Party Z secured two seats based on its total votes of 37, allocated to the top-two vote-getters in the party, Cesar and Marta. Party X secured one seat, which went to Miriam, the top vote-getter in that party.

[INSERT TABLE 2 HERE]

This system provides two types of threshold – intra and interparty. The intraparty thresholds involve competition within the party list. The most straightforward and obvious threshold is the gap between the last winning candidate and the first losing candidate within each party list. For example, in Party Z, Marta with four votes was elected narrowly over Nelson with three votes, naturally defining a threshold for comparison. This intraparty threshold can also be extended to more than just the last winner and first loser, as others might be close to the intraparty threshold.

⁸ Among others, see Ames (1995a, 1995b, and 2001), and Mainwaring (1991, 1995, and 1998, and 1999).

In Party X, Angelica was also competitive – just one vote behind João and two behind Miriam. A slight change in vote share could have resulted in any one of them winning or losing. Second, there is an *interparty* threshold, which determines the number of seats each party receives. Consider Eudoro in Party Y. He was not elected – but would have been had his party received just a few more votes thereby earning an additional seat.⁹ To our knowledge no other research on incumbency under open-list PR has examined this interparty threshold.¹⁰

For each case, we measure the margin of victory or loss (the so-called “running variable”) using the minimum number of votes that a candidate must gain or lose in order to change her outcome in the election (from winner to loser or vice-versa). For the intraparty analysis, we assume that the total number of seats earned by the party is unchanged.¹¹

Consider first the intraparty case. We define the margin of victory for candidate i as:

$$M_i = \begin{cases} \frac{V_i - V_W}{V_i + V_W} & \text{if } i \text{ is a loser} \\ \frac{V_i - V_L}{V_i + V_L} & \text{if } i \text{ is a winner} \end{cases}$$

Where V_W and V_L refer to the number of votes received by the last winning and first losing

⁹ There is a another potential threshold that is beyond the scope of this paper. Losing candidates from parties that win seats automatically become substitutes or “suplentes”. They may temporarily (or in some cases permanently) substitute for election winners in the legislature. For example, an elected candidate might be sworn in and within a few weeks be invited to serve in the cabinet of a state government. In these cases, suplentes are called, according to the votes they received, to fill the vacant legislative positions. If the original office-holder returns to Congress, the suplente then must give up the seat. Usually between 200 and 300 suplentes pass through Congress during a term. However, the amount of time spent in the Chamber is not entirely exogenous: deputies can choose to cut short their positions and may do so strategically (to run for another office) or even with knowledge and intent of who will take their place. A governor might dismiss a deputy serving as Secretary of Transportation, because the deputy’s suplente in the legislature has not been a reliable party vote. Consequently, the time both winners and substitutes spend in office is not purely randomly assigned without any consideration of potential confounding variables. Because of the potential endogeneity in assignment of “time in legislature,” we exclude this threshold from our analysis.

¹⁰ In Brazil, there are more candidates per list than lists, so naturally there are more intra than inter party thresholds. In Chile, there are often more lists than candidates per list, so this might be a context where inter party competition defines more thresholds than intraparty.

¹¹ This assumption requires that any change in vote share involve transfers between co-partisans, or transfers that do not change party-seat allocations

candidates within a party, respectively. Because district magnitude and size vary greatly, we standardize using the vote shares of i and the threshold candidate (L or W).

For interparty thresholds, cases where seats may be transferred from one party to another. There are many ways that changes in vote totals can affect electoral outcomes. To identify all these potential thresholds, we simulated election results, moving votes from one party to another, one at a time, to identify cases where small changes in election results would change the outcomes for individual candidates. We standardize using the midpoint of the last winner and first loser as the base. That is, for the interparty analysis we define the margin of victory by:

$$M_{i,p} = \begin{cases} \frac{-D_p}{V_i - D_p} & \text{if candidate } i, \text{ running in party } p \text{ is a loser} \\ \frac{D_p}{V_i - D_p} & \text{if candidate } i, \text{ running in party } p \text{ is a winner} \end{cases}$$

Where D_p is the number of votes necessary for the party to win (lose) an extra seat. To see how close the two definitions are notice that if candidate i running in party p is the last winner, the party that would get an extra seat would need to receive D_p votes. Consequently, the first loser in some party would have $V_i - D_p$ votes. So, the denominator is exactly as summing up the winner and the loser as in the definition given for intraparty competition.

We analyze the incumbency advantage with three samples. First, we employ a perfect pairs strategy – examining intraparty last winners and first losers who ran again four years later ($t+4$).

¹² The use of perfect pairs imposes a hard restriction on the group – running again in $t+4$ after running in t – which will certainly increase challenger quality, making it more like the incumbent group. Comparing the same pair in both times addresses two major issues raised in the literature.

¹² Using repeated observations on the same candidates to analyze incumbency effects is not new. For instance, see Levitt and Wolfram (1997), Ansolabehere, Snyder Jr., and Stewart (2000), Ansolabehere and Snyder Jr. (2002), and Hirano and Snyder Jr. (2009).

First, it controls for fixed (unobservable) characteristics of candidates between the two elections. Second, by imposing the hard requirement of running again in the subsequent election, it assuages the concern about upward bias due to scare-off effects.¹³

We also examine a less restricted sample. We include all candidates within h percent of the intraparty electoral threshold. This approach includes incumbents and challengers even if their “paired” competitor was not running again. It also includes winners and losers from higher and lower on the list, as long as they are close to the threshold. We call this group the “Full Intraparty RDD”. Our third sample examines the interparty thresholds – examining cases of candidates for whom outcomes would change with a small shift in votes across parties.

