

Investment Capacity and the Electoral Marketplace

Evidence from Brazil*

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Abstract

The importance of money in elections is a hallmark of contemporary democracies. In this paper, we study how investment capacity, defined as the resources remaining after the municipality perform the mandatory expenditures, influences elections in Brazil. We theorize that when a politician wins the election in a low investment capacity municipality, this generates commitment problems, as new mayors are unable to reward the firms that contributed to their campaigns, influencing the next elections. We test these claims by considering a close-elections regression discontinuity design coupled with heterogeneous quantile effects for Brazilian municipalities between 2000 and 2012. We find that incumbent mayors in towns with low investment capacity receive less campaign donation afterward and are more disadvantaged in their reelection contests. The results are robust to design variations and changes in party labels or mayoral characteristics. Our findings have implications for the influence of money on politics in democratic countries.

Keywords: Investment capacity; campaign contributions; incumbency effects; close-elections regression discontinuity design; Brazil.

Abstract word count: 149

Total word count: 3977

*We would like to thank Guilherme Fasolin, Larissa Santos, and the participants at MPSA for their valuable comments. All the remaining errors are our entire responsibility.

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1 Introduction

The importance of money in elections is a hallmark of contemporary democracies. Money has a prominent role in elections, as campaign costs have increased dramatically across the world (Scarrow, 2007). Campaign resources grant candidates strategic advantages, and in places with less ideological attachment, they are crucial to convincing voters. Politicians with extra funds can then have a considerable advantage over others (Samuels, 2001b; Speck and Mancuso, 2014). However, most of the papers on money and politics focus either on the electoral process (Jacobson, 1978; Gelman and King, 1990; Hainmueller and Kern, 2008; Fink, 2012) or on the governing stage (Besley and Persson, 2009; d’Agostino et al., 2016; Rubin, 2019). This focus narrows down the richness of the interplay between money and politics.

In this paper, we remedy this gap by studying the money and elections nexus as a full cycle: money starts influence at the beginning of the election when politicians promise services to firms in exchange of campaign donations (Boas et al., 2014). Upon winning the election, politicians may or may not reward firms with public procurement and contracts. After the governing stage, a new electoral cycle starts, and firms have again the opportunity to give for campaigns, either contributing to incumbents or challengers. Elections take place and the full cycle restarts, as most democracies in the world have regular electoral cycles.

Although the election-government cycle is well defined, it is difficult to predict how politicians and real-world conditions will affect the governments. On the one hand, politicians might be rent seekers, oriented only toward short-term office perks, instead of trying to build a successful political career (Kitschelt, 2000; Tollison, 2004). In this case, they may choose to exert no effort to provide services. On the other hand, candidates could form incorrect beliefs about the resources available for service provision (Brender and Drazen, 2008). Once in office, they may realize that they cannot invest in services the amount previously planned before the elections. In both scenarios, voters may not obtain the same amount of public goods

and firms that donated for the politicians' campaigns will not receive back their donations in terms of contracts and procurement. This could motivate both voters and firms to punish the incumbent politicians in their next election, explaining the incumbency disadvantage and why incumbents receive fewer campaign donations than challengers in developing countries.

To test these ideas, we leverage quasi-experimental evidence using a close-election regression discontinuity design in Brazilian municipalities, between 2000 and 2012. We show that incumbents receive 4.70% less electoral donations than challengers, and have 8.14% less chance of getting reelected. To understand the role of investment capacity, we look at the ratio between the personnel expenditure and the municipal revenue. We divide the sample into quantiles, median and quartiles, exploiting the heterogeneous effects in the regression discontinuity design. Dividing in quantiles has the advantage of splitting the power equally among the categories. We find that in municipalities below the median in investment capacity, mayors receive 9.68% fewer campaign contributions and have 14.36% less chance of being reelected. Above the median in both indicators, the campaign contributions and the incumbency disadvantage becomes insignificant. The results also hold for quartiles, with the advantage of providing a clearer picture of the relationship. Therefore, investment capacity connects the money-in-elections with the money-in-government, explaining how investments while in government affect the electoral marketplace.

2 Investment capacity in the electoral marketplace

Most of the public service provision depends on an interaction between bureaucracy, firms, and politicians. To obtain electoral support, politicians make pre-electoral informal agreements with firms (Arvate et al., 2013). In exchange to campaign donations, politicians offer to firms privileged access to government contracts in the post-election period (Boas et al., 2014; Fonseca, 2017). However, the politician's ability to make their promises credible depends on government investment capacity (Samuels, 2001a). Thus, investment capacity is

directly connected with the electoral marketplace.

To clarify, consider the following theoretical argument on the role of investment capacity in the electoral cycle. Suppose a polity with two types of politicians: *career politicians*, that want to build a political career and *opportunistic politicians* that want to harness the advantages of the public office, paying little effort for service provision. These types are the politicians' private information, but they reflect in different office behavior: in an institutional setting where there are only two terms (or any limited amount of terms), career politicians will try to provide the maximum amount of services, regardless of being lame-ducks. However, opportunistic politicians will only provide services enough to get reelected in their first terms, providing no services in their lame-duck terms. Firms, on the other hand, want to donate for campaigns, but they expect to receive contracts and procurement in the future, what needs a steady service provision. Therefore, firms prefer career politicians, but they cannot credibly signal their type in the first term. In this setting, more investment capacity increases the firms' benefits in the first term, compensating for an eventual opportunistic politician in the second term. Thus, in municipalities with lower investment capacity, lame-duck politicians will receive fewer campaign donations from firms and will tend to be disadvantaged in their reelection. However, higher investment capacity makes the first term so lucrative, that compensates a risky donation for lame-duck politicians.

The Brazilian context provides an ideal ground for empirically testing the effects of investment capacity on the electoral marketplace. Brazil is comprised of over five thousand municipalities, each presenting a wide variation across the country. The federalist arrangement concentrates most of the taxation in the federal government, making transfers from the central government relevant to the local level service provision (Arretche, 2010). Municipalities only collect five percent of the total tax share, but these revenues are essential to investments in infrastructure, such as paved streets, schools, hospitals, and other construction projects. Also, until 2015, before a decision by the Federal Supreme Court which

banned market campaigns donations, firms were the leading donors in elections. From 1994 to 2016, on average, 85% of the money used by politicians in the Brazilian elections came from firms' campaign donations, while this percentage is 65% in the Argentinian and 45% in the Chilean cases (Speck, 2016).

3 Empirical Strategy

In this section, we discuss the data sources, the estimation strategy, and the validity checks for the design. First, we use three primary data sources. We collect the vote shares, re-election data, mayoral party labels, and campaign donations from the Brazilian Superior Electoral Tribunal (TSE). This court is responsible for the elections in Brazil. They keep website records for elections since 1946, with campaign donations and candidates' income data since 1994. Our dataset is comprised of four elections, spanning from 2000 to 2012. In this paper, we considered only municipalities with less than 200 thousand registered voters, with are the municipalities without a runoff in the mayoral elections. From the Superior Electoral Tribunal candidates' database, we also consider the candidates' age, gender, education, employment sector, and party labels.

We collect the investment capacity data from the Brazilian Institute of Applied Economics (IPEA), that have municipal fiscal indicators from 1985 to 2011. We compute the ratio between personnel expenditure and revenue. An increase in this indicator means that mayors have less disposable income to invest in service provision. We look into the inverse of this ratio, to make an increase in this indicator to represent increasing investment capacity.

As robustness to the investment capacity indicator, we also consider in the Online Appendix an indicator of municipal liquidity, computed by the Rio de Janeiro Industrial Federation (Firjan). The reader can check that our results are robust to changes in the investment capacity indicator. The final database has 31,912 observations.

Regarding the identification and estimation, our unit of analysis is the candidates within

municipalities in a given year. As candidates are unable to manipulate the vote share they will receive precisely, the electoral winner and loser candidates become an as-if exogenous variation, the closer the vote share results. This strategy is known as close election regression discontinuity design and helps us to identify the effects of incumbency on future campaign donations and reelection rates (Imbens and Lemieux, 2008; Lee, 2008). Our running variable that assigns the treatment or control status is the vote margin difference between the two most voted candidates. To take care of the endogeneity in the decision to run again for office, we use Magalhães (2015) strategy, that guarantees that we measure the outcome effects, even when rerunning is not widespread. Hence, we estimate the incumbency effect on the probability of receiving campaign finance resources from firms unconditional to whether a candidate is indeed rerunning in the next election.

We use a local-linear polynomial estimator with a triangular kernel weight distance from the cutoff, and we compute the optimal bandwidth using both the Calonico et al. (2014) Mean-Squared error robust data-driven optimal bandwidth. We cluster all standard errors at the municipal-year, as the close election source of randomness occurs in this level.

Finally, the validity of our causal claim relies on two assumptions, which we show that hold in the Online Appendix. First, all the pre-treatment covariates (candidate parties, candidates professions, gender, and age), are smooth around the discontinuity. Second, to show that there are no signs of manipulation, which would mean fraud in this context, we use McCrary (2008) and Cattaneo et al. (2018) manipulation estimators.

4 Investment capacity, campaign donations, and the incumbency disadvantage

We study three outcomes: the chances of being elected before (as a placebo test), the reciprocity of campaign donations, and a reelection indicator. We disaggregate the analysis

using the inverse of the budget share spend with personnel, as an indicator of investment capacity.

The close election strategy is efficient to study the effects of winning an election on the next electoral term. However, it is insufficient to study the heterogeneous effects that investment capacity has over incumbency. To solve this problem, we rerun the regression discontinuity analysis, split the sample into the median and quartiles of investment capacity. Splitting the sample between the median or the quartiles has two advantages: first, the brackets represent low versus higher investment capacity. Second, cuts are arbitrary, and they split the sample into size equally powered. This strategy allows us to investigate the heterogeneous effect of fiscal capacity on campaign donations and incumbency. Figure 1 presents the coefficients in the RDD models for the full data, and then splitting by median of investment capacity.

