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# Campaign Donation and Government Contracts in Brazilian States<sup>×</sup>

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## Abstract

A corporate firm may influence policies in its favor by transferring money to political candidates. However, empirical studies which document evidence about the return on campaign donations are rare (Großer, Reuben and Tymula, 2013). In this paper we estimate the net expected return of a campaign donation in eight Brazilian states using a Regression Discontinuity Design (RDD) to separate the return of winning and losing state deputy candidates in the electoral coalition in 2006. Our results show that the net return is quite high (i.e., the investment of donor firms is almost 2% of the net expected return), and is larger among traditional electoral parties than any other parties, on average. Looking at the heterogeneity of local executive and legislative levels, we find that net returns are higher when donor firms finance deputies within a governor's electoral coalition than deputies outside this coalition.

**Keywords:** Net Expected Return, Campaign Donation, Brazilian sub-national elections.

**JEL Classification:** D72, H57

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## 1. Introduction

Observing the recent scandals involving finance campaign and government contracts in Spain,<sup>1</sup> corporate firms may use new political connection strategies to attain their targets in the public market.<sup>2</sup> However, empirical studies which document evidence on the return on campaign donations are rare (Großer, Reuben and Tymula, 2013). The exception is Boas, Hidalgo, and Richardson (2013) who recently developed the term “spoils of victory” to characterize the difference in contracts received between losing and winning candidates by firms which invest in politicians’ campaigns, using the intra-coalition dispute of federal deputies as a quasi-experiment.<sup>3</sup> These authors studied this phenomenon within the context of Brazilian federal elections, where it was possible to observe federal deputies and their relationship to the federal executive branch of government and, unlike in the U.S. and France, where firms are not allowed to donate to candidates (in Great Britain it is permitted, but limited), the same donor firms can receive public contracts legally (for the countries mentioned this is not permitted).

However, to investigate this issue at the sub-national level in the same institutional environment may produce more general results, which can help with an understanding of other dimensions in different countries. Studies have described the relationship between politicians in two political powers at the federal level in Brazil (Pereira and Muller 2002, 2003; and Figueiredo and Limongi, 2005), but this relationship has not been interpreted at the sub-national level. We know, a priori, that the internal by-laws of state legislatures are different and may determine

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<sup>1</sup> Spain’s second-largest circulation newspaper, *El Mundo*, published an interview between its editor, Pedro J. Ramírez, and Bárcenas (treasurer of the ruling Popular Party). Bárcenas has previously denied that it was his handwriting in a secret ledger detailing the payments, but admitted to Ramírez that he had lied and that he possessed a lot more incriminating documents that “could bring down the government.” Ramírez revealed, “Luis Bárcenas told me that for at least the past 20 years, the PP has been illegally funded, receiving cash donations from builders and other entrepreneurs who in turn got contracts from the administrations ruled by the party. *El Mundo* July 2013. Spain has legislated that the great majority of campaign finance will be supported by the public sector. However, loose regulations on the reporting of contributions and expenditure has allowed some political parties to circumvent the legal financing restrictions, resulting in a number of scandals in the early 1990s.

<sup>2</sup> There are other types of political connection, which have been shown in the literature, such as ((1) when a politically connected individual joins the corporation’s board (Goldman, Rocholl, and So 2009), and (2) when a businessperson enters politics (Faccio 2006). In the same way, other targets has been shown as the product of this connection, such as (1) preferential access to financing (Faccio, Masulis, and McConnell 2006; Claessens, Feijen, and Laeven 2008), (2) less risk and an accompanying lower cost of capital (Boubakri, Guedhami, Mishra, and Saffar 2012), (3) redistributive tax policies (Großer, Reuben and Tymula, 2013).

<sup>3</sup> The methodology was adapted from Lee (2008). The main idea of Lee (2008) is that in a competitive election (where the margin of victory is low between the candidates), heterogeneity (characteristics of candidates, district and voters) does not exist for voters. Thus, the winner and loser is defined as a random event, just as when we toss a coin. Boas, Hidalgo, and Richardson (2013) used the same idea for competitive federal candidates in an electoral coalition.

different relationships between politicians from the executive and legislative branches. For example, the legislature for Espírito Santo State requires an agreement between the leaders' parties to pass all legislation and budgetary measures, whereas the legislature for Rio Grande do Sul State settles the same questions with individual votes from each deputy. Moreover, the branch structure at the sub-national level has substantial autonomy, which can develop policies that follow the preferences of local voters (i.e., the sub-national medium voter), rather than national voters (Tiebout, 1956). Finally, Samuels (2013) shows that party nominations are set at the sub-national (state) and not the national level (separating legislators from national partisan concerns and weakening the power of national party leaders over back-benchers).

Without considering the individual ambitions that influence the relationships between political players, there is a substantial difference between the costs of electoral campaigns at the sub-national and federal levels. According to the Superior Electoral Court (TSE), the average cost of a campaign for federal deputy is R\$ 257,835.65 (the *Real* is the Brazilian currency). In contrast, in our sample of eight states, the cost of a campaign for state deputy is R\$ 40,348.70. Naturally, these costs may influence donor firms' net expected returns. The way in which donor firms obtain a return from their campaign contributions may involve corruption, since winning contracts depends on public procurement (national law, 8666). Ferraz and Finan (2012), for instance, have shown that several types of manipulation occur in these processes, which end up favoring some firms in the public procurement process. Indeed, it is possible that whenever corruption occurs, there are different levels of risk that can influence the values of the contracts involved and the incentives for firms to donate to a campaign. Indeed, the value of government contracts differ between states, because Brazil includes states that have per capita incomes close to those of European countries (e.g., São Paulo), as well as states with per capita incomes that are similar to those of African nations (e.g., Piauí).

In this paper we estimate the expected return of a campaign donation for donor firms at the state level in Brazil, discounting the cost of campaign finance. We use the intra-coalition dispute of federal deputies as a quasi-experiment (using the same technique used by Boas, Hidalgo and Richardson, 2013: Regression Discontinuity Design), data from campaign donations to state deputy candidates in 2006, and state government contracts. The quasi-experiment permits us to observe separately the return of winning and losing intra-coalition candidates, given the inexistence of problems of either reverse causality or variable omission bias.

We chose to focus on 8 of the 27 Brazilian states, because we did not have access to data regarding firms' contracts in the remaining states. However, the eight states considered in this study are sufficiently representative of Brazil because they cover the poorest region (i.e., the northeast: Alagoas, Pernambuco, and Rio Grande do Norte), the richest region (i.e., Espírito Santo, Rio de Janeiro, and São Paulo), and the central region of the country (i.e., the Federal District and Goiás). This last region is quite agricultural, whereas the more urban states, such as Rio de Janeiro and São Paulo, are close to the coast.

Our empirical strategy (methodology) and estimates differ from those of Boas, Hidalgo and Richardson in other dimensions. First, we do not exclude the candidates who received no corporate donations, in order to avoid a self-selection bias in our final measure. Second, we use a margin of victory and not a raw vote margin because the intra-coalition margin of victory for state deputies in our study was not influenced by the size of their districts (i.e., states'). Third, we measure the net expected return to donor firms (not only the spoils of victory) using the returns to both winners and losers, the probability that state deputies would either win or lose their elections (discontinuity allows us to use discrete and unconditional probability too) and the campaign cost (the investment of firms).

Our results show that the net return is positive and quite high: expenditure on campaign finance is less than 2% of the net expected return for all contracts, on average. The candidates from traditional parties provided more net return to donor firms than candidates do on average. Left-wing parties give more net return than the average candidate, but less than traditional electoral parties. Boas, Hidalgo, and Richardson (2013) observed the spoils of victory for only one left-wing party at the federal level: PT [*Labor Party*]. In contrast, our results were for different levels of electoral competition (with margins of victory at 30%, 10%, and 5%), and we observed that the average values of campaign finance are higher in elections where the margin of victory is lower, although the net expected return does not change significantly.