For each, we estimate variations of the following equation:

$$y_{i,p,s,t+4} = \alpha + \rho E_{i,p,s,t} + \delta_1 M_{i,p,s,t} + \delta_2 M_{i,p,s,t}^2 + \dots + \delta_p M_{i,p,s,t}^p + \lambda_p^p + \lambda_s^s + \lambda_t^t + \beta_1 x_{1,i,p,s,t} + \beta_2 x_{2,i,p,s,t} + \dots + \beta_k x_{k,i,p,s,t} + \varepsilon_{i,p,s,t}$$

Where $y_{i,p,s,t+4}$ is the outcome of interest in $t+4$, $E_{i,p,s,t} = 1[v_{i,p,s,t} \geq v_{j^*,p,s,t}]$, i.e., is an indicator (dummy) variable coded 1 if the candidate was elected and 0 if she was not elected. The impact of incumbency is measured by ρ . The λ variables represent fixed effects for party, district and time, the x ’s are covariates relevant for the estimation,¹⁴ and $\varepsilon_{i,p,s,t}$ is a spherical error term with the usual characteristics. Following the standards in the literature (see, Lee, 2008) we will control for a p -order polynomial to avoid confounding the discontinuity with some non-linearity. More details on these models are in the supplemental materials. We explore several bandwidths and we test the results for two optimal bandwidths, as suggested by Imbens and

¹³ As showed by table 3 ahead only 2665 – or 17.5% – of challengers ran again, compared to almost 74% of incumbents. The perfect pairs strategy also requires those challengers to be positioned as the first non-elected (*suplente*) in their party lists at time “ t ”. This last restriction reduces the number of challengers to only 168 candidates, which represents only 1.1% of the total number of challengers, or 6.3% of those challengers who ran again.

¹⁴ We considered age, age squared, a dummy variable indicating if the candidate is male, a dummy variable indicating if the candidate is married and a dummy variable indicating if the candidate has complete college or not.

Kalyanaraman (2012) and Calonico, Cattaneo and Titiunik (2014).

Descriptive Statistics

We analyze elections for federal deputy for five elections (1998, 2002, 2006, 2010 and 2014). Since we analyze the effect of incumbency on subsequent elections, we must discard the first year of data (1998); all dependent variables will be associated with elections starting in 2002.

Table 3 shows descriptive statistics for the main variables. Incumbents in $t+4$ received on average 25 times the number of challengers' votes. Similarly, over 50% of incumbents were reelected in subsequent elections while just 0.9% of challengers were elected. The third entry shows that incumbents are more likely to run again than those that lost a previous election: 74% of winners ran in the next election, versus 17.5% of losers. For incumbents that ran again in $t+4$ the likelihood of winning a seat is 68%, while for challengers competing again it was just 5.2%.

[INSERT TABLE 3 HERE]

Combining the likelihood of both running again and winning conditional on running again gives the unconditional likelihood of winning a seat in $t+4$. For incumbents this is .505. The two reasons for not being reelected (not running again and not winning given that the candidate ran again) have similar frequencies for incumbents. These figures are different for challengers. The likelihood of running again (17.5%) is much larger than the likelihood (conditional on running again) of winning the next election (5.2%).

Results

We focus first on the intraparty thresholds. Figure 1 shows the discontinuity in the full sample “break” point for the number of votes, the likelihood of running again and the likelihood of being elected. The discontinuity is weakest for the number of votes. The upper bound of the standard deviation touches the lower bound in the discontinuity point. In the case of the likelihood

of running again or winning in the subsequent election the upper bound on the right side is well above the upper bound in the left side of the Figure.

[INSERT FIGURE 1 HERE]

Table 4 shows descriptive statistics for both the perfect pairs and Full RDD groups using a 20% bandwidth. Both illustrate a large incumbency advantage in terms of votes and re-election rates. Incumbents in the perfect pair sample are receiving nearly 40% more votes than challengers. In the full RDD sample, they receive nearly 600% more votes. In terms of electoral victory in the next election, perfect pair incumbents are more than twice as likely to win the next election, while Full RDD incumbents are six times as likely to win in the next election.

[INSERT TABLE 4 HERE]

The Full RDD and Perfect pair samples are very similar in terms of age and education, but differ markedly in campaign expenditures and votes received in year t . When compared with the Full RDD sample, perfect pairs are dramatically more balanced. In the Full RDD, even in the 20% bandwidth group, incumbents enjoy much greater campaign resources than challengers: campaign expenditures are almost ten times higher, and just 50% of the challengers have a college degree against 78% of the incumbents. Those variables are quite balanced for perfect pairs.

Figure 2 shows our core result: there is a strong, positive incumbency advantage in Brazil.¹⁵ Incumbents receive significantly more votes than challengers in all three of our specifications.¹⁶ Note that given the wide variety in district sizes and voting populations, all analysis of votes as a dependent variable uses the natural log of votes. Being an incumbent also increases the likelihood

¹⁵ We omit the coefficients of covariates showing just the variable of interest. The covariates are age, age squared, gender, marriage, and education. Full results are in the Supplemental Materials.

¹⁶ Since the dependent variable is the log of votes, the estimated coefficient can be interpreted (approximately) as the percentage change in Y associated with a one-unit change in an independent variable, or the percentage increase in votes attributable to being an incumbent.

of reelection dramatically over a very similar challenger.¹⁷ For all analyses, the magnitude of the incumbency advantage goes down as we tighten the bandwidth. Of course, when we tighten the bandwidth, precision falls given the smaller sample size. Even so, for Perfect Pairs, even at a bandwidths as tight as 4% results are still significant. When we control for covariates the result is still significant for a bandwidth as tight as 2% (see supplemental materials for full results).¹⁸

Narrowing the bandwidth has less impact on the Perfect Pairs sample than on the Full RDD sample. This suggests that the perfect pairs samples are naturally more similar and the challengers more competitive. When we restrict the difference in votes to 20% the Full RDD sample is reduced drastically (by 75%) to around 800 observations. The same restriction reduces the Perfect Pairs sample by only 20%. For the interparty comparisons, there are few candidates close to intraparty thresholds. With a bandwidth of 10%, there are only 23 observations from all the elections included in our study. With so few cases, we focus on the other two thresholds in the rest of the paper.¹⁹

The maximum effect on votes in the subsequent election is slightly below 70%, and the smallest impact is 4% for the 35 pairs that were just 2% distant in the previous election. Using Imbens and Kalyanaram (2012) (hereafter IK) or Calonico, Cataneo and Titiunik (2014) (hereafter CCT) for the perfect pairs finds similar optimal bandwidths (9% and 11% respectively); consequently, the incumbency effect is also similar (37% and 39% respectively).²⁰ For the Full RDD, the optimal bandwidth is larger either using IK (38%) or CCT (21%). The incumbency effect

¹⁷ Notice that even in the Full RDD we have just the candidates that run at least in two subsequent elections reducing the sample from more than 17,000 to around 3,000 observations.

¹⁸ This is showing that the covariates increase precision. Since adding covariates basically do not change the magnitude of the incumbent effect this is telling us that the covariates are probably not correlated with the incumbent variable (the discontinuity) but correlated with the dependent variable.