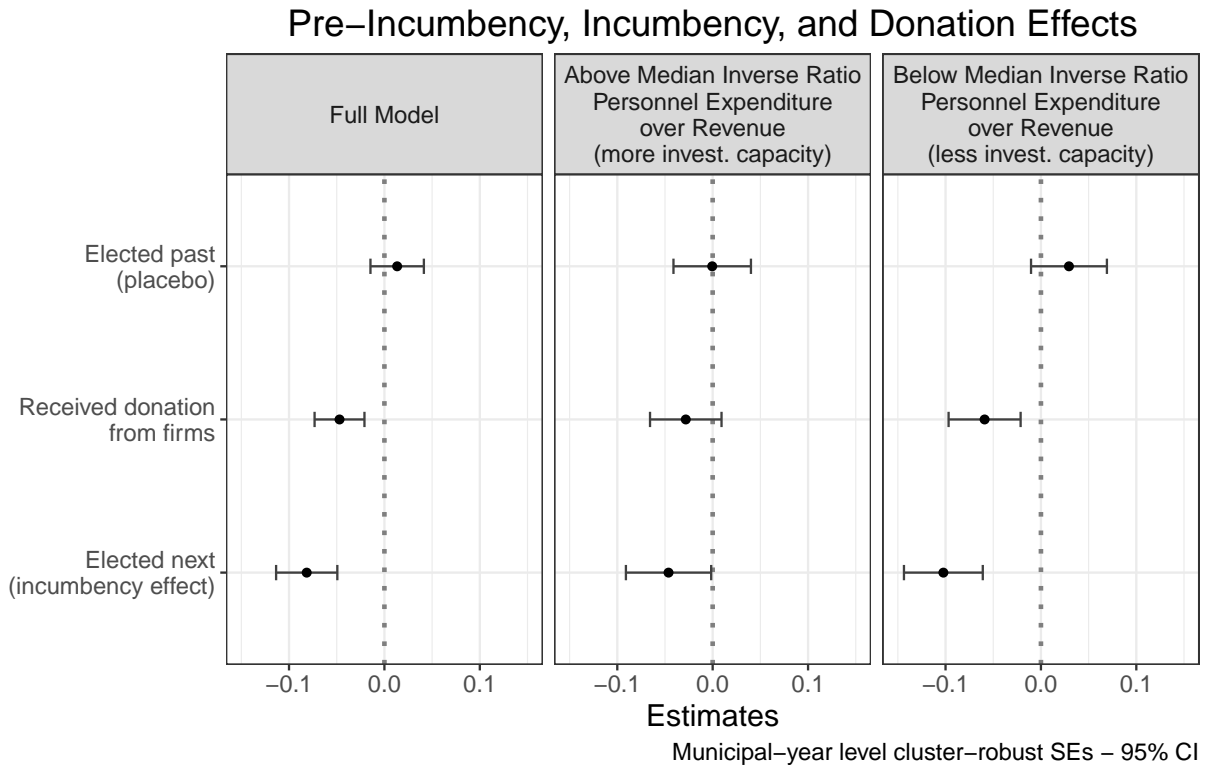


Figure 1: Investment capacity, campaign donations, and incumbency: main results

In Figure 1, the rows represent outcomes while the columns, the full data and the het-

erogeneous effect in investment capacity. The first row has the placebo tests, where we investigate the incumbency effects on the previous and unrelated elections. As expected for a placebo test, all models were statistically insignificant.

The second row estimates the effects of incumbency on campaign donations in the re-election contest. If our theoretical argument is correct, the incumbents should receive fewer campaign donations in municipalities with lower investment capacity. In the full dataset, the chances of receiving donations drop 0.047 ($p\text{-value} < 0.001$). When we split the sample by median of investment capacity, incumbents in municipalities above the investment capacity median in inverse expenditure over revenue decrease the chance of receiving donations by 0.028 ($p\text{-value} = 0.078$). Below the median investment capacity, the campaign donations decrease considerably, by 0.059 ($p\text{-value} < 0.001$) fewer donations (around 6% less). Thus, in municipalities with low investment capacity, incumbent mayors tend to receive twice as fewer campaign donations.

The last row presents the incumbency disadvantage, measured by looking into the candidates that were reelected or not in the coming election. In the full dataset, the chances of being reelected drop by 0.081 ($p\text{-value} < 0.001$). This result corroborates the incumbency disadvantage findings by (Klašnja and Titiunik, 2017). When we split the sample by median of investment capacity, mayors in municipalities above the investment capacity median have 0.046 ($p\text{-value} = 0.016$) less chance of getting reelected. Below the median investment capacity, the incumbency disadvantage increases considerably, to 0.102 ($p\text{-value} < 0.001$). These results represent a drop in reelection rates of 2.21 times more incumbency disadvantage in municipalities with low investment capacity.

One critical point of our estimates is their reliance on the median as an arbitrary threshold. If our theoretical argument is correct, every subsample that is increasing in investment capacity should present changes in donations and incumbency disadvantage similar to the last results. To test for this possibility, we split the sample by quartiles of the investment

capacity. Figure 2 present the results.

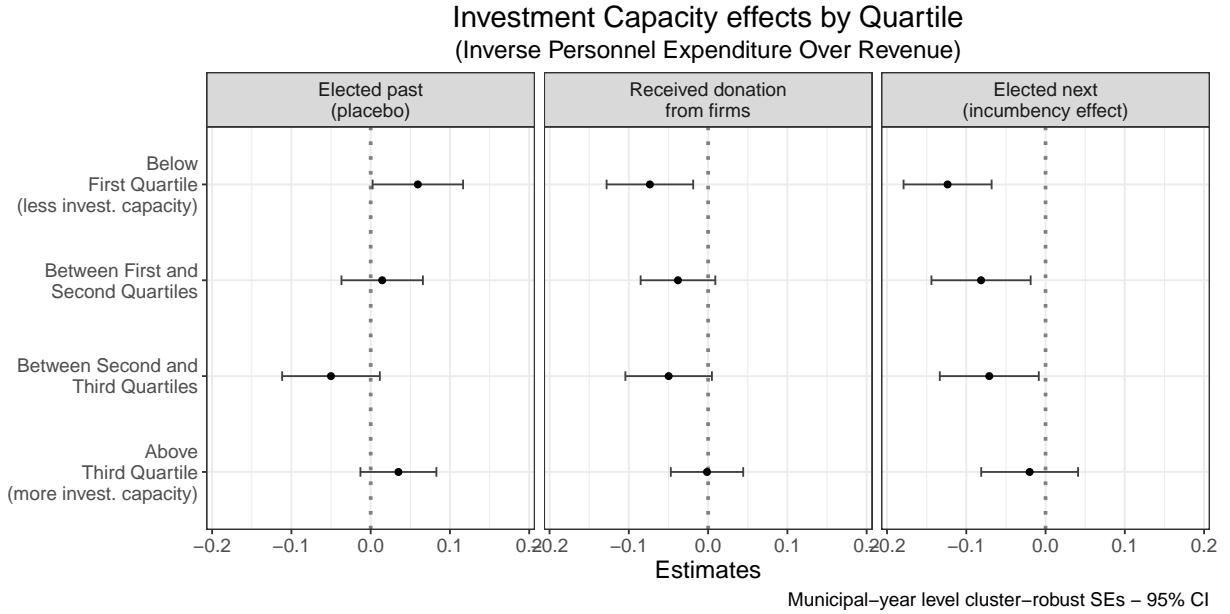


Figure 2: Investment capacity, campaign donations, and incumbency: main results by quartiles

Figure 2 shows that for low investment capacity, the results are significant and they show a monotonous relationship for both donations and incumbency disadvantage. Investment capacity impacts profoundly in the electoral marketplace: conditional on win an election, candidates that were ex-ante similar, will then have a lower chance of receiving donations and a lower chance of reelection.

In the Online companion, we test the robustness of the findings. We run five types of complementary models. First, the same result for different measures of investment capacity, to check whether the results are consistent across different measures of the same phenomenon. Second, we add the pre-treatment covariates as controls and rerun the main regressions. Third, we run a sensitivity test for varying the threshold using placebo thresholds. Fourth, we run a sensitivity analysis for the bandwidth size, ranging from 50% to 200% of the optimal bandwidth. Finally, we run a sensitivity analysis for the choice of the polynomial degree. The results remain robust to these specifications.

5 Conclusion

Money has a broader influence in democracies, going beyond the electoral period. Closer to the election, money correlates with the politicians' electoral chances. After the election, the government success depends on the capacity to government investment in public service provision. These dynamics affect the electoral perspectives of incumbents, and we may expect it to correlate with the politicians' efforts while in office. In this sense, investment (in)capacity influences the electoral marketplace by lowering incumbents resources and chances of getting reelected.

We contribute with three strands of the literature and have a profound implication for developing democracies. First, our argument complements the previous research on incumbency disadvantage in Brazil and other developing countries. The literature identifies two primary sources of incumbency disadvantage: voters' accountability and service provision (Roberts, 2008; Uppal, 2009), and institutional influences on elections and politician's incentives (Klašnja and Titunik, 2017). This paper adds up to this literature by tying the accountability and service provision literature with investment capacity.

Second, although papers explored the interplay between investment capacity and elections, the micro-foundations and the effects were sparse. Schiumerini (2015) shows that less financial capacity may decrease the voters' support, as the state invests less in infrastructure. We also posit that it affects the politicians' ability to raise campaign contributions. Boas et al. (2014) showed that firms donating for a federal deputy aligned with the incumbent government in Brazil receive on average 14 times the donation in government contracts. In Brazil, the money spending on campaigns is the main predictor of electoral success (Samuels, 2001b; Speck and Mancuso, 2014). Our work adds up to the relationship between firms and politicians, showing that the electoral consequences of incumbency depend on the governing conditions faced by politicians.

Third, our findings explain why Brazilian municipalities in which the mayor is affiliated

president receive more transfers for infrastructure provision (Brollo and Nannicini, 2012; Bueno, 2018). Investment capacity is a powerful strategy to undermine the challengers' electoral perspectives. Additionally, winning the municipal elections is crucial for success in the national elections (Novaes, 2018). In the gubernatorial and federal levels, politicians and parties that understood this relationship attempted to provide the most resources, to increase the reelection perspective of their candidates.

Finally, in low-income countries, with crippled strength to defer income in order to build strong financial capability institutions, the electoral results may prove more volatile than otherwise expected. Moreover, patronage and clientelism in developing countries usually make the investment capacity even worse (Keefer, 2007; Robinson and Verdier, 2013). Rewarding campaign operatives or voters with monetary perks lowers the local disposable resources for investing in public services. On extreme cases, this could incentivize politicians not to invest in public services even in their first term: if all politicians expect to be out of office after their first term, they will not make costly effort to provide services. In equilibrium, this should lower the public services received by the population, and increase the expected rent extraction and corruption by rogue politicians. Moreover, this institutional arrangement may discourage high-quality politicians, selecting people that want to predate the public resources, reinforcing the cycle of low-quality policies.

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A Appendix (print)

A.1 Online Supplemental Materials Content

In the online appendix, we present the following complementary information:

1. A simple model on elections, government, and investment capacity.
2. A description of the budget process in Brazilian municipalities.
3. The data sources and summary statistics.
4. An in-depth discussion about the identification strategy.
5. RD validity tests: covariate smoothness and manipulation tests.
6. The main results in the paper, in table format.
7. Robustness to the addition of covariates.
8. Sensitivity to placebo cutoffs.
9. Robustness to bandwidth size.
10. Robustness to the RDD polynomial degree.

The URL to access the Appendix is REDACTED FOR PEER REVIEW.