We also explore other dimensions in the relationship between the state executive/legislative, where we find that there is discontinuity between winning and losing state deputies (i.e.; using RDD) in contracts after election. The net expected return for donor firms that finance any type of candidate (i.e., all candidates) is higher than they are when firms finance candidates who belong to the electoral coalition that supports the governor. In contrast, for candidates outside this coalition, the net expected returns for donor firms for traditional electoral

and left-wing parties are lower than the previously mentioned results. This discrepancy may be explained as a sign of reward or punishment by the governor. Furthermore, governors who are in their first term or who expect to run in the next election, provide a net expected return that is close to the main results (over all candidates, traditional parties, and left-wing parties). The existing literature has not explored all of these characteristics of heterogeneous subnational governments (executive/legislative).

This study contributes to the literature because we are the first to explore this issue at different sub-national levels in the same institutional environment to obtain more general results, given the heterogeneity observed in the executive and legislative relationship. Moreover, unlike de Figueiredo and Garrett (2005), we have an observable channel to test this influence. Observational studies that measure the financial returns of political investments are rare (Großer, Reuben and Tymula, 2013).

This paper is organized as follows. Section 2 describes the institutional background for this study (i.e., the Brazilian electoral system, the relationship between campaign finance and public business, and a brief discussion of our hypotheses). In addition, Section 3 describes our data set, Section 4 presents our measure of net return and our empirical strategy, and Section 5 reviews our main results and discusses them in the context of the existing literature. Section 6 discusses the results and connects them with the previous results in the literature. Finally, Section 7 concludes.

## **2. Institutional Background**

### **2.1. The Brazilian electoral system**

The Brazilian government operates at three levels: federal, state, and municipal. There are 27 states and approximately 5,600 municipalities. Each level of power includes an executive and legislative branch, and the 1988 Constitution (the first constitution after two decades of authoritarianism) established that each branch can determine its policies independently.

National elections for president, governors, senators, and state/federal deputies occur every four years, and the municipal election for mayors and councilors are mid-term elections of these national elections (i.e., these elections occur at fixed intervals). The executive positions are elected by a plurality, and if no candidate obtains 50% plus 1 vote of the total registered votes in



the first round, there is a second round in municipalities with over 200,000 registered voters. However, municipalities with fewer than 200,000 registered voters are excluded from this second round. For legislative positions, the electoral rule is proportional.

The legislative positions (federal/state deputies and municipal councilors) are elected according to a proportional rule. Under that rule, the counting of votes measures the percentage of votes that each candidate received in relation to the total number of votes received by the coalition, or else by the party in the case of parties that have not joined any coalition (the legislation permits any arrangement; see law number 9,504, September 30, 1997). Subsequently, seats are distributed to each coalition using a formula equivalent to Hondt Law. Then, the candidates are ranked in the order of their participation in the coalition. The seats are allocated to candidates with the highest percentages of votes within each coalition until the last seat obtained by the coalition is assigned. Thus, most seats are allocated to the parties that win the highest number of total votes, and the candidate who receives the most votes within a coalition will be elected. This system promotes individualism among election candidates because no party has the power to determine the ranks of its candidates. Therefore, Mainwaring (2002) classified Brazil as an example of a partisan system that is open to new competitors (similar to Peru and Russia).

Furthermore, the high number of candidates who run in legislative elections supports individualistic behavior. Each party has the right to register candidates on the order of one and a half times the number of seats to be filled, which promotes individual competition outside partisan lines and diminishes party control over the candidates who will be elected (Mainwaring, 1991). In addition, public funding for legislative campaign is low compared with the total amount of campaign financing (Bourdoukan, 2012) and is directed only to parties who earmark these funds for elections to executive positions (Boas, Hidalgo, and Richardson, 2013). These facts increase competition among legislative candidates and create greater demand for campaign finance because each candidate must spend more to stand out and win votes (Samuels, 2001). Thus, candidates depend on private financing of their campaigns.

The district of a federal and state candidate deputy is the whole state, and each state candidate deputy can win votes from all municipalities. In this context, the relationship between the state deputies and local power is significant. The state of São Paulo has 645 municipalities, Alagoas has 102 municipalities, Espírito Santo has 78 municipalities, Goiás has 246 municipalities, Pernambuco has 185 municipalities, and Rio de Janeiro has 92 municipalities.



However, the Federal District does not have municipalities. In this environment, it is necessary to study the political connections between different levels of government because these relationships can influence the financing costs of state deputies' electoral campaigns. Nevertheless, there is scant literature on state deputies' election strategies at the local level in Brazil.

## **2.2. The relationship between campaign finance and public business**

*“The State Deputy, Roque Barbiere (PTB), promised the lobbyist Osvaldo Ferreira Filho, who is nicknamed Osvaldinho and was arrested in Operation ‘Fratelli’ on Tuesday, public funds in the amount of 250,000 reais (125,000 dollars) for the city of Barretos, in São Paulo State. Osvaldinho was the advisor of the current Secretary of Government of the State of São Paulo, Edson Aparecido, for eight years and is appointed as the link between the DEMOP company, which is accused of defrauding public funds and municipalities in São Paulo State” (Veja Magazine: April 13, 2013).*

There are four key participants in the process of campaign financing at the state level: donor firms, state candidates/elected deputies, the state executive (i.e., the governor), and municipal politicians (i.e., the local executive, or mayors). Donor firms see campaign finance as a “business” in which they can make gains on their initial investment in a state candidate (i.e., a deputy) in the form of public contracts after elections.<sup>4</sup> Because the public procurements of state governments observe Federal Law 8666 (which mandates a series of public procedures), these firms do “business” in an “uncertain environment” because their candidates may or may not be elected. Moreover, if elected, a candidate’s “political relationship” with the state executive may or may not result in amendments to an approved, implemented budget that may end up giving some public procurement contracts to the donor firms. In addition, the party to which he/she belongs may or may not have accumulated political experience on negotiations with the state executive to make amendments (we will explore this dimension on our investigation). Furthermore, the state executive may or may not approve contracts for the firms that financed the

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<sup>4</sup> Unlike McCarty and Rothenberg (1996) and Samuels (2006) argues that in the Brazilian context, there are repeated relationships between contributors and candidates. In Brazil, politicians develop a long political career, which promotes numerous iterations between the parties

state deputy's campaign.<sup>5</sup> In a nutshell, firms' campaign donation in an exchange for procurement contracts is risky activity which the return of donations is uncertain.

The second participants in the above list are state candidate deputies who hope to increase their campaign financing and thereby to improve their electoral chances of victory.<sup>6</sup> The third participant we mentioned is the state executive (governor), who has an interest in negotiating support both during and after the election with the state candidates, and later, with the elected deputies (either with individual parties or with an electoral or governance coalition). Although there are no studies at the subnational level on the candidate-deputy-governor connections, there is an important debate at the federal level in Brazil on the relationship between executive and legislative forms of government in the context of coalitions' formation. Pereira and Muller (2002), for instance, argued that the executive gains are supported by building on individual agreements. They relate the individualism and fragility observed in parties in the electoral arena to the strong presence of parties in the legislature. The release of budgetary allocations in individual amendments binds the two arenas, and thus, resolves the contradiction found in the literature between party power in these two instances. In contrast, Figueiredo and Limongi (2005) argue that the party model best explains the data and that belonging to a coalition government explains both party behavior in and the execution of individual amendments.

Finally, municipal politicians (i.e., mayors) are key actors in the electoral processes of other levels of government. An extensive theoretical and empirical debate exists on the relationship between different levels of government and strategies of political support. Cox and McCubbins' (1986) "core voter model" represents one perspective, and Lindbeck and Weibull's (1987) "swing voter model" is another, distinct view. Despite their differences, both models envision two parties that compete to win an election by promising to distribute targetable goods to various groups should they be elected.