¹⁹ A number of features of Brazil's system lead to more intraparty competition than interparty competition, most notably high district magnitude and long party lists. In a case like Chile, where district magnitude and list lengths are fixed at 2, we would expect many more interparty close outcomes.

²⁰ We do not present results controlling for covariates in this case since both algorithms were conceived for the case of no covariates in the model.

using Full RDD and optimal bandwidth seems too large to us (90% and 71% respectively). When we constrain the sample to 2% in the Full RDD the incumbent effect is 37%. It is possible that, to make the groups comparable in the Full RDD we need to tighten the sample to be very close to the threshold. Combined, the analysis suggests an impact of incumbency on votes in the subsequent election in the range of 30%-40%. This is a large and substantively significant result.

Results are very similar for the likelihood of reelection. The effects are large and positive but decrease and lose precision as we tighten the bandwidth. For the perfect pairs, however, the reduction in the magnitude is modest even when we reduce the margin of votes from 4% to 2% (the impact of incumbency falls from .18 to .15). Using optimal bandwidths, the impact of incumbency on reelection is 16% and 20% for IK and CCT respectively. For the Full RDD, once again, both IK and CCT are giving a bandwidth that seems too large. Though the likelihood of reelection the magnitude is always larger for the Full RDD than for the Perfect Pairs, the parameters converge as we reduce the bandwidth. In sum, it appears that incumbency increases the likelihood of being reelected by about 15%-20%.

Our core finding is that Brazilian legislators enjoy a sizeable positive incumbency advantage. Winning election increases both votes and chances of re-election when compared with similar losing candidates. Our result contrasts with existing work on Brazil as well as the general finding that developing countries have negative incumbency advantages. It also contrasts with the finding of low reelection rates for the Brazilian Congress. Although it is not easy to be reelected in the Brazilian Congress, holding a seat in Congress does aid significantly in a reelection bid.

Incumbency and Progressive Ambition

One limitation of our results is that there may be selection effects in the decision to run again. If the strongest challengers move on and run for other offices then we may bias our estimates

upward; if the strongest incumbents move on to other offices, then we may bias our estimates downward. This possibility might seem odd in some countries, but scholars have argued that Brazilian political careers are characterized by “progressive ambition”, where legislators move between national and local politics in a non-linear pattern of career progression (Samuels, 2002).

Consequently, we now examine incumbency and career paths. Figure 4 compares the career paths of candidates four years after a federal deputy bid, examining whether they ran again for federal deputy, ran for a lower office (state deputy, mayor, or city council), or ran for a higher office (Senate, Governor, or President). We cannot repeat our perfect pairs analysis here because that comparison was limited to re-election seekers.

[INSERT FIGURE 4 HERE]

The results are again consistent with a positive incumbency advantage: incumbents are more likely to run for re-election or for higher office than losers, and incumbents are much less likely to run for lower office in a subsequent election. Examining first the impact of incumbency on running again for federal deputy, incumbents are more likely to run again than challengers, even when we restrict the sample to a bandwidth as low as 4%. For the 10% bandwidth, which is below optimal bandwidths, an incumbent is about 20% more likely to run again than a competitive challenger. Recall from Table 3 that incumbents’ rate of running again is 74%, and the frequency of winning, given that the candidate runs again, is 68%. In the case of challengers, using a 20% difference for both events, we calculate a likelihood of 54% for running again and 48% for winning conditional on running again. These figures give an unconditional likelihood of winning elections for competitive challengers of 26%, about half the re-election rate of incumbents.

Examining other career paths, the incumbency effect on running for an upper position is positive but small. Even for a 20% bandwidth, the estimate suggests that incumbents are just 2.5%

more likely to run for an upper position than challengers. On the other hand, incumbency has a negative and significant impact on running for a lower office even for a narrow bandwidth of 2%.

Combined, one implication is that we have underestimated the incumbency advantage due to selection effects. Losing candidates' most likely outcome is that they do not run again for any office in the next four years, and their second most likely outcome is running for a lower office. Winning candidates' most likely outcome is that they run for re-election.

In sum, there is a positive and significant incumbency advantage. That advantage affects votes and re-election, and also affects future career paths. We presume that legislators are mobilizing some resources from holding office to leverage into future electoral success.²¹ However, we do not know the mechanisms through which they transform those resources in additional votes. In the next section, we attempt to disentangle the direct impact of office resources from the indirect impact of having access to more money in the reelection campaign.

Campaign Spending as a Mechanism for the Incumbent Advantage

Given clear evidence of a substantial incumbency advantage, our next step is to search for mechanisms behind it. We hypothesize that part of the effect is due to candidate's increased capacity of raising campaign funds. The Brazilian Electoral Court has collected data on candidates' campaign expenditures since 2002, which we utilize to explore this hypothesis. First, we estimate the incumbency effect on campaign funds using the same empirical strategy used on election results. If this first step confirms an effect on campaign funds, we attempt to decompose the direct incumbency effect on electoral outcomes, and the indirect effect through larger campaign funds.

Figure 5 presents results for the effect of incumbency on the log of total campaign

²¹ We attempt to check if there was any impact on personal variables such as the civil status (married or not) or personal wealth measured by the candidate's income return. We found no impact whatsoever on those variables reinforcing the idea that incumbency was strategically used to improve electoral performance.

expenditures for both the perfect pairs and the Full RDD. In the case of perfect pairs, the parameter is not statistically significant either for a bandwidth narrower than 20% or for the optimal bandwidths. In the Full RDD, the parameter is significant even when we constrain the sample to a 4% bandwidth. Thus, regarding incumbency's impact on campaign funds, our results are mixed. From the optimal bandwidth for the Full RDD, an incumbent will enjoy roughly 30% more campaign funds than a challenger.

[INSERT FIGURE 5 HERE]

In the second step, we proceed with the analysis attempting to estimate direct and indirect effects of incumbency on electoral outcomes. We employ the same regression on electoral outcomes shown in Figure 2, but adding expenditures in the campaign in $t+4$ as a control. Although this is endogenous, the point is checking if results from Figure 2 are still significant after controlling for campaign expenditures. If the only mechanism through which incumbency affect electoral outcomes was through the (supposed) increase in campaign expenditures, the effect should vanish when we control for this variable.

Figure 6 shows the results from models presented on Figure 2 on after controlling for campaign expenditures. The only exception is the last set of lines, as only Calonico, Cattaneo, Titiunik (2016) allows the use of covariates to estimate the optimal bandwidth.²² The top graphs explore the effect of incumbency after controlling for campaign. The lower graphs focus on the likelihood of reelection as the dependent variable.