A.2 Replication Materials

The replication materials are in REDACTED FOR PEER REVIEW.

Online Supplemental Materials

Investment Capacity and the Electoral Marketplace: Evidence from Brazil.

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Contents

A	A simple model on elections, government, and investment capacity	3
B	A description of the budget process in Brazilian municipalities	8
C	Data sources	9
D	Summary Statistics	11
E	Identification Strategy	13
F	Covariate Smoothness and Threshold Manipulation Tests	15
	F.1 Manipulation tests	15
	F.2 Covariate Smoothness	16
G	Main results in Table format	18

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H	Main results with all covariates in the models as controls	20
I	Robustness to placebo cutoffs	21
J	Sensitivity to bandwidth selection	23
K	Sensitivity to polynomial degree	24
L	Heterogeneous effects by deciles of investment capacity	25
M	Party-centered alternative explanations	27

A A simple model on elections, government, and investment capacity

Let a strategic interaction between a politician, a firm, and a mass one of voters, that are responsive only to campaign expenditures.¹

In line with Klačnja (2015) and inspired by the findings of Klačnja and Titunik (2017), we consider that there are two types of politicians: *rent-seekers* and *career concerned*.² The difference between them is that a career concerned politician wants to invest more in public services, as she knows that her relationship with voters and firms will span for a longer time than a rent-seeker politician. The rent-seeker politician prefers not to invest for at least three reasons. First, she wants to pocket most of the money, and invest in public services is only attractive when she can add kickbacks to procurement. Second, if invest is costly, she may prefer to shirk and not spend any resources. Finally, her contact with voters and firms will be shorter than the career politicians, and so, she prefers to make the most out of her election regarding rent-seeking opportunities. These types are private information of the individual politicians.

Firms, on the other hand, look for an opportunity to provide services for the government as a for-profit enterprise. Firms then contribute to campaigns expecting to be compensated by the politicians by getting contracts and procurement. If they knew the politician's types, they would only contribute to long-term oriented politicians, as these politicians would keep investing in services, regardless of term limits. However, firms do not know whether the politician is a rent-seeker or a long-term oriented one.

For the interaction between these two players, we consider a game with the following sequential time-line:

1. Nature draws the type of the elected incumbent politician from a common-knowledge distribution.
2. Politicians decide whether to invest or not in public services, hiring or not the firms.

The term ends, and the re-election follows.

3. Upon being hired or not, firms then decide whether to donate or not for the incumbents' re-election contest.
4. If firms donate, then she wins the reelection, else, she retires.
5. Payoffs are realized, and the game ends.

Figure 1 depicts a simplified version of our argument as a simple signaling game.

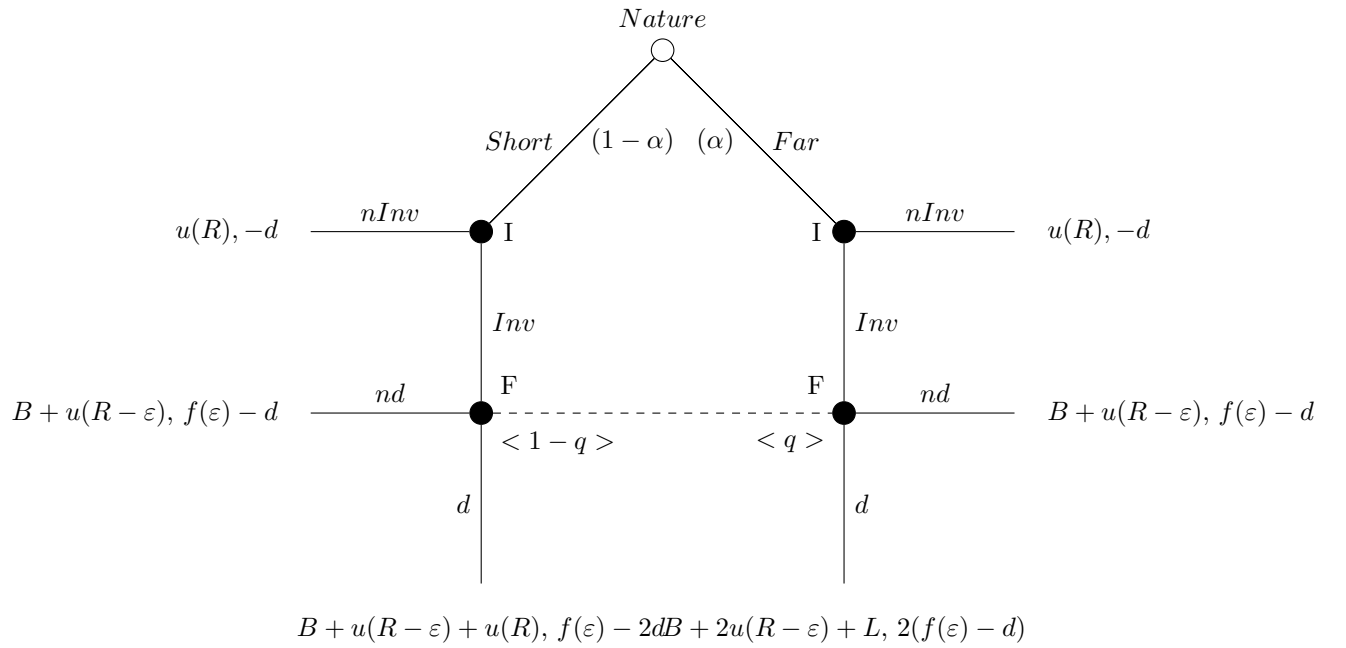


Figure 1: Extensive-Form Game for the politician-firm strategic interaction

We assume that mayors, upon taking office, have $R > 0$ resources to invest in public services. They then decide whether to pocket the investments, or they can proceed and hire the firms, paying R for its services.³ As the Figure 1 suggest, if the politician does not invest any resources in public services, the Firm does not donate, and she is out of office, receiving B , which is the benefit from holding office once, and R , which represents the pocketed resources.

Upon observing an investment, firms provide the public services, and then, at the following electoral period, they decide again whether they want to donate an amount $d > 0$ for the

incumbent, or not ($d = 0$). As we are assuming that voters are only responsive for campaign expenditures, receiving more resources than the challenger would increase the incumbent's chances of getting reelected.

The central tension in the model is that firms only want to donate for far-sighted politicians. Firms know that these politicians will hire them regardless of being lame-ducks, as they want to advance their political career. However, if they donate for short-sighted, they will not see the public investment in the second turn. This because the short-sighted politicians will pocket the money, and if they invest in the first term, it is just because they expect to pocket the resources in the second term.

Let q the belief that the Firms hold regarding the firm being far-sighted. The firm will donate for the incumbent if

$$E[d, q] = q[2(R - d)] + (1 - q)[R - 2d] \geq R - d = E(nd, q)$$

Solving this inequality leads us to the following threshold:

$$q \geq \frac{d}{R} = \tilde{q}$$

\tilde{q} is the cutoff that limits the incentives for donation. If we study a pooling equilibrium, where both candidates invest in public services, it becomes easier to this equilibrium be theoretically sustainable, the smaller the \tilde{q} . Figure 2 summarizes the incentives.

The model has an equilibrium for pooling strategies, with incumbents always investing when $\alpha \geq \tilde{q}$ and never investing when $\alpha < \tilde{q}$. There is no equilibrium in separating strategies. To summarize our findings we have the following proposition.

Proposition 1. *If the the municipal investment capacity increases, then the likelihood of receiving a donation from the firm also increases.*

The proof follows straightforwardly from the \tilde{q} definition. When R increases, \tilde{q} decreases. The range between $[\tilde{q}, 1]$, that depicts the incumbency advantage range, also increases.

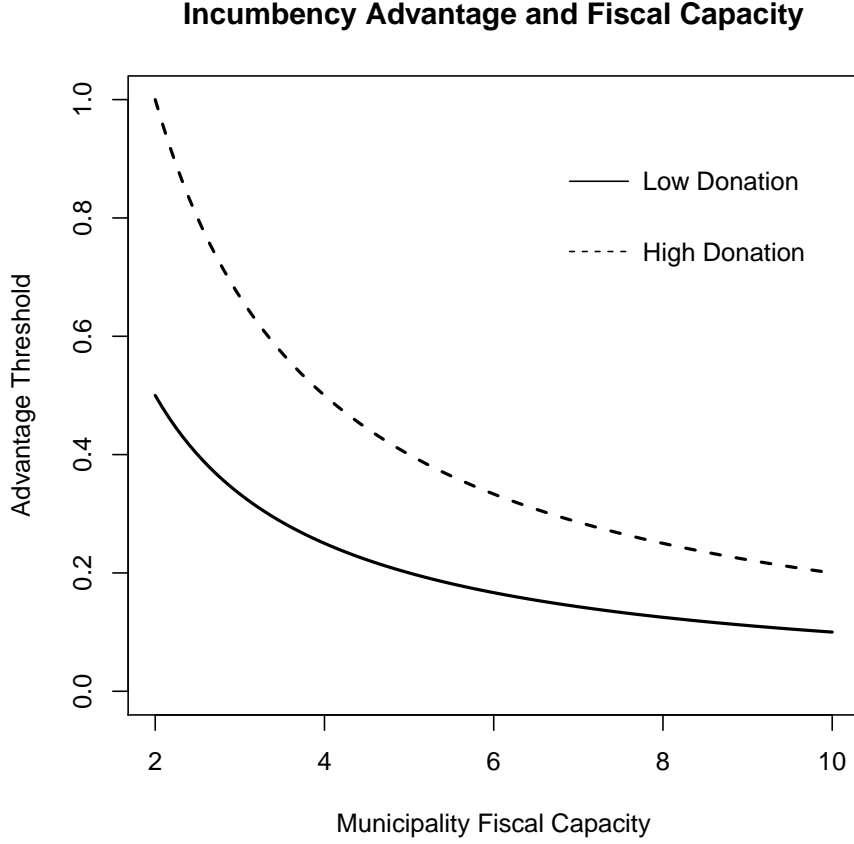


Figure 2: *Investment Capacity and Donation Thresholds*

Corollary 1. *If the municipal investment capacity increases, then the chance of getting reelected increase.*

The corollary follows from the fact that increasing the campaign resources also increases the chance that incumbents will spend more than challengers. This increases their reelection prospective when the electorate is impressionable.

Note that this simple model can be extended to add randomness in the investment capacity, or in the voter's utility. In the first case, we could make R a random draw from a continuous distribution, with finite support. The strategy from the politicians' perspective would be to invest R when the politician is career concerned. When the politician is rent-seeker, she invests a fraction of R , enough to make the firm indifferent between donating or not. The optimal donation strategy would be to donate with an increasing probability,

conditional on the amount of resources received.