Cox and McCubbins (1986) argued that incumbent parties have an incentive to direct transfers primarily towards their core supporters to maintain their existing electoral coalition. In

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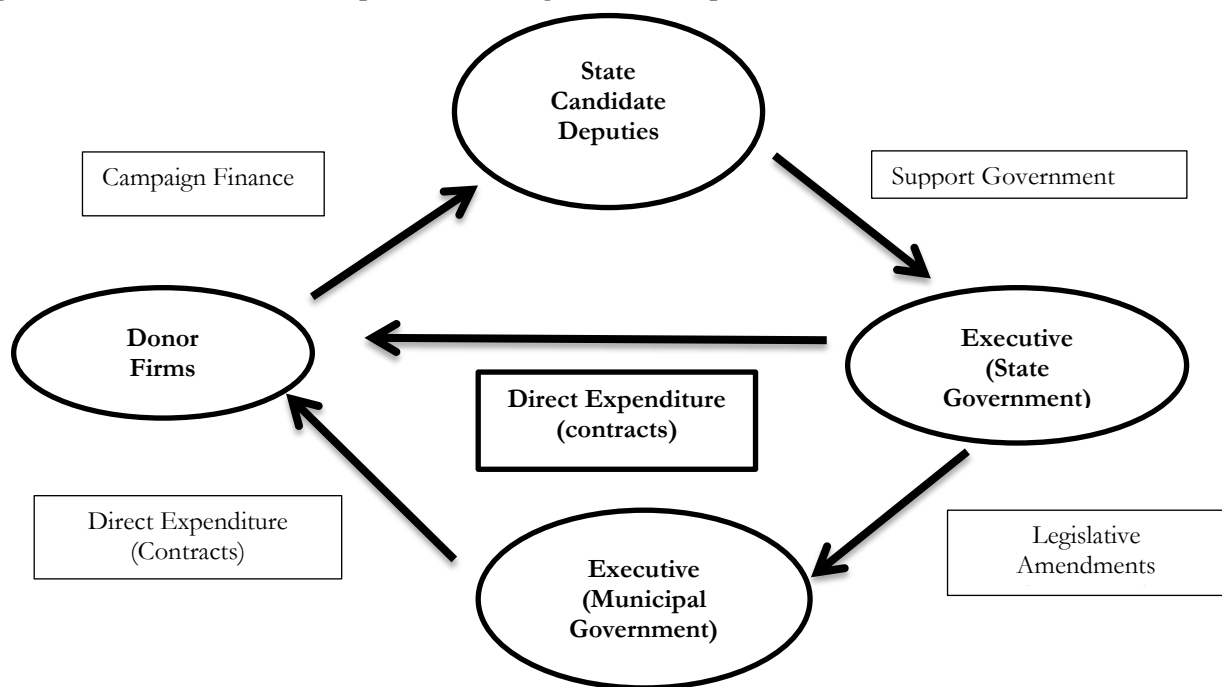
<sup>5</sup> Samuels (2006) has stated that the proceeds of the contributions will be able to influence public policy from the moment that there is a supply donation by companies or individuals. The regulation of the Brazilian electoral system allows firms to make a donation of up to 2% of their annual gross revenue. For individuals, this limit is raised to 10% of their annual gross income (Bourdoukan, 2012).

<sup>6</sup> However, the literature is not right on this causal relationship (see Levitt, 1994; Bronas and Lott, 1997; Gerber, 1998; Rekkas, 2007; Milligan and Rekkas, 2008).

contrast, Lindbeck and Weibull (1987) described a model of two-party competition such that if the parties are in equilibrium, then both parties primarily target marginal constituencies rather than their core supporters. In a more general model, Dixit and Londregan (1995, 1996) suggested that parties make trade-offs between the electoral benefits of targeting pivotal constituencies and of satisfying core groups of supporters.

Figure 1 presents the relationship between the different participants in this process and shows a deterministic relationship between the authors.

**Figure 1: The influence of state deputies on direct government expenditure**



Based on the above description of key participants, it is clear that there are several channels to explore between campaign financing and the award of contracts to favored donors' firms. It is possible that Boas, Hidalgo, and Richardson's (2013) results, which show that 14 times the value of campaign contributions in contract awards, can be attributed to this risk and complicate process of acquiring public contracts. Even when the state deputies who were not financed by donor firms are excluded from the sample, illegal activity can explain the high rewards for campaign financing (see Becker and Stigler, 1974). Ferraz and Finan (2008) list some wrongdoings in the *Convenio* (agreements between the national and municipal government by which a municipality can take resources from a federal deputy's amendments to the federal

budget) that are documented by the Federal Office of Comptroller General (CGU) in random audits. The main forms of corruption are present in this process: fraud in public procurement, embezzlement, and the overpricing of goods and services. For instance, the executive may resort to falsifying invoices for contracting companies that did not deliver a product or service, or to controlling the selection of firms by specifying products that will be targeted to certain companies (Trevisan, 2003). Nevertheless, there is no evidence to suggest that agreements between municipalities and state governments are different from those studied by Ferraz and Finan (2008), and this “gap” in the literature should be addressed in future studies.

### 2.3. Hypotheses

Our investigation determined six hypotheses:

*Hypothesis 1: Firms obtain a positive expected return from financing state deputies.*

Boas, Hidalgo, and Richardson (2013) show that firms obtain higher returns from elected federal deputies than they do from non-elected candidates. An extensive literature discusses campaign contributions and legislator votes (see, e.g., Ansolabehere, Figueiredo and Snyder, 2003),<sup>7</sup> and the great majority of the survey show little evidence of improper influence. Ansolabehere, Figueiredo and Snyder (2003), for instance, find that politicians rarely change their votes under the influence of campaign donations. Furthermore, they used an instrumental variable to avoid an endogenous bias. They argue that individuals donate for ideological motivations due to their interest in elections and the utility they derive from donating to like-minded candidates. Thus, donating is simply another means of democratic participation. The best predictor of donating is personal wealth, and in the cited study, income is the strongest predictor of donating.

Our investigation focuses on the pre-election expected returns of donor firms, when they finance elected and non-elected state deputies.

*Hypothesis 2: Firms obtain a higher expected return when they finance state deputies from parties with a strong electoral tradition (i.e., parties that elect state deputies regularly).*

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<sup>7</sup> The work of these authors shows 36 studies on the political efficacy of interest groups’ contributions to politicians.

Regardless of electoral results, we examine whether donor firms expect a higher return when they invest in the campaign of a candidate from a traditional party. The literature has not studied this question, but it is intuitive that parties that regularly elect deputies can build relationships with donor firms, a state candidate/elected deputy, and the state executive more easily than less established political parties. We believe that this differential expertise may link the key participants in a learning-by-doing process.

*Hypothesis 3: Firms obtain a higher expected return when they finance state deputies of different ideologies (i.e., left-wing or right-wing parties).*

Although Ansolabehere, de Figueiredo, and Snyder (2003) show that politicians are not influenced by donors because they follow their donors' ideological positions, Boas, Hidalgo, and Richardson (2013) showed that the elected federal deputies of the Worker's Party (PT) receive more contracts for their donor firms than non-elected federal deputies of the same party. The PT is a left-wing party, and we expanded our investigation on expected returns to investigate the influence of ideology for both left and right-wing parties, relying on Coopedge's (1997) system of classification for Latin American political parties.

*Hypothesis 4: There is a difference in the expected returns for firms when they finance state deputies who are part of the elected state governor's electoral coalition.*

Although we do not have the necessary data to evaluate the effects of a deputy's membership in a government coalition, we do have information on electoral coalitions; therefore, we can explore their impact on the expected returns. At the federal level, as mentioned above, there is a debate over the formation of government coalitions and the role of deputies' amendments between the federal executive and legislative branches of government (Pereira and Muller, 2002; and Figueiredo and Limongi, 2005). Our intuitions is that, despite that firms have higher net expected returns of investment for candidates whose parties are in the electoral coalition than they do for average candidates, they have lower expected returns for candidates who are outside of the coalition.