[INSERT FIGURE 6 HERE]

Both analyses tell a similar story. The magnitude of the incumbent effect is indeed lower when we control for contemporaneous campaign expenditure. In the case of Perfect Pairs, it is not

²² In addition to campaign funds, we add the same covariates listed in footnote 18.

significant at the at usual levels of significance either for the logarithm of votes or the likelihood of reelection. In the case of Full RDD, if we accept a 10% significance level,²³ the direct and indirect effects of campaign resources are roughly similar. In other words, the indirect impact of incumbency via campaign expenditures is as relevant as the impact through other mechanisms.

Heterogeneity of the Incumbency Advantage

In a final step, we examine several of the broader arguments in the literature, leveraging Brazil's great diversity to conduct several within-country tests of the impact of development, party strength, and electoral rules on the incumbency advantage. These variables have been suggested in previous analyses as affecting the size and sign of the incumbency advantage, but nearly all tests have been conducted in single-case studies without any variance.

The comparative literature on incumbency suggests that the incumbency advantage is positive in developed countries and negative in less developed countries. Our general findings contradict this hypothesis, as they point to a positive incumbency advantage. Yet, since our result might reflect some particular circumstance in Brazil, we can further exploit our case by comparing the size of the incumbency advantage across states, which vary greatly in their levels of development. Specifically, we test for an interaction of literacy with the treatment, "Elected".

Second, additional research has suggested that the incumbency advantage should be weaker where there are stronger parties (Jacobson, 2015; Golden and Picci, 2015). While Brazil has been widely characterized as a weak party system, there are exceptions to this rule. Most notably, the Workers' Party is known for having many characteristics of an institutionalized party. It is the only Brazilian party with a large mass following, has the largest official membership, and is known for enforcing discipline on its elected members. A handful of smaller parties also exhibit traits of

²³ If we were considering a one-sided alternative (i.e. $H_1 = \alpha > 0$) it would be significant at 5%.

institutionalized parties. We leverage these cases for two analyses. We test for an interaction between Elected and "PT" - a dummy variable for the Workers' Party - and between Elected and "Strong Party" - a dummy variable for the PT and the smaller institutionalized parties.

Lastly, scholars have suggested that intraparty competition reduces the incumbency advantage (Ariga, 2015). While Brazil's electoral rules encourage intraparty competition in all Chamber of Deputy elections, the degree of competition should vary with district magnitude (Carey and Shugart, 1992). Brazil's electoral districts vary greatly in magnitude, from just 8 legislators in the smallest states to 70 in the district/state of Sao Paulo. Consequently, we test for an interaction between "Elected" and "District Magnitude".

Figure 7 shows results from these interactions for each of the four variables discussed above: Literacy, PT, Strong Party, and District Magnitude. Considering first the question of development, there is a clear relationship between development and incumbency – but not in the expected direction. Instead, the incumbency advantage is largest in least developed areas of Brazil, and smallest in the most developed, and these differences are substantively and statistically significant. In a state with a 65% literacy rate, the incumbency advantage is quite large – incumbents are predicted to receive as much as 100% more votes than challengers. In the most developed states, the incumbency advantage is smaller (less than 50%) for large samples and is effectively zero when examining narrow (4% and 2%) bandwidths.

The results are equally strong when examining the impact of incumbency on re-election. Incumbents' predicted re-election rate is dramatically higher than that of challengers in the least developed states, and results only get stronger as bandwidths are narrowed. In the most developed states, the effect is smaller and for the most precise comparisons, effectively zero.

Combined, these cast doubt on the idea that in, less developed areas, voters are more critical

of underperforming governments. One interpretation is that incumbents are able to leverage the distributional benefits of public office and build support for subsequent elections. In more developed areas, voters place less value on government distribution, and distributive resources are less valuable. There are other possible mechanisms, including information, party strength, and of course, some other unobserved factors. But the strong results from this within-country comparison suggest that the conventional wisdom, at a minimum, needs closer examination.

Our second test examines the impact of party strength on incumbency. Previous work suggests that party strength is inversely related to incumbency (Golden and Picci, 2015; Jacobson, 2016), and our results are partially consistent with that literature. In terms of votes, the Incumbency Effect for the Worker's Party is effectively zero - the 95% confidence interval is centered on zero and is insignificant – while other parties have a positive incumbency advantage (although the difference between the PT and other parties is not significant). This first result supports Golden and Picci's (2015) hypotheses that incumbency is stifled by party organizations that control nominations and resources. At the same time, when examining all strong parties together, there is no impact of incumbency on votes. For re-election, however, there is not a significant incumbency advantage for the PT or the set of strong parties..

Previous work has also suggested that intraparty competition should reduce the incumbency advantage by providing voters with multiple candidates from their preferred parties (Ariga, 2015). Although Brazil uses OLPR for all deputy elections, variation in district magnitude should drive personal vote-seeking and increase the number of candidates. In this case, we find consistent evidence that increasing district magnitude reduces the incumbency advantage. For both the natural log of votes and re-election rates, incumbency has a large and positive effect in small districts, while there is no impact of incumbency in Brazil's largest districts.

Of course, this analysis has limitations and should be considered suggestive and preliminary evidence. While there is substantial within-country variance in Brazil, it does not capture the full range of possibilities globally. Many countries have literacy rates and other development indicators well above Brazil's most developed and well below its least developed states. Party strength may be higher for the PT and several other parties than for their competitors, but it may not be comparable to traditional parliamentary parties in other countries. And while District Magnitude should affect intraparty competition, there is much greater variance in electoral rules and intraparty competition cross nationally.²⁴ In addition, these state and party-level analyses naturally create a multi-level model, our key variables of interest are at the group level, and we simply do not have enough groups for a more rigorous test of our hypotheses.

Conclusion

We provide the first examination of the incumbency advantage in the Brazilian Chamber of Deputies. We introduce several innovations for studying the causal impact of incumbency in OLPR contexts, including the use of perfect pairs and analysis of inter and intraparty thresholds.