From the voter's perspective, we could add public service provision concern or ideological voting. In the first case, the adverse electoral effects of investment capacity would come from two places: the campaign investments and the low service provision. Adding ideology would not change things substantially, as politicians would set their ideal policies at the median.

Both extensions are available upon request.

B A description of the budget process in Brazilian municipalities

The Brazilian federalism is commonly defined as a centripetal political union arrange (Arretche, 2010; Beramendi, 2012). First, municipalities are required by law to implement public policies in areas such as health and education according to the federal government specific guidelines. Second, most of the local level taxes are collected by the federal government and then redistributed among states and municipalities. Third, municipalities have low discretion to create taxes and contributions.

The decision on the allocation of the budget at the local level is composed of two steps. First, the executive branch defines the priorities based on the municipalities needs and the resources available. Second, politicians in the city council vote the executive budget spending proposal. Since the government coalitions with majorities is a hallmark of the Brazilian local politics (Santos, 2013), it is implausible that the final budget proposal does not reflect the executive branch preferences. However, the investment capacity of municipalities is limited.

The Brazilian municipalities heavily depend on federal government transfers due to their low fiscal capacity. For instance, in 2015, 92% of municipalities have more than 70% of their budget composed by federal transfers⁴. To mitigate the problem of low investment capacity of municipalities, the Brazilian Congress created a rule to limited municipalities spending. The law of fiscal responsibility (Lei de Responsabilidade Fiscal), implemented in 2000, sets maximum limits (54%) on public budget levels for personnel payrolls, which creates incentives to mayors prioritize investments in infrastructure provision. However, municipalities still facing challenges to fulfill this expectation. In 2015, on average, municipalities spent only 9% of their budget with infrastructure provision. By contrast, they spent 54% of their budget with personnel payrolls⁵.

C Data sources

We collect data on Brazilian elections and municipal investment capacity from 2000 to 2012.

Follows below the data sources with the link for helping with the replication of these results.

Table 1: Data Sources

Webpage	Sources	Acronyms
https://www.ibge.gov.br	Brazilian Institute of Geography and Statistics	IBGE
http://www.tse.jus.br	Superior Electoral Tribunal	TSE
https://cebrap.org.br	Brazilian Center of Analysis and Planning	CEBRAP
https://www.firjan.com.br/pagina-inicial.htm	Rio de Janeiro Industry Federation	FIRJAN
http://www.ipeadata.gov.br/Default.aspx	Brazilian Institute of Economics Research	IPEA

A short description of each variable follows in the Tables below.

Variable	Description	Original Source	Manipulation	Observations
electionMunic	Mayoral election year and TSE code for municipalities (for clustering purposes).	TSE	Merging the variable "election" with the variable "munCodeTSE".	
election	Mayoral election year.	TSE	None	Years 2000, 2004, and 2008. This means that the elections considered are the 2004, 2008, and 2012.
munCodeTSE	Superior Electoral Tribunal (TSE) municipal codes.	TSE	None	
munCodeIBGE	Brazilian Institute of Geography and Statistics (IBGE) 6-digit municipal codes.	IBGE	None	
candName	Candidate's name.	TSE	None	
state	State 2-character code.	TSE	None	
munName	Municipality name.	TSE	None	
candParty	Brazilian Acronym for the Candidate's political party.	TSE	None	
elecNext	Candidate's reelection in year t+4 (dummy).	TSE	None	
campaignResources	Candidate's total campaign resources in year t+4.	TSE	None	
propVot	Vote margin between the winner and the runner-up (running variable).	TSE	Computed from the TSE vote counting for Winner and Runner-up Candidates.	
elected	Election winner (dummy).	TSE	None	
elecBefore	Elected before in t-4 (dummy).	TSE	None	
donationRecipient	Candidate received funds (dummy).	TSE	None	
partyPT	Municipality with a candidate from PT (dummy).	TSE	Computed from TSE Candidate party Acronym.	
partyPSDB	Municipality with a candidate from PSDB (dummy).	TSE	Computed from TSE Candidate party Acronym.	
partyDEM	Municipality with a candidate from DEM (dummy).	TSE	Computed from TSE Candidate party Acronym.	
partyPP	Municipality with a candidate from PP (dummy).	TSE	Computed from TSE Candidate party Acronym.	
partyPTB	Municipality with a candidate from PTB (dummy).	TSE	Computed from TSE Candidate party Acronym.	
partyPDT	Municipality with a candidate from PDT (dummy).	TSE	Computed from TSE Candidate party Acronym.	
partyPSB	Municipality with a candidate from PSB (dummy).	TSE	Computed from TSE Candidate party Acronym.	
femaleCand	Female (dummy).	TSE	Computed from TSE Candidate information.	
candMD	Physician (dummy).	TSE	Computed from TSE Candidate information.	
candBusiness	Businessman (dummy).	TSE	Computed from TSE Candidate information.	
candLawyer	Lawyer (dummy).	TSE	Computed from TSE Candidate information.	
candCollegeDegree	College degree (dummy).	TSE	Computed from TSE Candidate information.	
aboveMedianAge	Candidate above the median age (dummy).	TSE	Computed from TSE Candidate information.	
incAndChalGov	Municipality with an incumbent and the challengers from parties in the Federal government coalition (dummy).	Cebrap and TSE	Computed considering the party that composed the Federal Coalition at the election year.	
incAndChalOposition	Municipality with an incumbent and the challengers from parties in the Federal government opposition coalition (dummy).	Cebrap and TSE	Computed considering the party that composed the Federal Coalition at the election year.	
incGovChalOpos	Municipality with an incumbent in the Federal government coalition party and challenger in the opposition party (dummy).	Cebrap and TSE	Computed considering the party that composed the Federal Coalition at the election year.	
incOposChalGov	Municipality with an incumbent in the opposition party and a challenger in a federal government coalition party (dummy).	Cebrap and TSE	Computed considering the party that composed the Federal Coalition at the election year.	
InvExpPerOverRev	One minus the proportion of the revenue spent with personnel: active and pensions.	IPEADData	Ratio between Municipal Personnel Expenditure and Municipal Revenue.	Data averaged for four year time-span. The year 2012 is absent from the dataset, so we consider the period 2008 to 2011 in the last election.
aboveMedInvExpPerOverRev	Above Median of the inverse proportion of the revenue spent with personnel (dummy).	IPEADData	Dummy equals 1 if above the median of "InvExpPerOverRev".	
InvQuartileExpPerOverRev	Quartile index of inverse proportion of revenue spend with personnel.	IPEADData	Position of the quartile, ranging from 1 (0 to 1st quartile), to 4 (third quartile) in the ratio between municipal personnel expenditure and municipal revenue.	
firClassification	Classification of the Municipal Fiscal Healthy based on the Brazilian Fiscal Responsibility Law (Complementary Law 101 - 05/04/2000).	IPEADData	If the ratio between personnel expenditure and revenue is above 0.54 the state is considered "SEVERE", and the municipality may be punished; between 0.514 and 0.54, the municipality is in the "CRITICAL" zone; if the expenditure with personnel is between 0.4874 and 0.514, the municipal is in "ALERT"; below 0.4874 the fiscal health is "OK".	Data averaged for four year timespan. The year 2012 is absent from the dataset, so we consider the period 2008 to 2011 in the last election.
firLiqIndex	Rio de Janeiro Industry Federation index of municipal liquidity.	FIRJAN	None	Data averaged from 2006, when the index started, to 2012. Missing data for the first election.
aboveMedianFirLiqIndex	Above Median of Rio de Janeiro Industry Federation index of municipal liquidity (dummy)	FIRJAN	Dummy equals 1 if above the median for the variable "firLiqIndex".	
quartileFirLiqIndex	Quartile of the Rio de Janeiro Industry Federation index of municipal liquidity index.	FIRJAN	Position of the quartile, ranging from 1 (0 to 1st quartile), to 4 (third quartile) in the FIRJAN liquidity index.	

D Summary Statistics

The summary statistics Table follows below.

Variable	N	Mean	Median	SD	Min	Max
Above Median Age	31904	0.50	0.00	0.50	0.00	1.00
Female	31850	0.09	0.00	0.28	0.00	1.00
College Degree	31912	0.47	0.00	0.50	0.00	1.00
Physician	31912	0.07	0.00	0.26	0.00	1.00
Business	31912	0.05	0.00	0.22	0.00	1.00
Lawyer	31912	0.05	0.00	0.21	0.00	1.00
Elected Before	31912	0.24	0.00	0.43	0.00	1.00
Elected	31912	0.50	0.00	0.50	0.00	1.00
Elected Second Term	31912	0.22	0.00	0.41	0.00	1.00
Vote Margin Diff.	31910	0.00	0.00	21.61	-99.96	99.96
Total Campaign Resources	12316	18,093.53	0.00	90,195.22	0.00	2,728,750.00
Received Funds Dummy	31912	0.16	0.00	0.37	0.00	1.00
Town w. Cand. PT	31912	0.15	0.00	0.35	0.00	1.00
Town w. Cand. PSDB	31912	0.29	0.00	0.45	0.00	1.00
Town w. Cand. PMDB	31912	0.42	0.00	0.49	0.00	1.00
Town w. Cand. DEM	31912	0.28	0.00	0.45	0.00	1.00
Town w. Cand. PP	31912	0.20	0.00	0.40	0.00	1.00
Town w. Cand. PTB	31912	0.15	0.00	0.35	0.00	1.00
Town w. Cand. PDT	31912	0.12	0.00	0.32	0.00	1.00
Town w. Cand. PSB	31912	0.08	0.00	0.27	0.00	1.00
Inv. Exp. Personnel/Rev.	31682	0.54	0.54	0.08	-0.91	1.00
FIRJAN Mun. Liquidity Ind.	21101	0.46	0.48	0.29	0.00	1.00

Table 2: Descriptive Statistics

As we can see, most of the variables have the entire dataset with valid observations, besides the campaign resources. Campaign resources has more missing values because the candidate has to have received campaign donations in order to have some values to present. This variable is considerably post-treatment and is not used in our paper.

Moreover, Table 3 shows the summary statistics on the donation by the electoral status for three different bandwidth selection.

Table 3: **Campaign finance candidate allocation descriptive statistics**

	Mean	SD	Observations
<i>Panel A: All candidates (The first two places in the elections)</i>			
Incumbent	0,17	0,38	15.957
Challenger	0,15	0,36	15.957
<i>Panel B: 1% vote share margin</i>			
Incumbent	0,16	0,37	809
Challenger	0,23	0,42	809
<i>Painel C: 1,76% vote share margin</i>			
Incumbent	0,17	0,37	1369
Challenger	0,21	0,41	1369
<i>Panel D: 5% vote share margin</i>			
Incumbent	0,18	0,39	3995
Challenger	0,20	0,40	3995

E Identification Strategy

Electoral results depend heavily on the efforts and resources employed by the candidates. However, candidates are unable to manipulate the vote share they will receive precisely. Elections decided by a small vote margin have a strongly random component, and in some of those elections, it was ex-ante unpredictable who would win the contest. Therefore, candidates that lose by a small vote margin serve as a suitable account for those candidates who were elected by a small margin of votes (Imbens and Lemieux, 2008).