*Hypothesis 5: The expected returns of the firms that finance state deputies differ according to whether the state governor is in his/her first or second term.*

Persson and Tabellini (2000) developed a model based on Holmstrom (1982) that showed that executive politicians (a Downsian Electoral competition model) exhibit different behaviors in relation to the supply of goods and rent when they have a different temporal perspective. Thus, politicians who have the potential to be reelected may extract less rent and supply more public goods than politicians who cannot be reelected. If a politician claims that he/she will not re-run or if he/she is limited to two terms by legislation, as is the case in Brazil (see Constitutional Amend. 16, 1997), then during the final (i.e., the second) term of office, it is possible that the governor will extract more rent than he/she did during the first term (Finan and Ferraz, 2012). Because contracts with donor firms may be a mechanism for politicians (both executive and legislative) to extract rent, we investigate if the term of office has an impact by comparing the results for second-term politicians to our main results.

Additionally, as there is the possibility that an executive politician will participate in an election independently of the term-limit rule,<sup>8</sup> we investigate the following hypothesis:

*Hypothesis 6: The expected returns of the firms that finance state deputies differ when the state governor is a candidate for the next election.*

### **3. Descriptive Analysis of the Data**

The data collected from the eight states in the sample show that 5,180 candidates ran in the 2006 election. This high number of candidates can be attributed both to the fact that each party can enter a number of candidates that is up to one and a half times the number of disputed seats (Mainwaring, 1991) and to the high number of parties. In this context, several small parties failed to elect candidates because they did not reach the minimum number of votes to qualify for a seat. In our sample, the states with the largest number of elected candidates, and consequently, the largest number of candidates are the states of São Paulo and Rio de Janeiro, which had 1,518 and 1,317 candidates, respectively. It is important to note that the ratio between the number of elected state candidates and the total number of candidates is 7% on average for the eight states. This significant difference between the total number of candidates and the number of elected candidates occurs because the electoral system is proportional.

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<sup>8</sup> Ferraz and Finan (2012) show that Brazilian municipal mayors with incentives for reelection appropriate fewer resources than those not in this situation (term limit). Mayors refrain from rent-extraction when faced with reelection incentives.

With respect to coalitions, only 25% of the parties in our sample that contested the 2006 election belonged to a coalition. Furthermore, of the eight states evaluated, all of the government parties participated in electoral coalitions. The results show a high spread of parties, and only a few parties could contest the elections with strategies that aligned parties to form an agenda after the election.

In terms of campaign contributions, a few donor firms made contributions in more than one state, but the number and the contribution amounts were not significant. The candidates in the state of São Paulo received donations from 54% of the total number of firms that made donations, and Alagoas was the state with the fewest donor firms. Furthermore, Alagoas also exhibited the lowest ratio of donor firms to the candidates with donations (this ratio was approximately two), and this finding indicates that each firm on average donated funds to approximately two candidates. The average number of candidates supported by firms is 38% of the entire field, and the states of São Paulo and Espírito Santo exhibit the highest rates of donation: 48% and 49%, respectively. Therefore, a reasonable number of candidates received donations from businesses to fund their campaigns in all states. This finding reinforces the concept of dependence in the relationship between candidates and donor firms.

Although the literature has not established a causal link between campaign finance and election results, as mentioned above, among the candidates who were elected, 90% received contributions. This result suggests that donations play an important role in determining the winning candidate in an election. In São Paulo, for example, almost all of the candidates who were elected (i.e., 97%) received donations from firms. In contrast, in Rio Grande do Norte, the percentage of financing was lower at 79%. Moreover, of the candidates who were not elected, only 34% received donations.

The high concentration of firms with contracts in São Paulo is evident when it is compared to the corresponding concentrations in other states. This phenomenon is reflected in the number of candidates in São Paulo who received donations and obtained contracts during their terms.

Table 1A shows the data that we used in our investigation. We considered a maximum window of between -30% and +30% a margin of victory for state candidates in an electoral coalition. The total number of candidates was 1,795, of whom 321 were elected and 1,474 were not elected (thus, 21.77% of the candidates in competitive elections with a margin of victory of



30% were elected). This table shows the average campaign finance revenue by candidate and information on the value of public contracts between State and donor firms (including all of the parties: large, left-wing, and right-wing). In addition, Table 1A shows that the revenue donor firms received from contracts was not negligible. A campaign investment of 41,270.2 Reals yielded 3,178,450 Reais for donor firms on average.

**Insert Table 1A here**

Table 1A also shows the descriptive statistics of all of the variables that were used as covariates for one specification. The dummy has a value equal to 1 if the state candidate deputy has a high school diploma (which can be incomplete even if the candidate has completed more than elementary school) and zero otherwise. In addition, the dummy has a value equal to 1 if the state candidate deputy has a higher education (which can be incomplete even if the candidate has completed more than high school) and zero otherwise. Two variables were specified to capture a candidate's level of experience: age and success in reelection. The age of a state candidate deputy is a good proxy for any professional experience (i.e., working in other areas or professions), a reelected deputy generally has more political experience than a new deputy, and the percentage of women candidates (gender). All of the political variables for the 2006 election come from the TSE (Superior Electoral Court). The year 2006 was the first in which the TSE published data on campaign finance ([www.tse.gov.br](http://www.tse.gov.br)).

Table 1B shows the differences in these variables when a state candidate is elected or not elected based on the same margin of victory (30%). The groups are significantly different, i.e., they have a non-conditional average. The exceptions are deputies' ages and the percentage of women candidates. Nevertheless, state-elected deputies still receive more campaign donations and give more contracts to their donors' firms than non-elected deputies.

**Insert Table 1B here**

Tables 1C and 1D present the same variables but reduce the margin of victory between elected and non-elected state deputies (to 10% and 5%, respectively). These narrower windows are used to test the robustness of our investigation.

**Insert Table 1C here**

**Insert Table 1D here**

## **4. Empirical Strategy**

### **4. 1. The Net Expected Return**

This work aims to build a measure of net expected return for donor firms. For the sake of simplicity, we assume that donor firms are risk-neutral and their expected payoff in the donation-public contracts business is:

$$E(NR)_i = [p_w \times R_W + (1 - p_w) \times R_L] - C_i \quad (1)$$

where  $E(NR)_i$  is the expected net return of donor firm  $i$ ;  $p_w$  is the probability that the firm's chosen state candidate is elected;  $R_W$  is the return received by the donor firm in public contracts if the financed candidate is elected;  $(1 - p_w)$  is the probability that the candidate is not elected;  $R_L$  is the return received by the donor firm in public contracts if the financed candidate is not elected; lastly,  $C_i$  is the donation made by the donor firm to a candidate to obtain a return after the election. If a donor firm invested in more than one state candidate, we aggregated the equation for the set of candidates.

### **4.2. The empirical strategy to calculate net expected returns**

The strategy developed by Lee (2008) and adapted by Boas, Hidalgo, and Richardson (2013) to estimate the difference between contracts that donor firms received in return for investing in winning and in losing federal candidates provides an appropriate measure to calculate the net expected returns in state elections. The Regression Discontinuous Design (RDD) provides a good measure for that because it allows one to establish a causal relationship between election and public contracts by providing an exogenous variation between elected and non-elected candidate deputies. The causal effect is identified by comparing individuals near the point of discontinuity in the treatment variable. If this effect is not considered, the relationship will be subject to the effects of both reverse causality (Levitt, 1994; Bronas and Lott, 1997; Gerber, 1998; Rekkas, 2007; Milligan and Rekkas, 2008) and omitted variables.

To implement such empirical strategy is necessary to compare the contracts received by donor firms for elected and non-elected candidates who won or lost by a small margin of votes. This is important because individuals who are far from the point of discontinuity tend to have different characteristics that may influence the values of the contracts.

A small margin of victory allows us to observe if there were any differences in the post-electoral contracts received by donor firms who made contributions to elected and non-elected candidates and to calculate the probability that a candidate will be a winner or a loser. The same process that allows us to distinguish the discontinuity between the contracts received by firms from elected and non-elected candidates also permits us to consider whether the probability associated with winning or losing an election depends on other variables because these contracts are not different if there is a small margin of victory.

Note that when a discontinuity does not exist, donor firms cannot calculate their expected returns because there is no difference in the contracts between elected and non-elected candidates beyond the usual, unobserved causality that RDD permits (however, there are problems related to the simultaneous omission of variables). Moreover, the probability used does not depend on other characteristics in these circumstances, i.e., it is unconditional.