We find a substantial incumbency advantage in Brazil, with incumbent legislators receiving more votes, having a better chance of winning, having more campaign resources to spend, and running for and winning higher value offices than non-incumbents. A significant portion of incumbents' electoral advantage appears to be attributable to campaign expenditure advantages. In further analysis, we explored whether these incumbency advantages varied with party strength, district magnitude, and development. We found that the incumbency advantage was reduced by both development, party strength, and district magnitude. These findings contribute both to existing research on Brazilian politics as well as the broader literature on the incumbency

²⁴ Indeed, the most important variance may be between district magnitude of one and seven, while we only observe district magnitude between eight and seventy.

advantage (in particular on PR systems).

For Brazil, our findings suggest a revision of existing views of the legislative politics as chaotic, unpredictable, and too uncertain to be an attractive long-term career environment. Incumbents enjoy many advantages over challengers and are successful in using these advantages to further their careers. The most likely outcome for incumbents was to seek re-election, and the second most-likely outcome was to retire. Few legislators are running for mayor or other offices.

Regarding the OLPR system, we have also demonstrated that the primary competition in Brazil is intraparty rather than interparty.²⁵ While interparty thresholds do exist and while there is meaningful competition between parties and coalitions, these contests are rarely close and are few in number. Instead, intraparty competition accounts for the majority of close contests. This feature of Brazil stands in contrast to other OLPR systems, like Chile's, where the ratio of parties to candidates is much larger, and parties account for more of the competition.

Our results also contrast with findings from research on Brazilian mayors (Titiunik, 2011; Klasnja and Titiunik, 2017). Why is the incumbency advantage negative for mayors but positive for legislators? We consider two possibilities. The first is that the incumbency advantage may be limited to legislative offices where politicians do not bear as much direct responsibility for policy outcomes as do executives (Ansolabehere and Snyder, 2002). The second, following Magalhães (2015), is that most previous work on mayoral incumbency in Brazil examines *party* incumbency, not individual incumbency. This may distort the measurement of the incumbency advantage, which is often seen as a personal, not as a partisan characteristic.

More broadly, our results contribute to the emerging literature on the comparative incumbency advantage. According to that literature, Brazil closely matches the profile of a country

²⁵ With a bandwidth of 20%, we have 835 candidates selected from intra-party competition and only 35 from the inter-party one.

where there should be a negative incumbency advantage: a developing country with intraparty competition and numerous corruption scandals. In spite of these factors, we find a consistent incumbency advantage. Leveraging within-country comparisons, we found that there was a negative correlation between development and the incumbency advantage, in contrast with cross-national comparisons. We also found evidence that party strength reduces the incumbency advantage, echoing earlier work by Jacobson (2015) and Golden and Picci (2015). Finally, we found that the incumbency advantage is largest in smaller districts, although our variance in electoral institutions is extremely limited in that part of the analysis.

We suggest several avenues for future research. One would be to test a broader theory of incumbency cross-nationally, testing the impact of partisanship, electoral rules, legislative professionalism, and other predictors. For Brazil, however, we suggest an analysis of subnational legislatures and city legislatures. Previous work has found that mayors have a negative advantage; resolving this contradiction with our findings will require examining city council elections. Also, the great diversity of Brazil's cities in terms of political systems, development, and other variables will provide leverage to help scholars build a general theory of incumbency.

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Table 1: Comparative Incumbency Advantage

Country	Institution	Incumbency Advantage	Citation
Brazil	Local	-	Klasnja and Titunik, 2017
Canada	National	+	Ariga, 2010
Canada	National	+	Kendall and Rekkas. 2012
Chile	National and Local	+	Shiumerini, n.d.
Chile	Local	-	Klasnja and Titunik, 2017
Colombia	National	-	Klasnja and Titunik, 2017
Denmark	National	+	Dahlgaard, 2016
Finland	National	+	Ariga, 2010
Guatemala			Morales, 2013
India	National	-	Linden, 2004
	National	-	Duraisamy, Lemennicier, and Khouri, 2014
India	State	-	Uppal, 2007
Italy	National	+	Ariga, 2010
Italy	National	0/+	Golden and Picci, 2016
Ireland	National	+	Redmond and Regan, 2015
Japan	National	-/-/+	Ariga, 2010
Japan	National	-	Ariga, 2015; Ariga et al. 2016
Mexico	Local	-	Klasnja and Titunik, 2017
Peru	Local	-	Klasnja and Titunik, 2017
Romania	Local	-	Klasnja 2015
UK	National	+	Ariga, 2010
Zambia	National and Local	-	Macdonald, 2014

Each entry reports a country-study result. Institutions may be national or local, legislative or executive offices. The incumbency advantage is reported as positive (+), negative (-), or as not being statistically significant (0). In papers with more than one core analysis, multiple results are reported.

Table 2: Hypothetical Election Results under OLPR

Rank	Party W		Party X		Party Y		Party Z	
	Cand	Votes	Cand	Votes	Cand	Votes	Cand	Votes
1	Lara	3	Miriam	6	Ruy	11	Cesar	24
2	Rosa	2	João	5	Eudoro	8	Marta	4
3	Júlia	1	Angelica	4	Jorge	7	Nelson	3
4	Alice	1	Darcy	3	Udson	2	Ze	2
5			Carlos	1	Patricia	0	Walter	1
List	Party W	0	Party X	1	Party Y	8	Party Z	0
Total		7		20		36		37
Seats		0		1		1		2

Parameters: 4 parties, 4 seats, 19 candidates, and 100 voters

Table 3: Descriptive Statistics for Challengers and Incumbents

Variable	Candidate	Obs.	Average	St. Dev
Votes _{<i>t</i>}	Challengers	15149	7,186	(13,990)
	Incumbents	2033	97,708	(76,895)
Elected _{<i>t</i>+4}	Challengers	15151	0.009	(0.096)
	Incumbents	2034	0.505	(0.500)
Run _{<i>t</i>+4}	Challengers	2665	0.175	(0.380)
	Incumbents	2034	0.739	(0.439)
Elected _{<i>t</i>+4} /Run _{<i>t</i>+4}	Challengers	2665	0.052	(0.223)
	Incumbents	1504	0.684	(0.464)

***Source:* CEPESP (2017)**

Figure 1: Discontinuity in the Number of Votes (2002 to 2014)