From 2000 to 2012, the RD running variable is the vote margin difference between the two most voted candidates. The differences between the electoral winners and immediate losers in consecutive terms, compared with the candidates that lost and then won or vice-versa, raises problems concerning the endogeneity of the reelection running decision (Song, 2018). Magalhães (2015) addresses this selection problem proposing an outcome variable that takes value one (1) if the candidate reruns and wins in the next election, but takes value zero (0) if the candidate loses or drops the race. With this strategy, we can measure the outcome effects even when rerunning is not widespread and the RD estimates the incumbency effect on the probability of winning the next election, unconditional on rerunning. We estimate the incumbency effect on the probability of receiving campaign finance resources from firms unconditional to the fact that the candidate is rerunning in the next election. To account for the fiscal capacity, we split the sample in the median, to measure whether municipalities with more fiscal capacity have better outcomes regarding firms' donation and incumbency effects. We should interpret these results as heterogeneous effects in the donation-incumbency disadvantage estimates.

The regression discontinuity design uses the arbitrary change vote share, with a sharp discontinuity when is positive versus negative, meaning that the candidate wins or lose, to estimate the causal effect. We use a local-linear polynomial estimate with a triangular kernel distance to the cutoff weighting (putting more weight to cases closer to the cutoff) and computing the optimal bandwidth using the Calonico et al. (2014) MSE-robust data-driven

optimal bandwidth.⁶

The validity of our causal claim requires the empirical strategy to satisfy two assumptions: no endogenous manipulations, such as frauds, and the pre-treatment variables continuity. We show below that there are no sign of manipulations and all the pre-treatment variables such as the candidates' gender, age, profession, and party labels, were not statistically significant. These results reinforce that our empirical strategy is solid.

F Covariate Smoothness and Threshold Manipulation Tests

F.1 Manipulation tests

Manipulation, in the context of close-elections, means electoral fraud. Even though the Brazilian elections are reputed worldwide as fair and clean, we should test for the manipulation possibility. Figure 3 shows no sign of manipulation in the McCrary (2008) manipulation test.

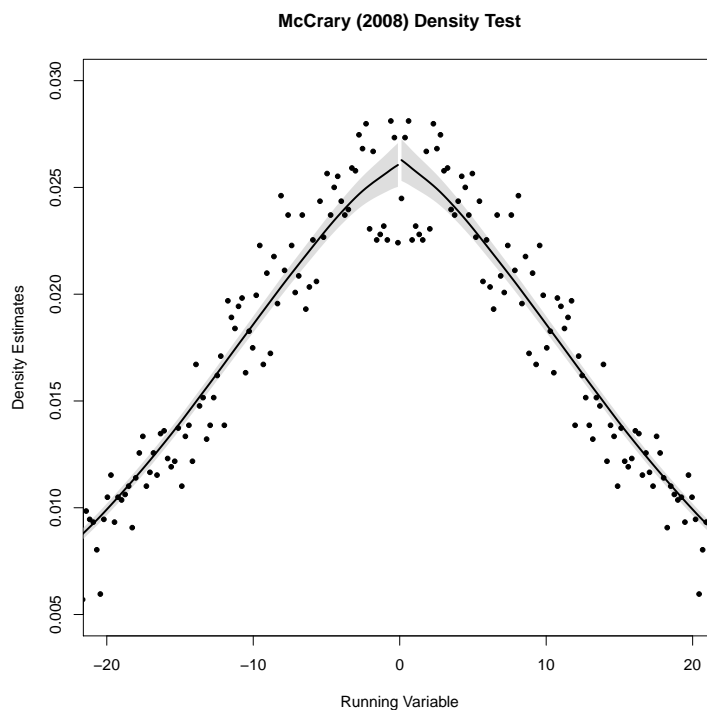


Figure 3: McCrary (2008) test

We also run the manipulation test using Cattaneo et al. (2018) package, using local quadratic and local quartic polynomials. The results follow below and show no sign of manipulation.

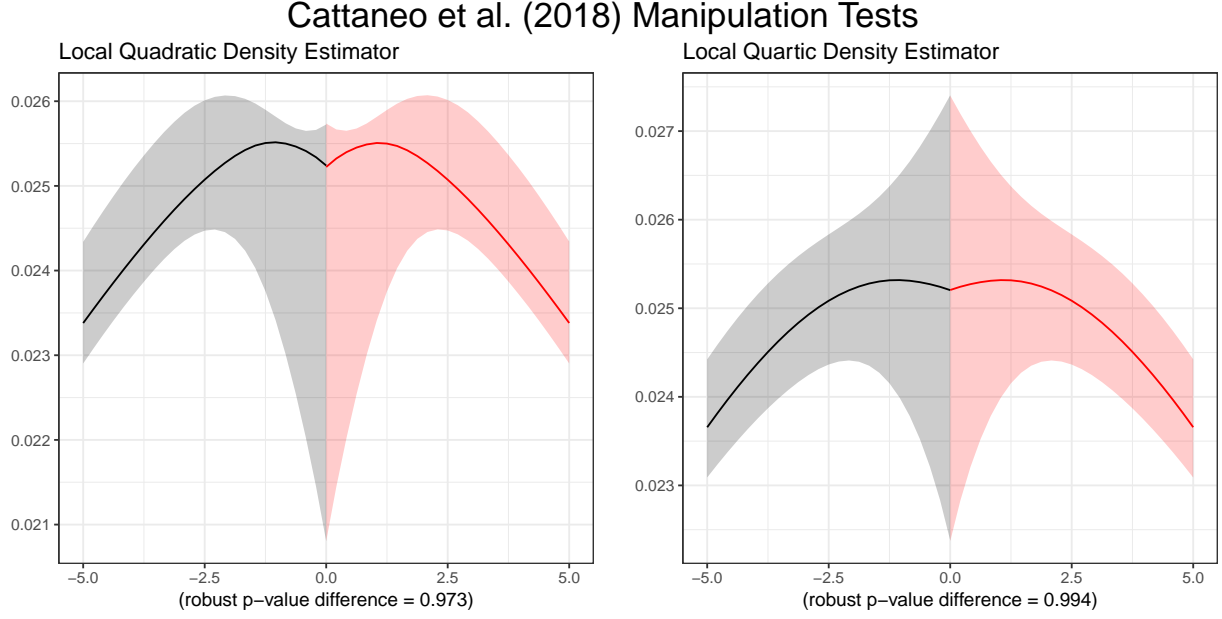


Figure 4: Cattaneo et al. (2018) test

F.2 Covariate Smoothness

Figure 5 investigates the smoothness of covariates around the reelection threshold. As we can see, all but physician are smooth around the cutoff. This is expected, as we add many variables and with sensitivity of 0.05, at least one of them would become significant. In any case, below we add all variables into the main regression models, showing that there are no changes.

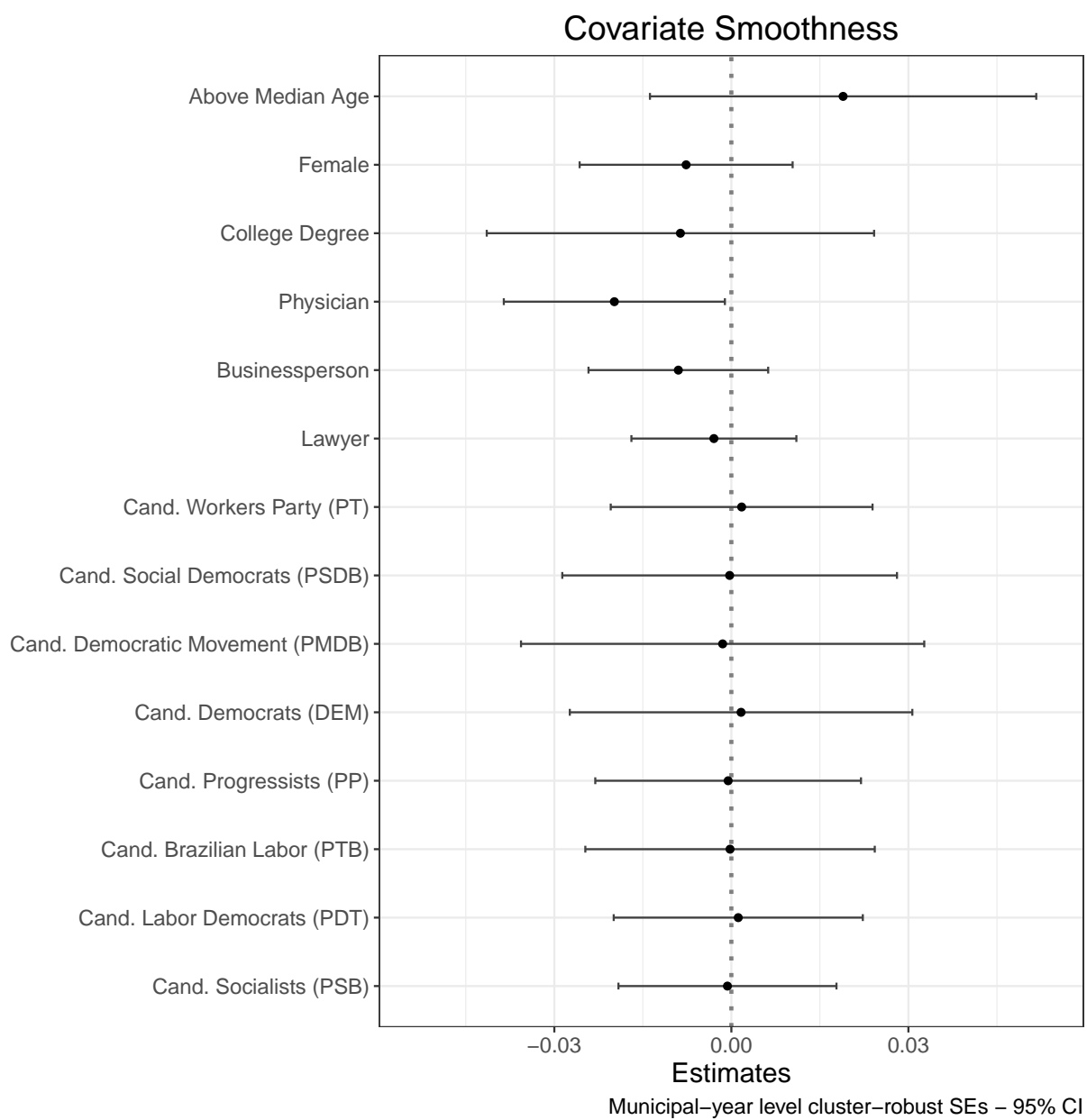


Figure 5: Covariate Smoothness

G Main results in Table format

This section has the main regression models in table format. The first table represents Figure 1 of the main paper, while the second table represents Figure 2 of the main paper.