We validate the empirical design by testing whether there is manipulation of the electoral process; whether the discussed characteristics of voters and politicians (i.e., education, reelection success, and age) have an impact on donor firm's returns; and whether campaign financing differs between the elected and non-elected state deputies.

The measure of the percentage of the margin of votes is discussed below. First, we compute the percentage of votes for each candidate by dividing the quantity of votes by the total votes of the coalition to which the candidate belonged. Second, we calculated the marginal percentage of the votes. For elected candidates, this margin is the difference in the percentage of votes between the winning candidate and the runner-up. For candidates who were not elected, this margin is the difference in the percentage of votes between a given candidate and the candidate who was elected in the last place. Thus, whereas candidates who have a margin of votes above zero were elected, candidates with a negative margin were not elected. As a result, the treatment variable, namely, elected or unelected, is determined at the cutoff where the margin of votes is equal to zero. Figure 2 illustrates how the percentage margin of votes was determined.

**Figure 2: Calculation of the percentage margin of votes in a coalition**

	Candidates	Number of votes	% Votes	Percentage Margin of Votes
The last elected candidate	A	1,000	19	6
	B	900	17	4
	C	800	15	2
The first non-elected candidate	D	700	13	-2
	E	600	11	-4
	F	500	9	-6
	G	400	7	-7
	H	300	6	-9
	I	200	4	-11
	Total of the coalition	5,400	100	

Boas, Hidalgo, and Richardson (2013) use the raw vote margin rather than the margin of victory as a measure because the margin of victory is influenced by the district's (i.e., the state's) size in their federal measure. Thus, they avoid both overrepresentation and underrepresentation. Differently, we can use percentage margin of votes since we are comparing margin of candidates of candidates competing for deputy seats in the same state.

To evaluate the influence of state deputies on direct government spending, we measure the average value of contracts. These TSE data contain information on all of the candidates and their donor firms, which were identified by the CNPJ (*Cadastro Nacional de Pessoa Juridica* - Corporate Taxpayer's Registry) code. Using these data, we computed the values of contracts using the CNPJ on Transparency Brazil. Because there are differences in contract length between states and because some firms only have contracts for specific years, the values of the contracts were aggregated to an annual average value using the CNPJ. The values of contracts according to the CNPJ were summed to obtain the total value of these contracts from donor firms for each state candidate deputy. Therefore, each point of estimation represented one candidate with his/her percentage margin of votes and the aggregated value of contracts obtained by his/her donors firms.

We then run the following regression:

$$VCE_{t+1,i} = \beta_0 + \beta_M * Elected_{t,i} + \theta(Margin_{t,i}) + \beta_X' X_{t,i} + \varepsilon_{t,i} \quad (2)$$

where  $VCE_{t+1,i}$  is an outcome of interest (i.e., the mean value of state contracts with donor firms after the election);  $Elected_{t,i}$  is a dummy variable that indicates whether the state deputy was elected (this variable's value is one if the candidate was elected and zero otherwise);  $Margin_{t,i}$  is the margin of votes for each candidate;  $X_{t,i}$  stands for observable variables (i.e., the candidate's educational level, reelection success, age, percentage of women candidates and campaign financing); and  $\varepsilon_{t,i}$  are unobservable characteristics. The calculation of the margin of votes for each state candidate ( $i$ ) is described above.

The parameters are the *betas*, and the parameter of interest is  $\beta_M$ . The function  $\theta(.)$  is a flexible function of the margin of victory. We use several specifications, including non-parametric ones (local linear regressions), and for the parametric cases, we adopt polynomials can oscillate between the positive and negative parts of the margin of victory. Finally, to ensure that we would obtain effects close to the discontinuity point (where the margin is zero), for the parametric cases we restricted the sample to between 10 and 5 percentage points of the cutoff at zero.

We examined the election data according to a narrow margin of votes because the treatment variable can behave randomly. For this behavior to occur, the treatment variable  $Elected_{t,i}$  must be independent of both  $Margin_{t,i}$  and  $\varepsilon_{t,i}$ . Otherwise, part of the causal relationship between an electoral victory and a contract's value will be subject to bias in the estimation.

In the above estimation, we focus on the coefficient that determines the relationship between an electoral victory, which is represented by the binary variable, and the corresponding contracts' value, which is represented by  $VCE_{t+1,i}$ . To make the treatment variable is independent, and to establish the causal relationship between a victory and contracts, two conditions must be satisfied: the principle of continuity and the balancing of variables' covariates.

## 5. Results

### 5.1 Validity of the Research Design

This section presents two validity tests for our research design. First, Figure 1 plots histograms with different densities of the margin of victory for state deputies who belong to coalitions. Second, Figure 2 shows the covariates that can influence electoral results: characteristics of state deputy candidates (i.e., education level, reelection success, and age, campaign finance, and the percentage of women candidates).

**Insert Figure 1 here**

**Insert Figure 2 here**

In Figure 1's different bins (2 pp, 1 pp, and 0.5 pp), one can see that the number of non-elected state deputy candidates (left from zero) is much higher than the number of elected candidates (right from zero). Thus, there is no evidence that the election results were manipulated. Figure 2 shows the behavior of covariates around the cut-off, and it should be noted that the margin of victory within a coalition is zero. Each "dot" in a panel corresponds to the average outcome of election  $t$ . The solid line in the figure represents the predicted values of a standard nonparametric kernel rectangular fit (right and left from the cutoff), as described in Equation 2 (without covariates), and the dashed lines identify the 95% confidence intervals. Visual inspection confirms that there are no significant discontinuities around the threshold for any of the variables: the percentage of women candidates, the education level of state deputies,<sup>9</sup> the reelected state candidates, these candidates' ages, and their campaigns' finances.

With those results, one can guarantee that around the threshold margin of victory zero the only effect which affecting the value of state procurement contract to a donor firm is the fact that the state candidate elected and non-elected.

### 5.2 Main Results

**The Net Expected Return.** Figure 3, which follows the same methodology as the figures on the covariates, shows the post-electoral contracts for donor firms associated with winning and losing state deputies. We investigated four main dimensions of these contracts: those for all candidates, those for candidates from traditional political parties, those for candidates from right-wing

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<sup>9</sup> Arvate, Firpo, and Pieri (2013) observe in the same electoral sample a difference on the schooling of mayors when the mayor is a woman rather than a man.

parties, and those for candidates from left-wing parties. In each figure, the left side corresponds to the losing state candidates; the right side of the figure corresponds to the winning state candidates.

**Insert Figure 3 here**

There are two clear discontinuities around the cutoff: for the candidates from traditional parties and for the candidates from left-wing parties. There is a small discontinuity for all of the candidates, and there is no discontinuity for the candidates of right-wing parties. This result shows that the firms that make donations to all elected state deputy candidates, who are therefore from both traditional and left-wing parties, receive more value in contracts than do the firms that donate to non-elected candidates.

We performed a different estimation to confirm this finding (on the robustness procedure, see Imbens and Lemieux, 2007, although our study used a different functional estimation). We observed the same difference in the values of contracts between elected and non-elected state deputies (see Table 2; the variations of the estimations are shown in the footnote of the table, which includes the bandwidth established by Imbens and Kalyanaraman (2009), different windows of margins of victory for state deputies in coalitions, polynomials, the inclusion of covariates, etc.).

**Insert Table 2 here**

The results are robust because they withstand the majority of differences in specifications. All elected state deputies provide between 340% and 430% (depending on the specification) more value in contracts to their donor firms than non-elected deputies. This difference is the measure of spoil of victory. The discrepancy between elected and non-elected deputies was slightly lower for candidates from traditional parties, which yielded an increased contract value of between 243% and 367%. Finally, left-wing parties showed an increased contract value of 348% and 565% for elected and non-elected state deputies, respectively. Our most comparable result with the results of Boas, Hidalgo, and Richardson (2013) is the local linear estimation, although the bandwidth is not directly comparable because they worked with raw votes and excluded non-financed candidates. They obtained a 193% difference in contract values between elected and non-elected federal deputies financed by donor firms; we obtained a difference of 243% for the traditional parties and 456% for the left-wing parties (for PT, an isolated left-wing party, they obtained an 867% difference).