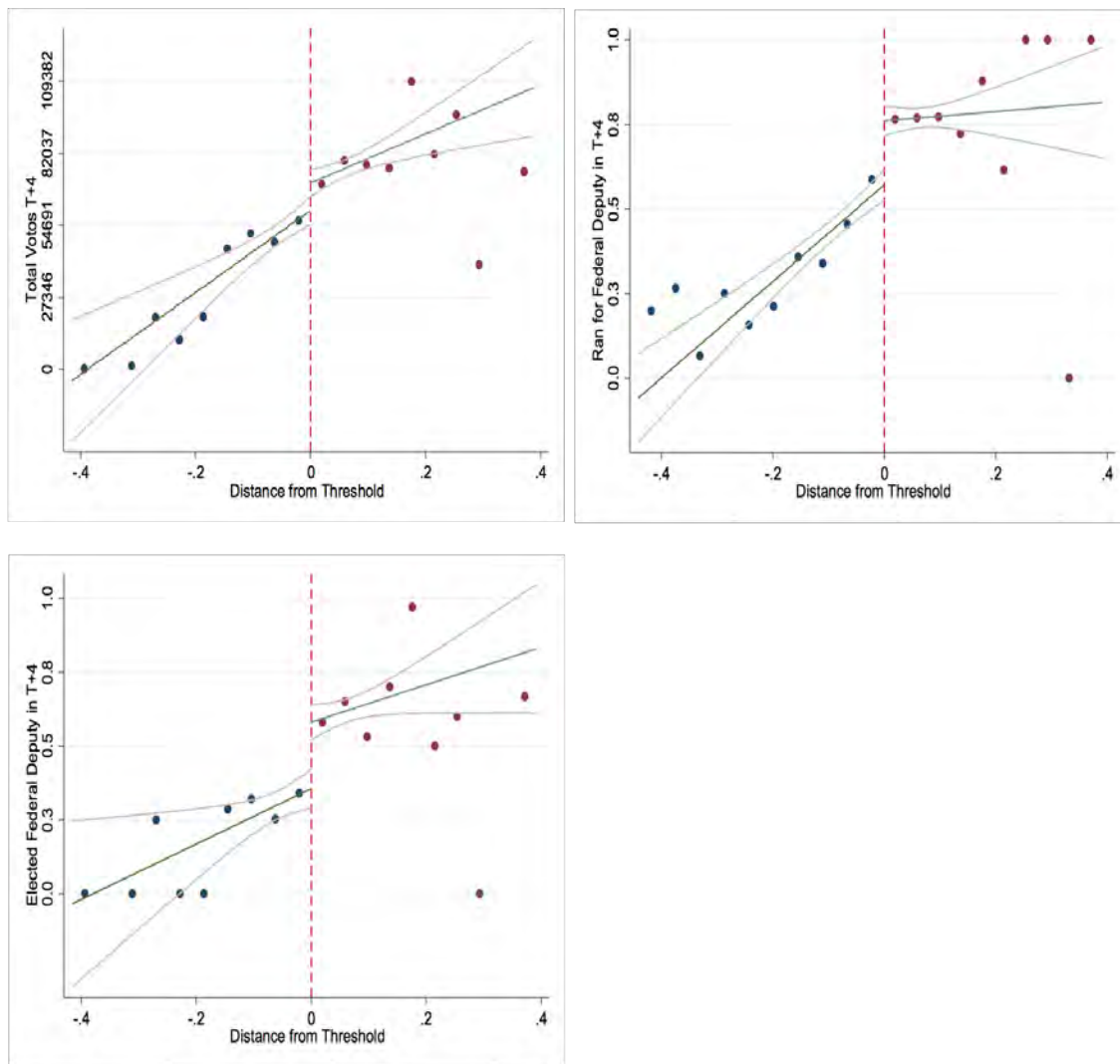


Table 4: Balance for selected variables (2002-2014)

Variable	Candidate	Perfect Pairs			Full RDD		
		Obs	Average	St Dev	Obs	Average	St Dev
Votes _t	Challengers	136	48,940.21	(34,112)	314	49,717.03	(34,069)
	Incumbents	136	54,665.96	(27,502)	555	64,941.92	(27,538)
Elected _{t+4}	Challengers	136	0.301	(0.460)	346	0.263	(0.441)
	Incumbents	136	0.544	(0.499)	555	0.562	(0.496)
Campaign Expenditures	Challengers	102	216,385.8	(234,486)	235	244,409.5	(304,587)
	Incumbents	102	238,671.1	(263,135)	398	246,955.2	(341,065)
Candidate Age	Challengers	133	50	(10)	333	51	(10)
	Incumbents	133	49	(11)	544	50	(11)
College	Challengers	136	0.787	(0.411)	346	0.763	(0.426)
	Incumbents	136	0.772	(0.421)	555	0.769	(0.421)
Lower Position	Challengers	136	0.176	(0.382)	346	0.179	(0.384)
	Incumbents	136	0.088	(0.284)	555	0.094	(0.291)

Source: CEPESP (2017)

Figure 2: Effect of Incumbency on Log(Votes) and Re-election(Intraparty Thresholds No Covariates)