	Level	Dep. Var.	Estimate	SE
1	Full Model	Elected past (placebo)	0.01	0.01
2	Full Model	Received donation from firms	-0.05	0.01
3	Full Model	Elected next (incumbency effect)	-0.08	0.02
4	Above Median Inverse Ratio Personnel Expenditure over Revenue (more invest. capacity)	Elected past (placebo)	-0.00	0.02
5	Above Median Inverse Ratio Personnel Expenditure over Revenue (more invest. capacity)	Received donation from firms	-0.03	0.02
6	Above Median Inverse Ratio Personnel Expenditure over Revenue (more invest. capacity)	Elected next (incumbency effect)	-0.05	0.02
7	Below Median Inverse Ratio Personnel Expenditure over Revenue (less invest. capacity)	Elected past (placebo)	0.03	0.02
8	Below Median Inverse Ratio Personnel Expenditure over Revenue (less invest. capacity)	Received donation from firms	-0.06	0.02
9	Below Median Inverse Ratio Personnel Expenditure over Revenue (less invest. capacity)	Elected next (incumbency effect)	-0.10	0.02
10	Above Median FIRJAN Liquidity Index (more invest. capacity)	Elected past (placebo)	0.02	0.02
11	Above Median FIRJAN Liquidity Index (more invest. capacity)	Received donation from firms	-0.02	0.02
12	Above Median FIRJAN Liquidity Index (more invest. capacity)	Elected next (incumbency effect)	0.00	0.03
13	Below Median FIRJAN Liquidity Index (less invest. capacity)	Elected past (placebo)	0.04	0.02
14	Below Median FIRJAN Liquidity Index (less invest. capacity)	Received donation from firms	-0.06	0.03
15	Below Median FIRJAN Liquidity Index (less invest. capacity)	Elected next (incumbency effect)	-0.09	0.03

Table 4: Main Regression Models

	Level	Dep. Var.	Estimate	SE
1	Elected past (placebo)	Below First Quartile (less invest. capacity)	0.06	0.03
2	Elected past (placebo)	Between First and Second Quartiles	0.01	0.03
3	Elected past (placebo)	Between Second and Third Quartiles	-0.05	0.03
4	Elected past (placebo)	Above Third Quartile (more invest. capacity)	0.03	0.02
5	Received donation from firms	Below First Quartile (less invest. capacity)	-0.07	0.03
6	Received donation from firms	Between First and Second Quartiles	-0.04	0.02
7	Received donation from firms	Between Second and Third Quartiles	-0.05	0.03
8	Received donation from firms	Above Third Quartile (more invest. capacity)	-0.00	0.02
9	Elected next (incumbency effect)	Below First Quartile (less invest. capacity)	-0.12	0.03
10	Elected next (incumbency effect)	Between First and Second Quartiles	-0.08	0.03
11	Elected next (incumbency effect)	Between Second and Third Quartiles	-0.07	0.03
12	Elected next (incumbency effect)	Above Third Quartile (more invest. capacity)	-0.02	0.03

Table 5: Quartiles Inverse Personnel Expenditure Over Revenue

H Main results with all covariates in the models as controls

We add all the covariates in the *covariate smoothness section* above. The covariates were: Above Median Age, Female, College Degree, Physician, Businessperson, Lawyer, Town with Candidate from PT, Town with Candidate from PSDB, Town with Candidate from PMDB, Town with Candidate from DEM, Town with Candidate from PP, Town with Candidate from PTB, Town with Candidate from PTB, and Town with Candidate from PSB. When we do that, the results remain consistent, with a slight gain in efficiency. The results follow in the Figure below.

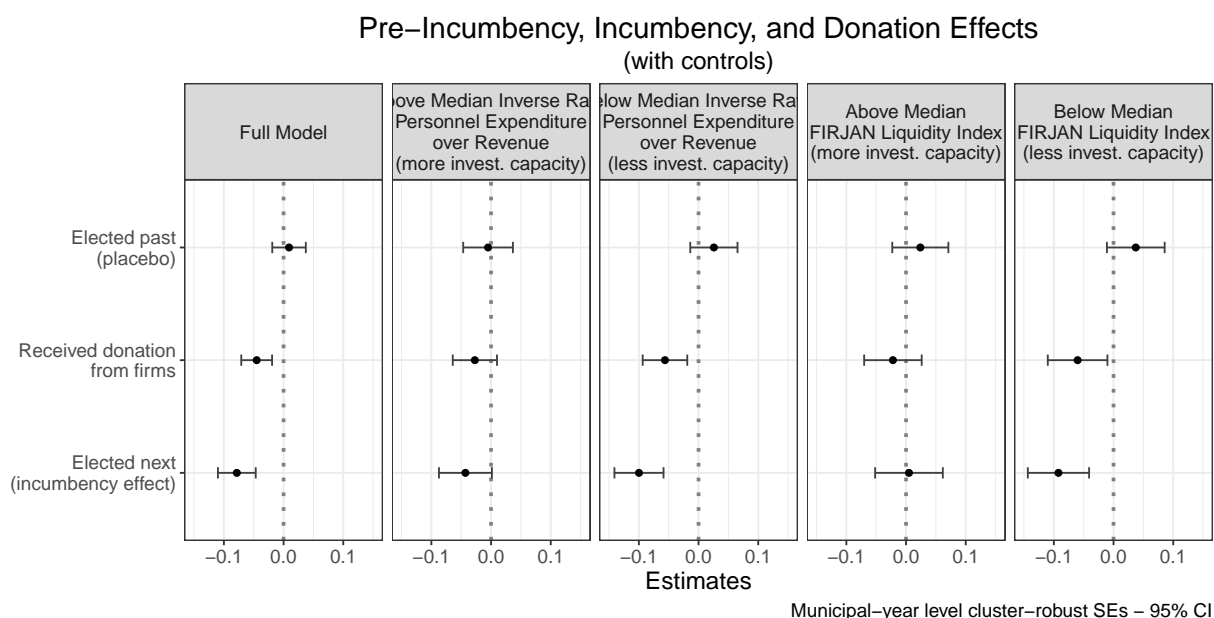


Figure 6: Main regressions with covariates as controls

I Robustness to placebo cutoffs

Consider the proportion of votes acquired by both politicians. The difference in this proportion represents the running variable. The politician with proportion of votes bigger than zero won the election while the politician with negative difference lost.

A placebo test, to check the validity of our results, would consider a different (and false) winning threshold. For instance, we can change the cutoff from zero to any number we want, and investigate what happens in this new cut. Theoretically, we should have null results in all the placebo cutoffs, as a positive or negative sign in these cutoffs does not change the electoral status from winning or loser.

We rerun the analysis changing the cutoff from zero (the actual cutoff) for placebo cutoffs at -10, -5, 5, and 10. The results are in the Figures below, and they are consistent with our assumption that most results would be, either not significant, or not consistent with our theory.

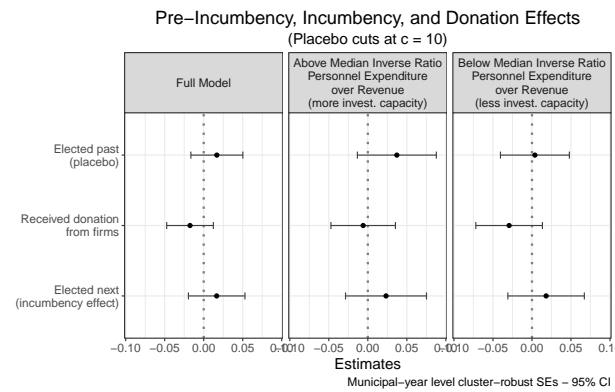
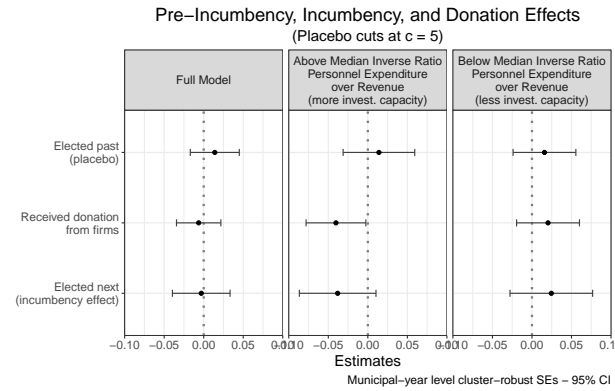
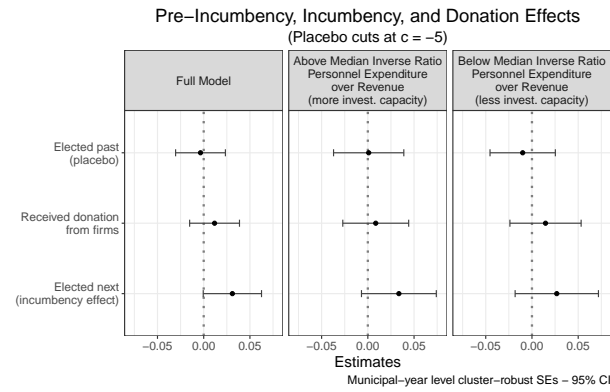
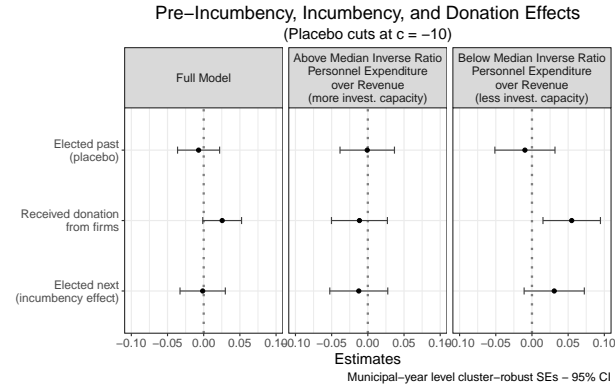


Figure 7: Placebo cutoffs

J Sensitivity to bandwidth selection

We rerun the main tables here varying the bandwidth size, from 50% of to 200% of the optimal Calonico et al. (2015) bandwidth. The results are in the Figures below, and they show a consistent and robust relationship, regardless of the bandwidth selection.