According to the literature (Levitt, 1994; Bronas and Lott, 1997; Gerber, 1998; Rekkas, 2007; Milligan and Rekkas, 2008), it is likely that different values in campaigns' finances influence candidates' margins of victory. However, we observe that there is no difference in campaign financing between winning and losing state deputies, and we did not perform an evaluation of this finding. So, it gives support for our RDD empirical strategy.

Table 3 addresses the main point of this study: the net expected returns in the context of the differences in contracts between winning and losing candidates, which was observed above.

**Insert Table 3 here**

Table 3 shows three columns: the average net expected returns for donors firms, the differences between these average expected returns for donors firms, and the average campaign finance. Because there is a difference between the candidates with respect to these dimensions, the expected results were calculated using Equation 1, and there were three different margins of victory (30%, 10%, and 5%).

An interesting observation for all results is that higher levels of campaign finance are associated with lower margins of victory. We assume that campaign financing between candidates is the same because our investigation of the covariates showed that there is no difference in financing between winning and losing candidates.

When we concentrate on discontinuous results, it is possible to observe that Hypothesis 1 is satisfied. In other words, firms obtain a positive expected return from financing state deputies. The strongest result comes from the donor firms that invested in deputies from the traditional parties. Thus, Hypothesis 2, which stated that firms obtain a higher expected return from financing state deputies who belong to parties with an electoral tradition, is also valid. Moreover, the learning-by-doing process appears to be significant because investments in candidates from left-wing parties yield a better result in contracts than the results for all of the candidates who are not from the traditional parties. Thus, Hypothesis 3 is partially confirmed. Our results are different from those of Boas, Hidalgo, and Richardson (2013) in terms of measure (i.e., the expected return) and the number of parties (i.e., we studied all of the left-wing parties, not only the PT).

In the following section, we investigate the differences in executive behavior by considering these dimensions: all candidates, traditional parties, and ideological parties.

**The Heterogeneity of the State Executive.** In Figures 4A (donor firms that financed candidates in the governor’s coalition) and 4B (donor firms that financed candidates who were not in the governor’s coalition), we tested whether there was a difference between candidates’ calculations of the return.

**Insert Figure 4A and 4B here**

Hypothesis 4 states that the executive may behave differently in terms of awarding contracts to those donor firms that supported the state deputies in his/her coalition.

Figure 4A uses a graph to analyze all candidates that are from the electoral executive coalition, trying to identify whether there are differences in contracts awarded to donor firms between winning and losing state deputy candidates. There is no discontinuity in the other dimensions (i.e., candidates from traditional, right-wing, and left-wing parties).

Figure 4B shows that winning candidates from traditional electoral parties (who have a tiny discontinuity) and left-wing parties receive more contracts for their donor firms when they are not part of an electoral executive coalition.

**Insert Table 4 here**

Table 4 (A and B) presents robust results which confirm what is observed visually in the graph in Figure 4A and 4B (when the deputies were or were not part of the governor’s coalition). With the different specifications that are described above, the results are robust. The difference in the values of contracts between the winning and losing candidates when the parties were part of an electoral coalition ranges from 340% to 433%.

When the candidates are not part of a coalition, the difference in the values of contracts between the winning and losing candidates from traditional parties vary from 262% to 340%. When the parties were left-wing, this difference varies from 264% to 500%.

This difference in the values of contracts between elected and non-elected state deputies verifies the hypothesized difference in the net expected returns of the donor firms that financed these candidates’ campaigns.

Table 5 follows the procedures of robustness that are described above and shows the net expected return results for candidate deputy that belong or not the electoral governor’s coalition.

**Insert Table 5 here**

Among all of net expected return that were calculated in this study, the highest value was found for the candidates in the governor's electoral coalition.

For deputies outside the governor's electoral coalition, firms' net expected returns from contracts for both traditional parties and left-wing parties were lower than the returns obtained in the main results. Thus, we can confirm Hypothesis 4: firms experience different net expected returns when financing candidates inside or outside of the executive's coalition. Moreover, there may be a net premium for donor firms that support candidates in the governor's coalition during an election and a punishment for those firms that support candidates outside of this coalition. Such difference in behavior has never been discussed in the literature before.

Figures 5A and 5B show the same initial procedures before testing for the influence of the state governor's term of office: first or second term.

**Insert Figure 5A and 5B here**

We do not observe a difference in the contracts for firms that financed the winning and losing candidates during a governor's second term (Figure 5B). However, it is possible to calculate the net expected return for all of the candidates, and thus, for candidates from traditional parties or left-wing parties during a governor's first term (whereas the first two categories have small discontinuities, left-wing parties have a large discontinuity). Indeed, Tables 4A and 4B confirm this observation.

The net expected return for the candidates from traditional parties is close to those net expected return that were obtained in the main investigation (Table 5). However, the contracts for all of the candidates and for those candidates that were from left-wing parties depend on the margin of victory under consideration. It is not possible to obtain a final conclusion for these results, and thus, it is not possible to confirm Hypothesis 5.

Finally, we test for the presence of differences according to whether the governor will run for reelection. Following the same procedures, Tables 6A and 6B show the same issue as the previous tables, and it is possible to observe several discontinuities when the governor is a candidate for reelection (Figure 6A).

**Insert Figure 6A and 6B here**

There are three discontinuities, namely, discontinuities - for all candidates, discontinuities for candidates from traditional parties, and discontinuities for candidates from left-wing parties. -

All of these discontinuities are confirmed with different specifications when the state governor was not a candidate for reelection.

Table 4B confirms the above results with different specifications, and there is no significant difference in comparison to the net expected return that were obtained in the main results.

However, a difference can be observed when the candidates belonged or did not belong to the electoral coalition that supported the governor during an election.

## **6. Discussion of the Results and the Related Literature**

In this paper we estimate the net expected return of a campaign donation for donor firms which deal with heterogeneous politicians and parties at the sub-national level in Brazil.

In contrast to Boas, Hidalgo and Richardson (2013), we consider the measure of the net expected return on contracts (i.e., the contract associated with a non-elected state deputy times the probability that a state deputy will lose the election, plus the contract associated with an elected state deputy times the probability that the state deputy will win the election, from which we subtracted the value of the campaign donation). Boas, Hidalgo, and Richardson (2013) calculate the spoils of victory by observing the difference in the contracts that were obtained from elected and non-elected federal deputies.

We use the same empirical strategy of identification (RDD) as those authors to make our measure, but we worked with margins of victory that were unavailable to them because our state deputy intra-coalition margin of victory is not influenced by the size of the district (state) as is the federal measure explored by them (they worked with the raw vote margin to avoid overrepresentation and underrepresentation).

Our main results show that a net expected return exists and is high (i.e., the campaign finance is almost 2% of the net expected return). The candidates of traditional parties, who were neglected by Boas, Hidalgo, and Richardson (2013), provided more to donor firms than candidates do on average. Left-wing parties give more return than the average candidate, but less than traditional electoral parties. Boas, Hidalgo, and Richardson (2013) observed the spoils of victory for only one left-wing party at the federal level: PT. In contrast, our results were for different levels of electoral competition (with margins of victory at 30%, 10%, and 5%), and we observed that the average values of campaign finance are higher in elections where the margin of victory is lower, although the net expected return does not change significantly.

Our main hypothesis is that the net expected return with the heterogeneity of sub-national executive politics could be different. The net expected returns for donor firms that finance any type of candidate are higher than they are for candidates from a governor's electoral coalition. However, the net expected return for donor firms for traditional electoral and left-wing parties are lower than these results. In a new contribution to the literature, our study suggested that this finding may be a signal of the governor handing out premiums and punishments.

In other cases, such as when the governor is in his/her first term or is not seeking reelection, it was possible to observe the discontinuities that allow us to compute the net expected return. However, in these cases the results do not differ significantly from the main results.