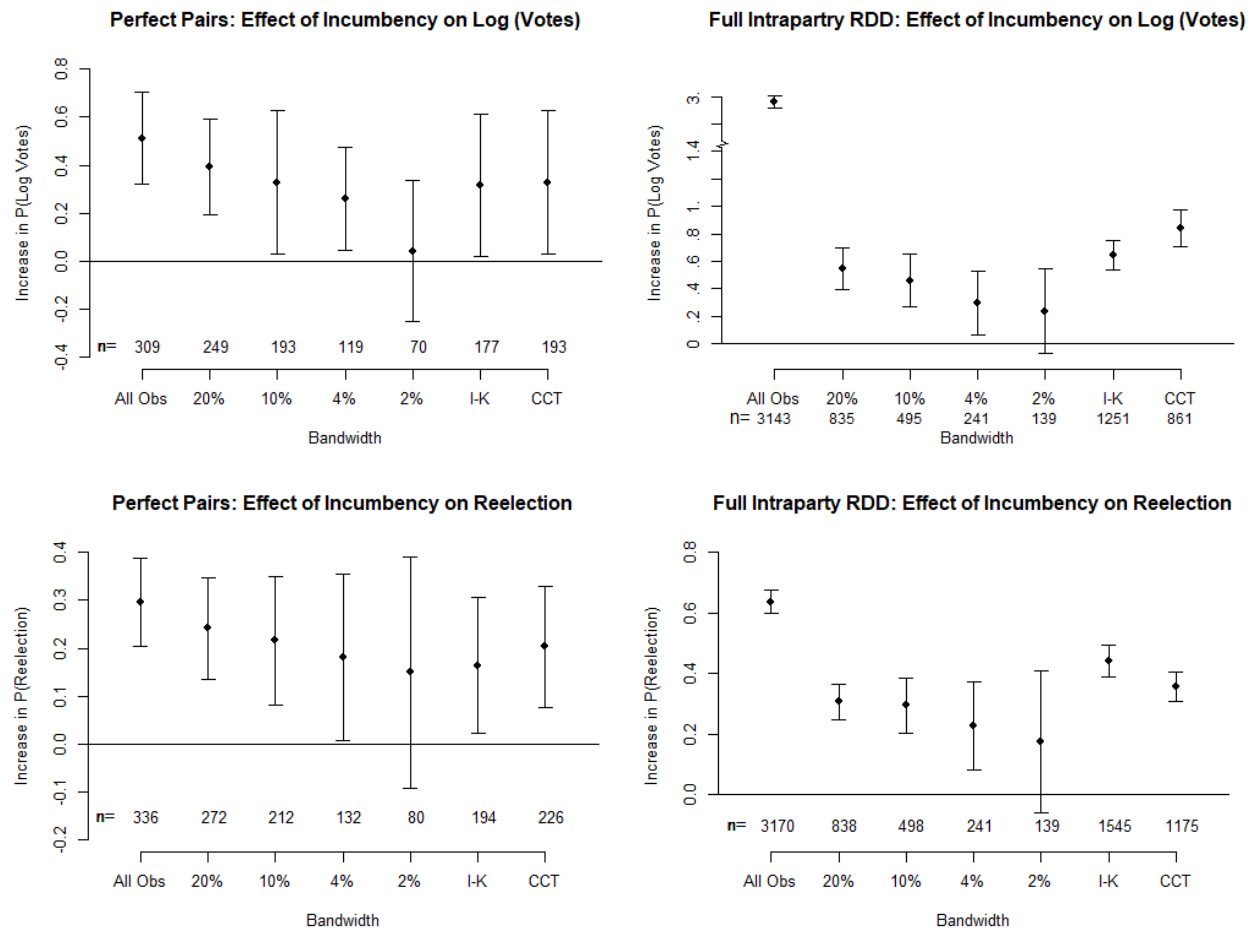


Figure 3: Effect of Incumbency on Log(Votes) and Re-election (Interparty Thresholds, No Covariates)

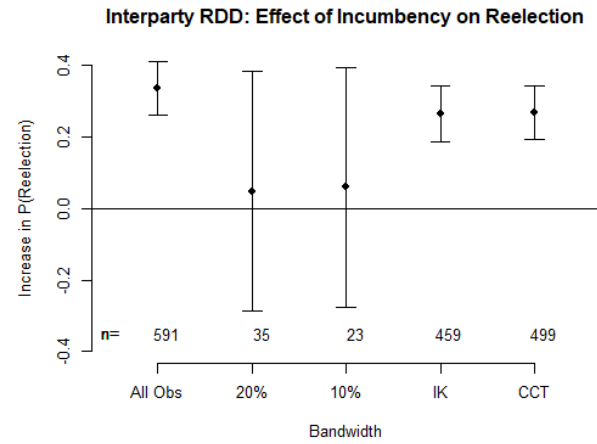
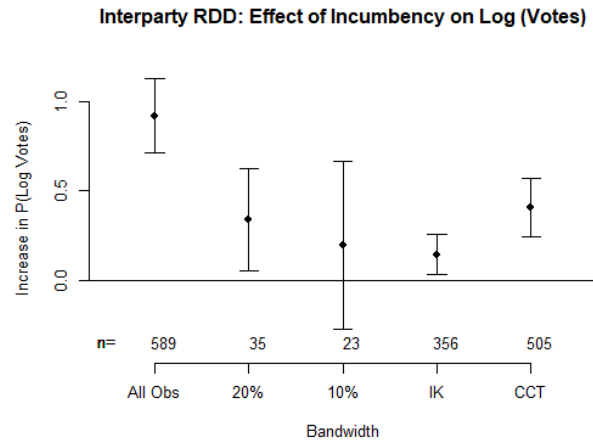


Figure 4: Effect of Incumbency on Future Office-Seeking (Full RDD, No Covariates)