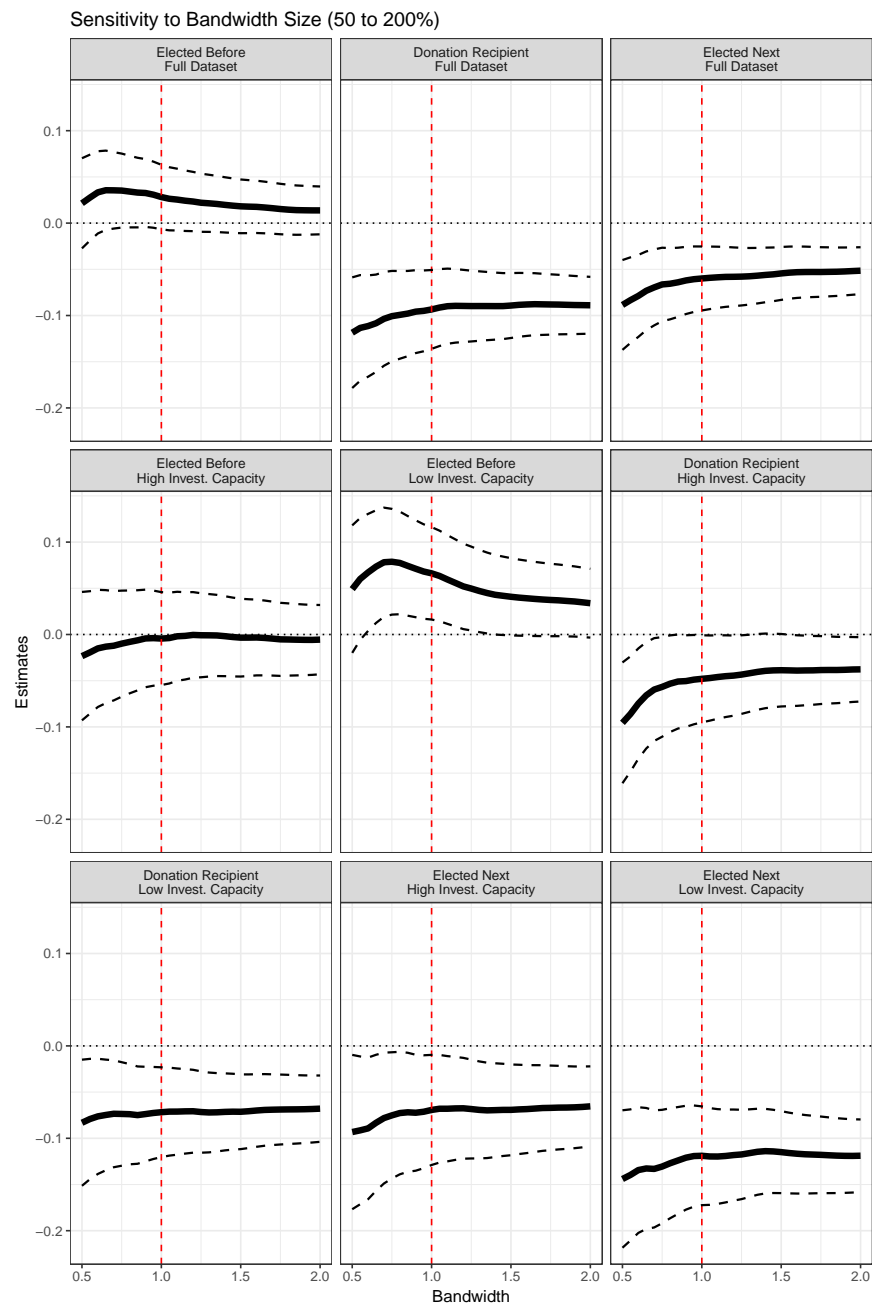


Figure 8: Sensitivity to Bandwidth Selection

K Sensitivity to polynomial degree

In this section, we vary the polynomial degree from local linear to quartic. The results remain around the same as using local linear regression.

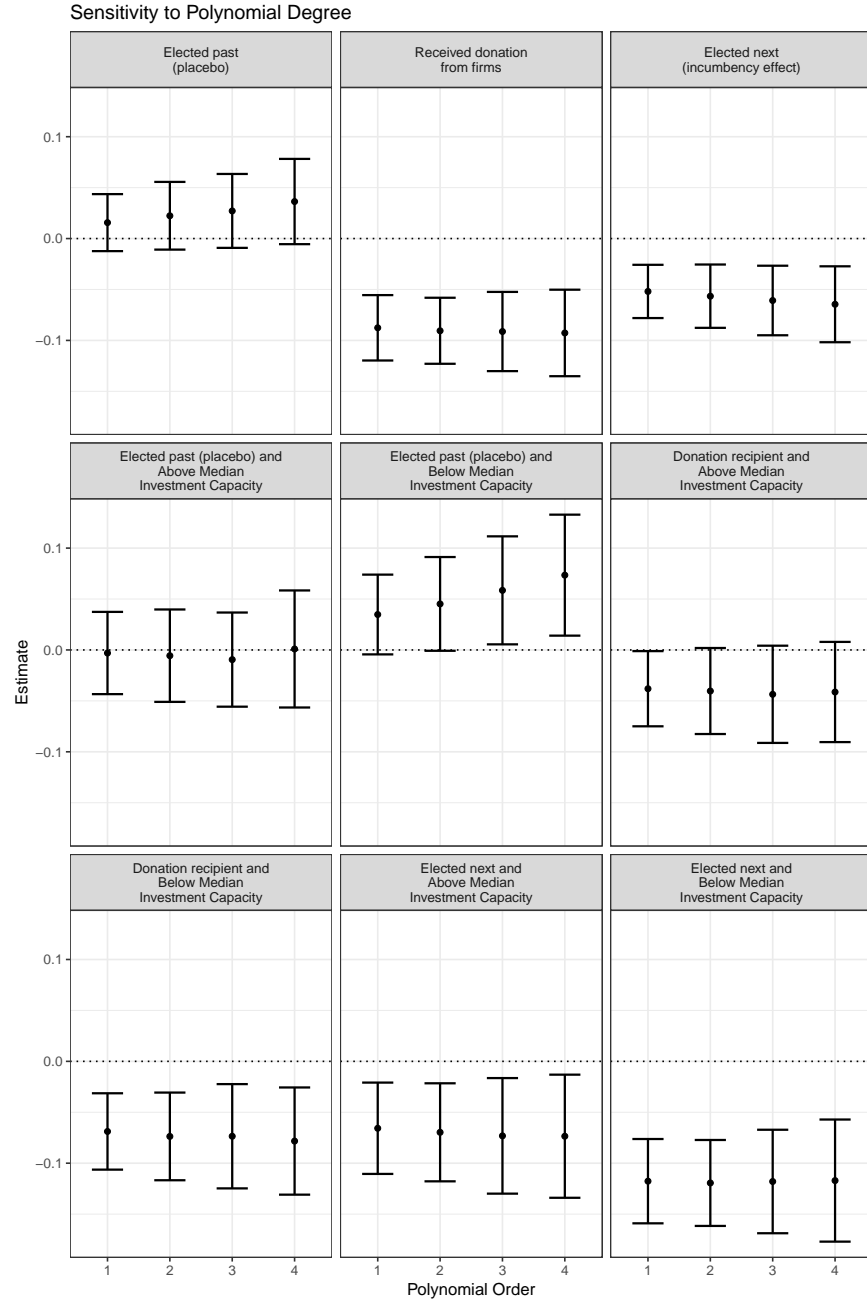


Figure 9: Sensitivity to Polynomial Degree

L Heterogeneous effects by deciles of investment capacity

We run the heterogeneous effects by decile. Deciles weaken the test power considerably, but we should witness the main patterns in the coefficients. For Inverse Personnel Expenditure, we see a pattern ranges from negative and significant to negative but insignificant, to positive in the last decile of incumbency disadvantage. Something similar occurs in donations from firms.

For the Firjan Liquidity Index, an intriguing findings is that between the 30 and the 50 percentiles, the incumbency disadvantage and donation indicators are negative, flipping sign between 50 and 70 percentiles (all insignificant). This suggests that when a municipality is in a very good or very bad shape, the investment capacity carries very little additional information. However, when it is around the median, the information discrepancies may provide an information advantage for the mayoral candidate. The candidate then can use the uncertainty in her favor.

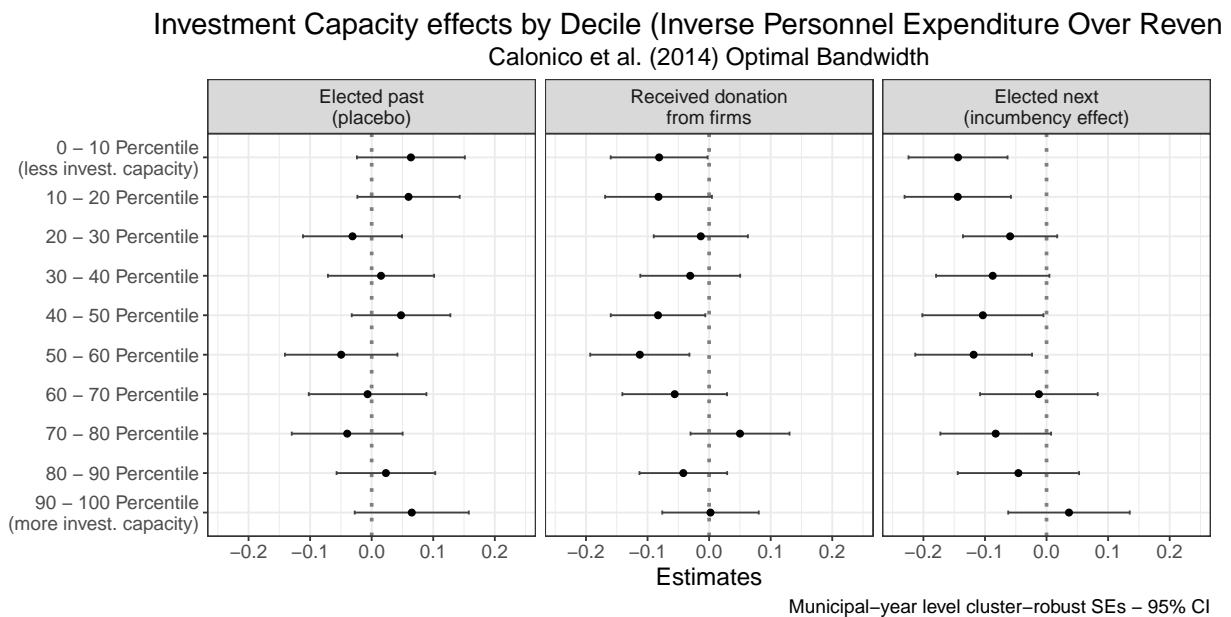


Figure 10: Coefplot by Deciles - Inverse Personnel Expenditure over Revenue

Investment Capacity effects by Decile (FIRJAN Liquidity Index)