## **7. Conclusions and Final Remarks**

This paper estimates the net expected return of a campaign donation for donor firms at the sub-national level in Brazil, exploring how such a return varies with heterogeneous politicians and political parties. Using a Regression Discontinuity Design (RDD), we estimate the net expected return at the sub-national level, using data from campaign donations to state candidate deputies in 2006, and state government contracts from eight Brazilian states.

Our main result shows that the average net expected return for donor firms (considering all contracts) is high and positive: expenditure on campaign finance is less than 2% of the net expected return for all contracts, on average, and this result is independent of a candidate's electoral success. Although Boas, Hidalgo, and Richardson (2013) measure only the spoils of victory, they do not investigate the importance of parties with an electoral tradition. In these cases, the net expected return is higher than the previously mentioned result. Left-wing parties (not only PT, as Boas, Hidalgo, and Richardson, 2013 showed), obtained a high net expected return but lower than the return of candidates from parties with electoral tradition.

Our work builds significantly on Boas, Hidalgo, and Richardson (2013) due to the lack of other works with a similar empirical strategy (i.e., using a quasi-experiment) to produce robust results. As Großer, Reuben, and Tymula (2013) noted, observational studies that measure the monetary returns of political investments are very rare. This paper aims to fill this gap in the literature.

## Tables and Figures

**Table 1A: Descriptive Statistics**

Variables	Observations	Mean	Std. Dev.
<b>Margin of Victory is - 30% and 30%</b>			
Campaign Finance Revenue by Candidates (Nominal Reais)	1795	41,270.2	98,495.4
All Contracts linked with Candidates ( Nominal Reais )	1795	3,178,450	1.87e+07
Contracts linked with Candidates of Big Parties ( Nominal Reais )	850	5,620,409	2.52e+07
Contracts linked with Candidates of Right-Wing Parties ( Nominal Reais )	403	3,219,467	2.08e+07
Contracts linked with Candidates of Left-Wing Parties ( Nominal Reais )	586	4,729,731	2.07e+07
High School	1795	0.22	0.41
Higher Education	1795	0.69	0.45
Aging	1795	47.08	10.35
Percentage of Women Candidates	1795	0.13	0.33
Reelected	1795	0.28	0.28

**Table 1B: Descriptive Statistics**  
**Difference between elected and non-elected variables**  
**Margin of victory between - 30% and + 30%**

Variables	Elected State Deputies		Non-Elected State Deputies	
	Observations	Mean	Observations	Mean
Campaign Finance Revenue by Candidates (Nominal Reais)	321	132,309.7	1474	21,444.1***
All Contracts btw State and Donor Firm ( Nominal Reais )	321	9,883,506	1474	1,718,258***
Contracts btw State and Donor Firm -Traditional Parties (Nominal Reais)	209	1.29e+07	641	3,243,048***
Contracts btw State and Donor Firm: Right Wing Parties (Nominal Reais)	59	1.31e+07	344	1,531,496***
Contracts btw State and Donor Firms: Left-Wing Parties ( Nominal Reais)	133	1.30e+07	453	2,287,878***
High School	321	0.23	1474	0.14***
Higher Education	321	0.80	1474	0.67***
Aging	321	47.13	1474	47.07
Percentage of Women Candidates	321	0.13	1474	0.13

**Note:** t-test (difference mean(non-elected) – mean (elected)):\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 1C: Descriptive Statistics**

<b>Variables</b>	<b>Observations</b>	<b>Mean</b>	<b>Std. Dev.</b>
<b>Margin of Victory is -10% and 10%</b>			
Campaign Finance Revenue by Candidates (Nominal Reais)	1446	48,363.21	106,312.7
All Public Contracts btw State and Donor Firms( Nominal Reais )	1446	3,238,156	1.87e+07
Contracts btw State and Donor Firm -Traditional Parties (Nominal Reais)	789	5,409,204	2.50e+07
Contracts btw State and Donor Firm: Right Wing Parties (Nominal Reais)	256	4,811,776	2.59e+07
Contracts btw State and Donor Firms: Left-Wing Parties ( Nominal Reais)	521	4,344,792	1.96e+07
High School	1446	0.20	0.40
Higher Education	1446	0.71	0.45
Aging	1446	47.24	10.14
Percentage of Women Candidates	1446	0.12	0.33
Reelected	1446	0.10	0.30
<b>When the state deputies are winners</b>			
Campaign Finance Revenue by Candidates (Nominal Reais)	292	136,109.6	170,991.8
All Contracts btw State and Donor Firm ( Nominal Reais)	292	9,097,920	3.44e+07
Contracts btw State and Donor Firm -Traditional Parties (Nominal Reais)	197	1.27e+07	4.13e+07
Contracts btw State and Donor Firm: Right Wing Parties (Nominal Reais)	53	1.40e+07	5.32e+07
Contracts btw State and Donor Firms: Left-Wing Parties ( Nominal Reais)	123	1.26e+07	3.65e+07
High School	292	0.14	0.35
Higher Education	292	0.80	0.39
Aging	292	47.34	11.30
Percentage of Women Candidates	292	0.13	0.34
<b>When the state deputies are losers</b>			
Campaign Finance Revenue by Candidates (Nominal Reais)	1154	26,160.51	65,895.1
All Contracts btw State and Donor Firm ( Nominal Reais)	1154	1,755,442	1.13e+07
Contracts btw State and Donor Firm -Traditional Parties (Nominal Reais)	592	2,973,894	1.55e+07
Contracts btw State and Donor Firm: Right Wing Parties (Nominal Reais)	203	2,414,764	9,378,785
Contracts btw State and Donor Firms: Left-Wing Parties ( Nominal Reais)	398	1,805,953	8,205,359
High School	1154	0.21	0.41
Higher Education	1154	0.69	0.46
Aging	1154	47.22	9.83
Percentage of Women Candidates	1154	0.12	0.33



<b>Table 1D: Descriptive Statistics</b>			
<b>Variables</b>	<b>Observations</b>	<b>Mean</b>	<b>Std. Dev.</b>
<b>Margin of Victory is -5% and 5%</b>			
Campaign Finance Revenue by Candidates (Nominal Reais)	1037	60,878.02	119,372.4
All Contracts btw State and Donor Firm ( Nominal Reais)	1037	3,766,367	2.06e+07
Contracts btw State and Donor Firm -Traditional Parties (Nominal Reais)	648	5,600,413	2.57e+07
Contracts btw State and Donor Firm: Right Wing Parties (Nominal Reais)	193	5,764,892	2.93e+07
Contracts btw State and Donor Firms: Left-Wing Parties ( Nominal Reais)	429	4,906,358	2.14e+07
High School	1037	0.20	0.40
Higher Education	1037	0.73	0.44
Aging	1037	47.35	10.13
Percentage of Women Candidates	1037	0.12	0.33
Reelected	1037	0.13	0.33
<b>When the state deputies are winners</b>			
Campaign Finance Revenue by Candidates (Nominal Reais)	258	143,172.3	177,492.7
All Contracts btw State and Donor Firm ( Nominal Reais)	258	8,771,403	3.51e+07
Contracts btw State and Donor Firm -Traditional Parties (Nominal Reais)	178	1.21e+07	4.18e+07
Contracts btw State and Donor Firm: Right Wing Parties (Nominal Reais)	46	1.39e+07	5.65e+07
Contracts btw State and Donor Firms: Left-Wing Parties ( Nominal Reais)	110	1.34e+07	3.84e+07
High School	258	0.14	0.35
Higher Education	258	0.80	0.39
Aging	258	47.78	11.39
Percentage of Women Candidates	258	0.13	0.47
<b>When the state deputies are losers</b>			
Campaign Finance Revenue by Candidates (Nominal Reais)	779	33,622.65	74,691.88
All Contracts btw State and Donor Firm ( Nominal Reais)	779	2,108,729	1.20e+07
Contracts btw State and Donor Firm -Traditional Parties (Nominal Reais)	470	3,129,936	1.53e+07
Contracts btw State and Donor Firm: Right Wing Parties (Nominal Reais)	147	3,226,394	1.08e+07
Contracts btw State and Donor Firms: Left-Wing Parties ( Nominal Reais)	319	1,970,675	8,911,651
High School	779	0.21	0.41
Higher Education	779	0.70	0.45
Aging	779	47.21	9.68
Percentage of Women Candidates	779	0.12	0.32