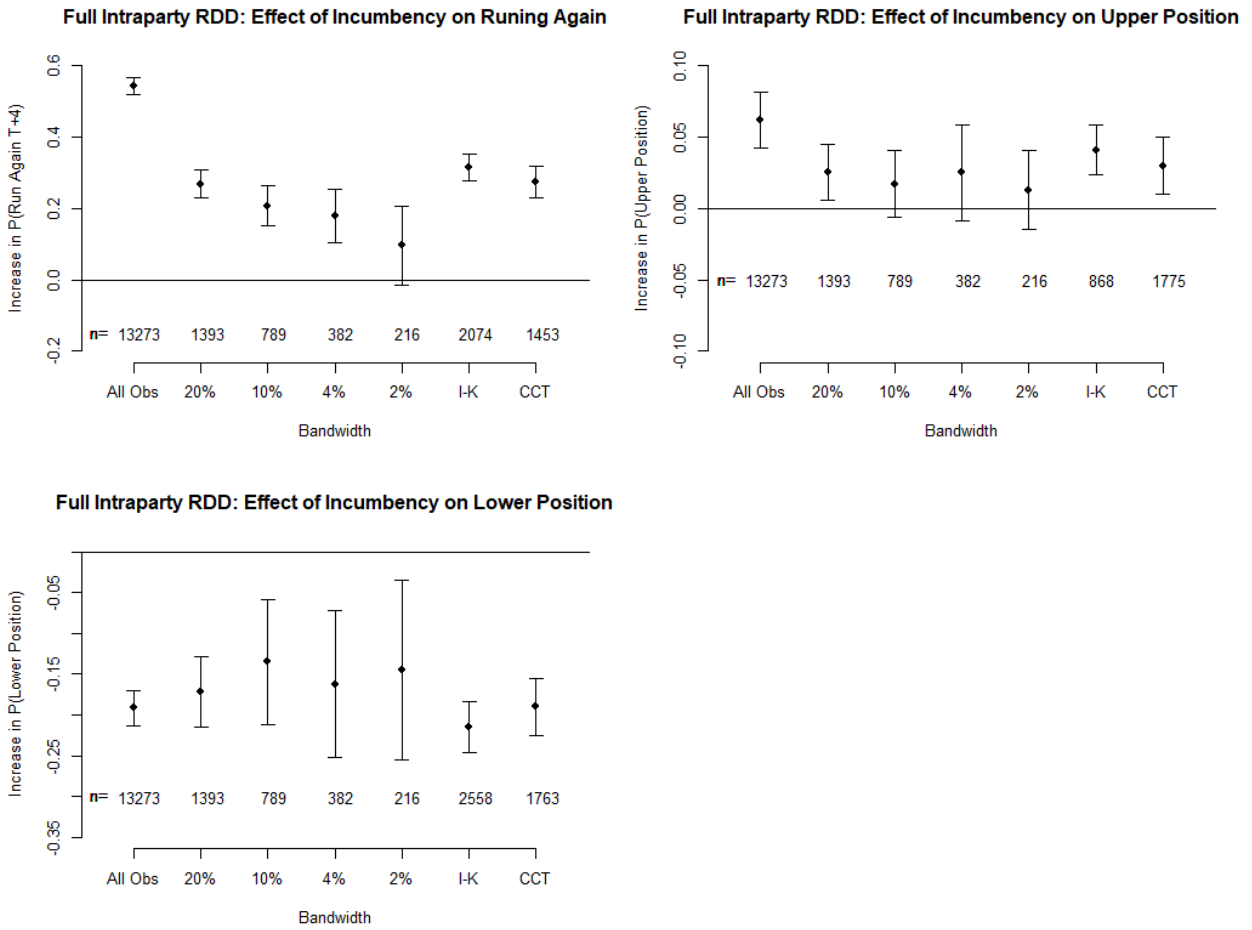


Figure 5: Effect of Incumbency on Future Campaign Expenditures

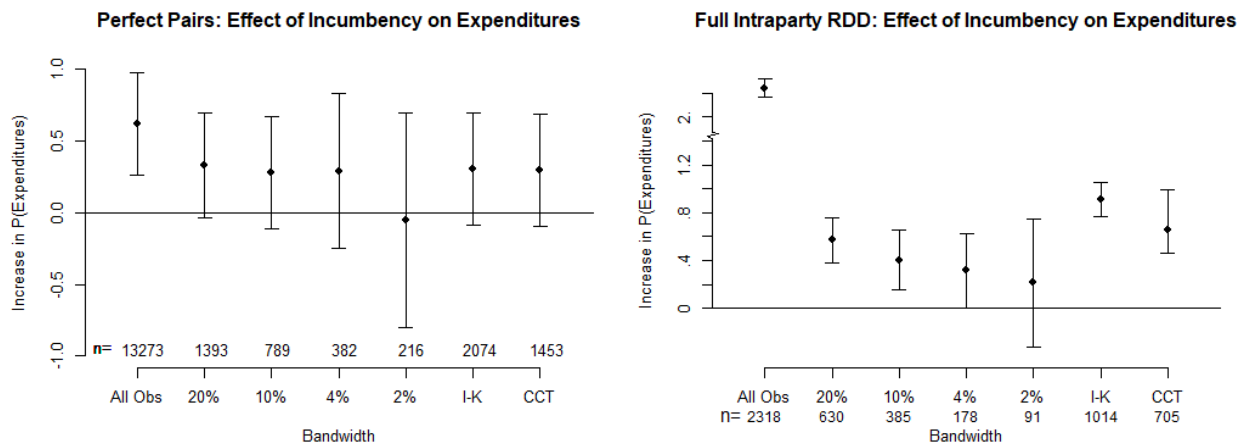


Figure 6: Direct and Indirect Effect of Incumbency through Campaign Expenditure

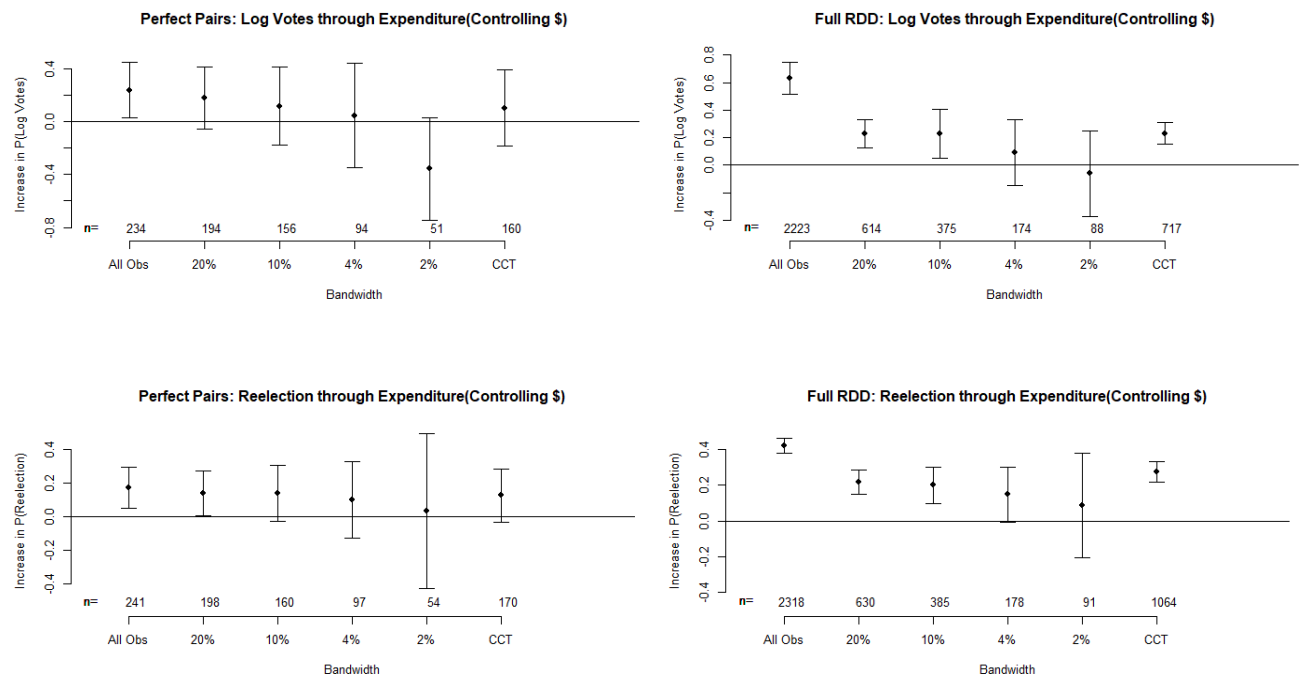


Figure 7: Heterogeneity in the Effect of Incumbency