Calonico et al. (2014) Optimal Bandwidth

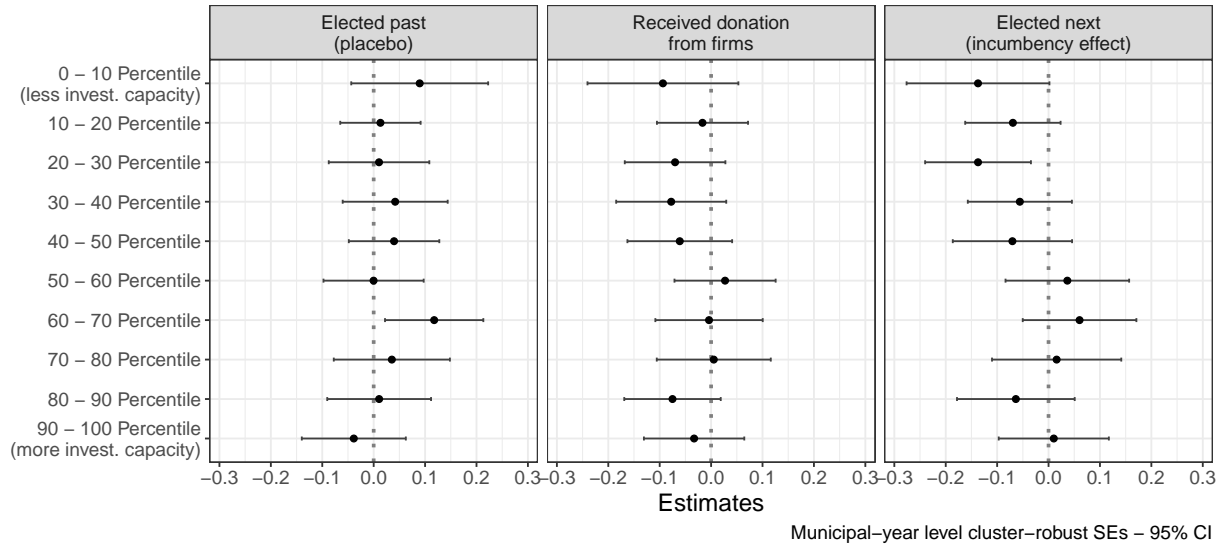


Figure 11: Coefplot by Deciles - Firjan Liquidity Index

M Party-centered alternative explanations

Klašnja and Titunik (2017) present a view on the incumbency disadvantage, proposing that strong parties (as PT in Brazil), are able to credibly signal to the electorate that they will provide services as lame-ducks. In the model we presented in Appendix A, this represents that PT would be able to select (or at least constrain politicians to be) long term oriented politicians. In the regressions below we show that our results are complementary to Klašnja and Titunik (2017), as their main conclusion about PT also holds in our sample. We run the main regressions for PT and PSDB (the most important programmatic parties in Brazil), PMDB (the most important centrist party in Brazil), and then considering changes in the opposition and coalition status of mayors and challengers in Brazilian towns. The results follow below, and show that a party-centered view of Brazilian politics coexist with a investment capacity centered one.

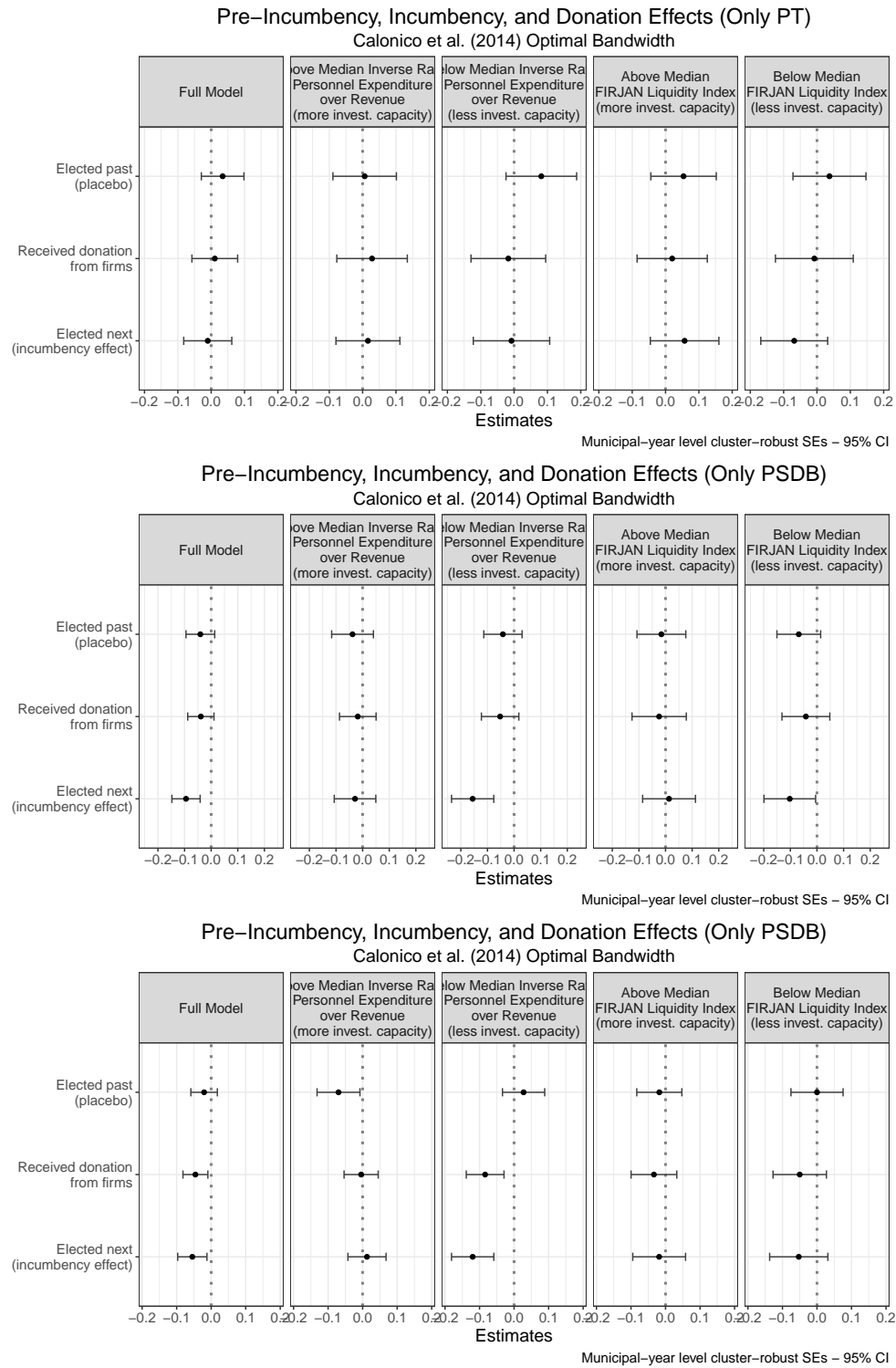


Figure 12: Party-centered explanations for PT, PMDB, and PSDB

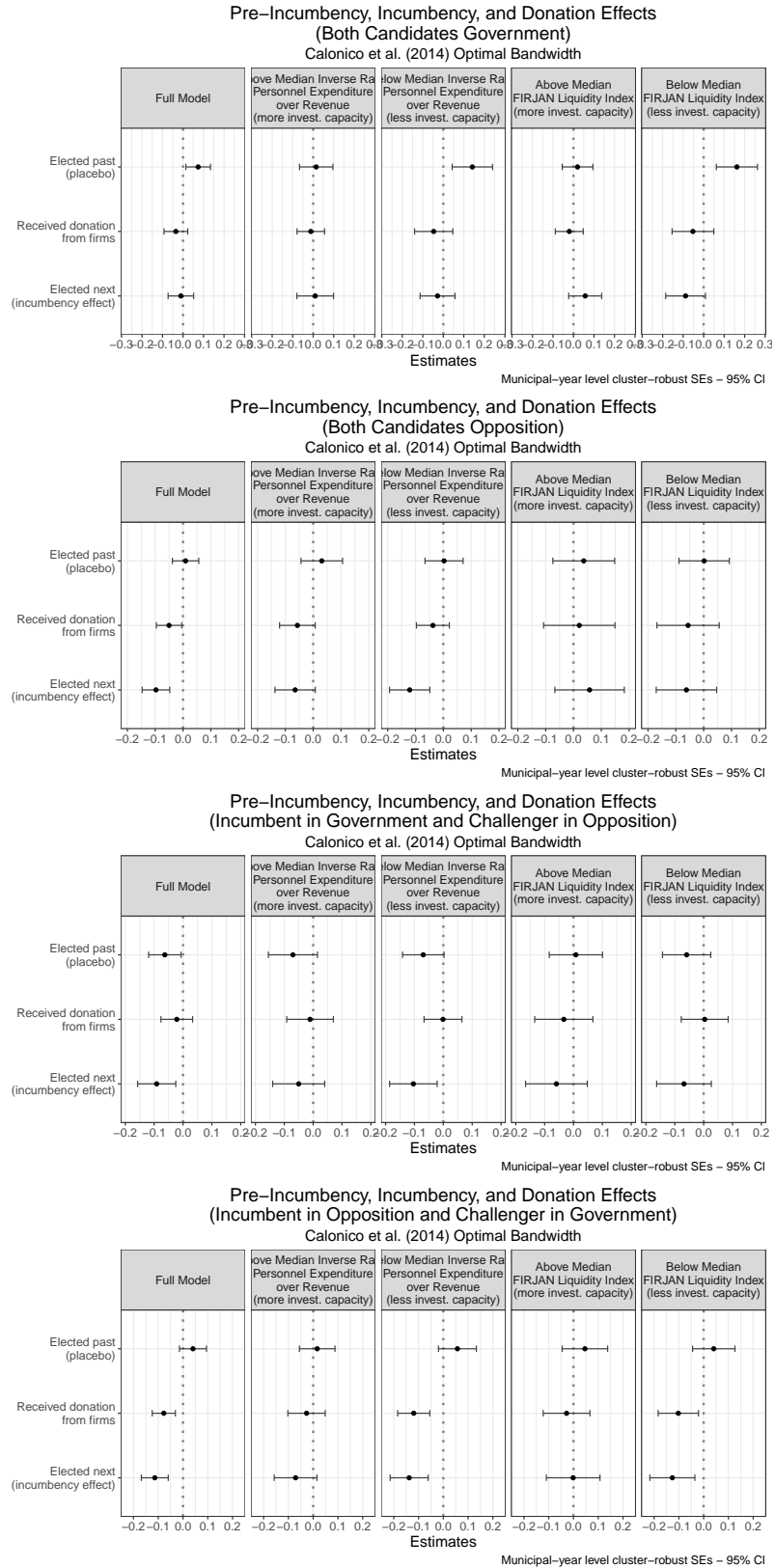


Figure 13: Party-centered explanations varying government and opposition status

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