Figure 1: Frequency of margin percentage of votes

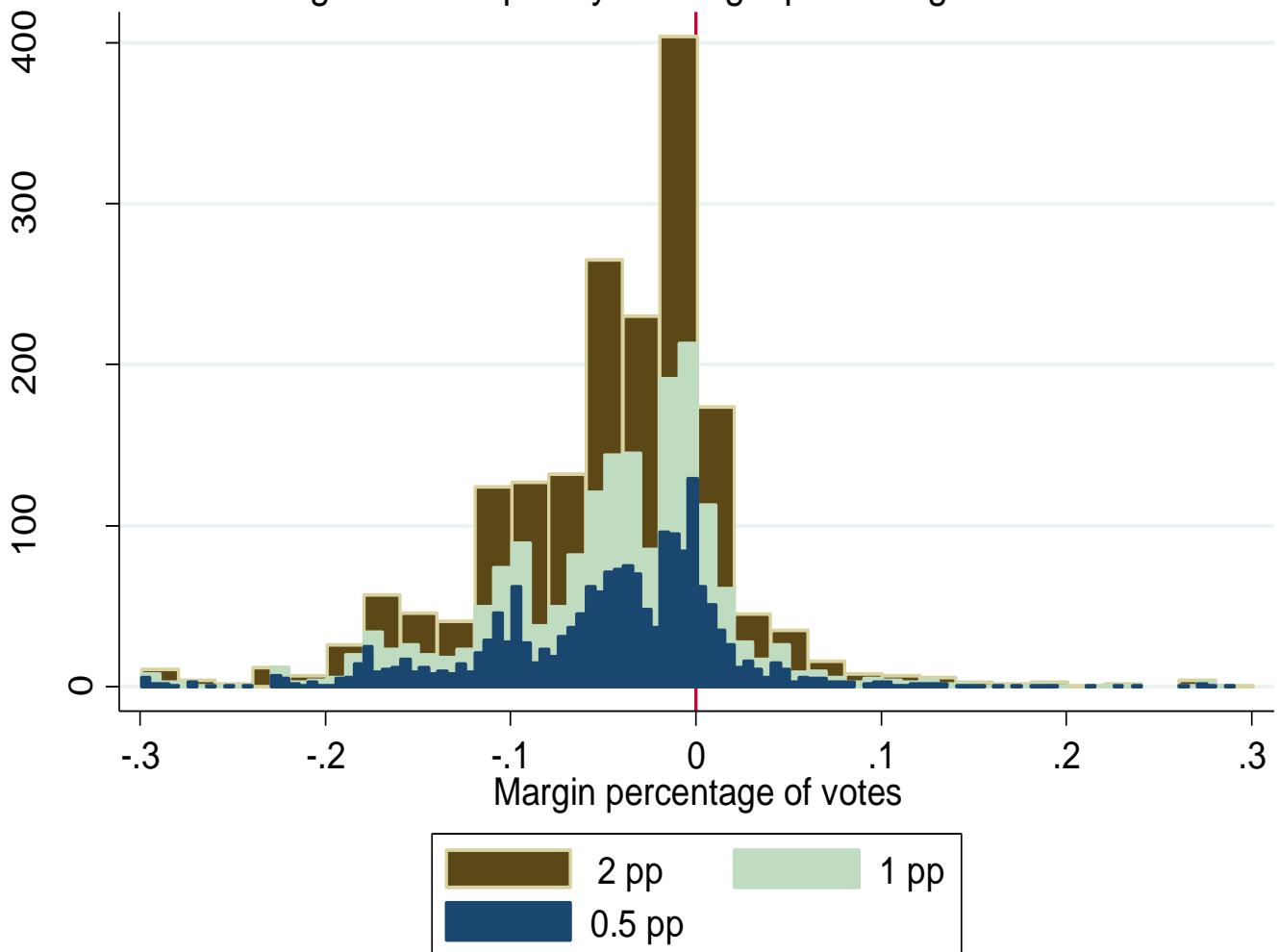


Figure 2: Covariates  
 Characteristics of Voters, Politicians and Campaign Finance

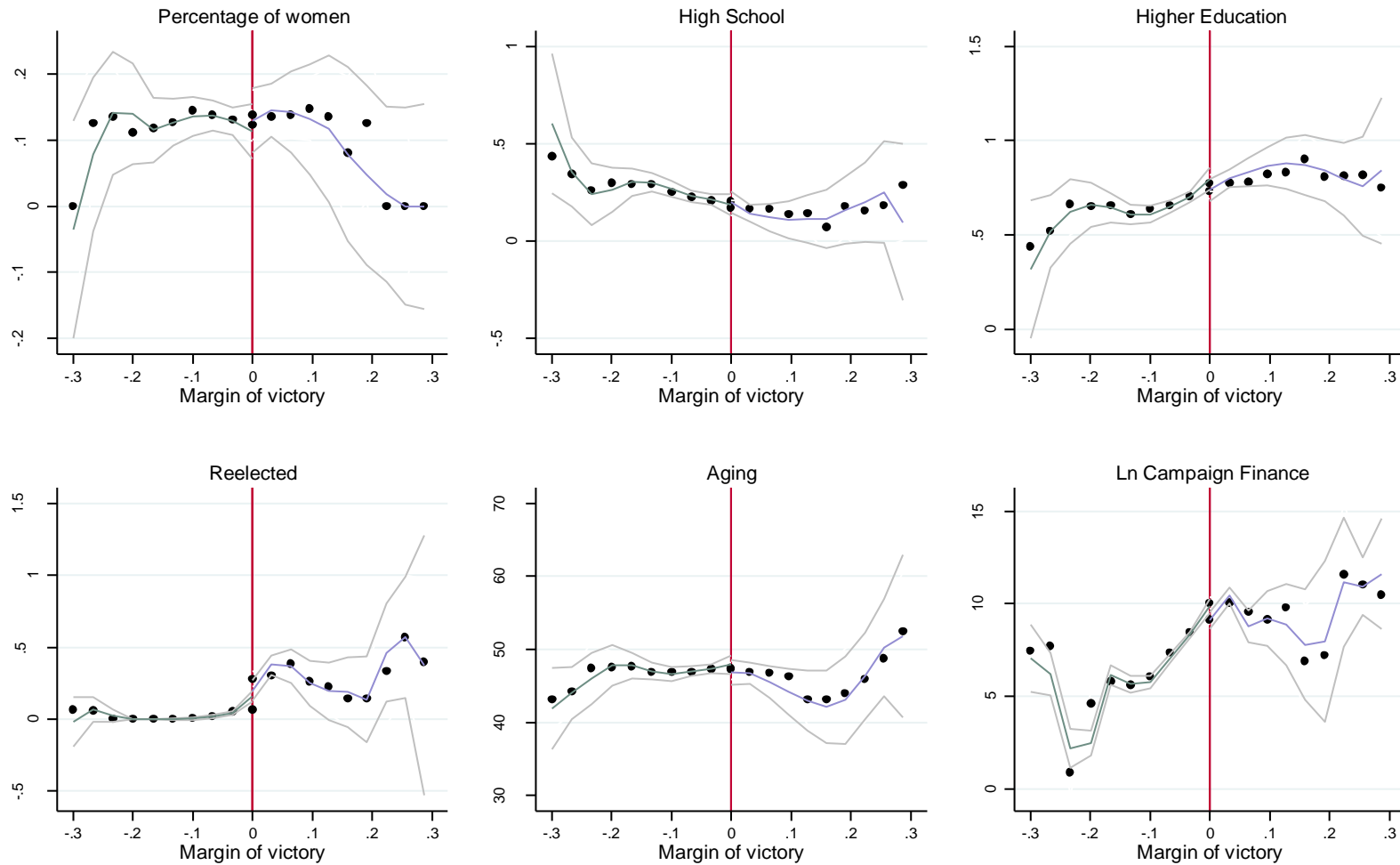
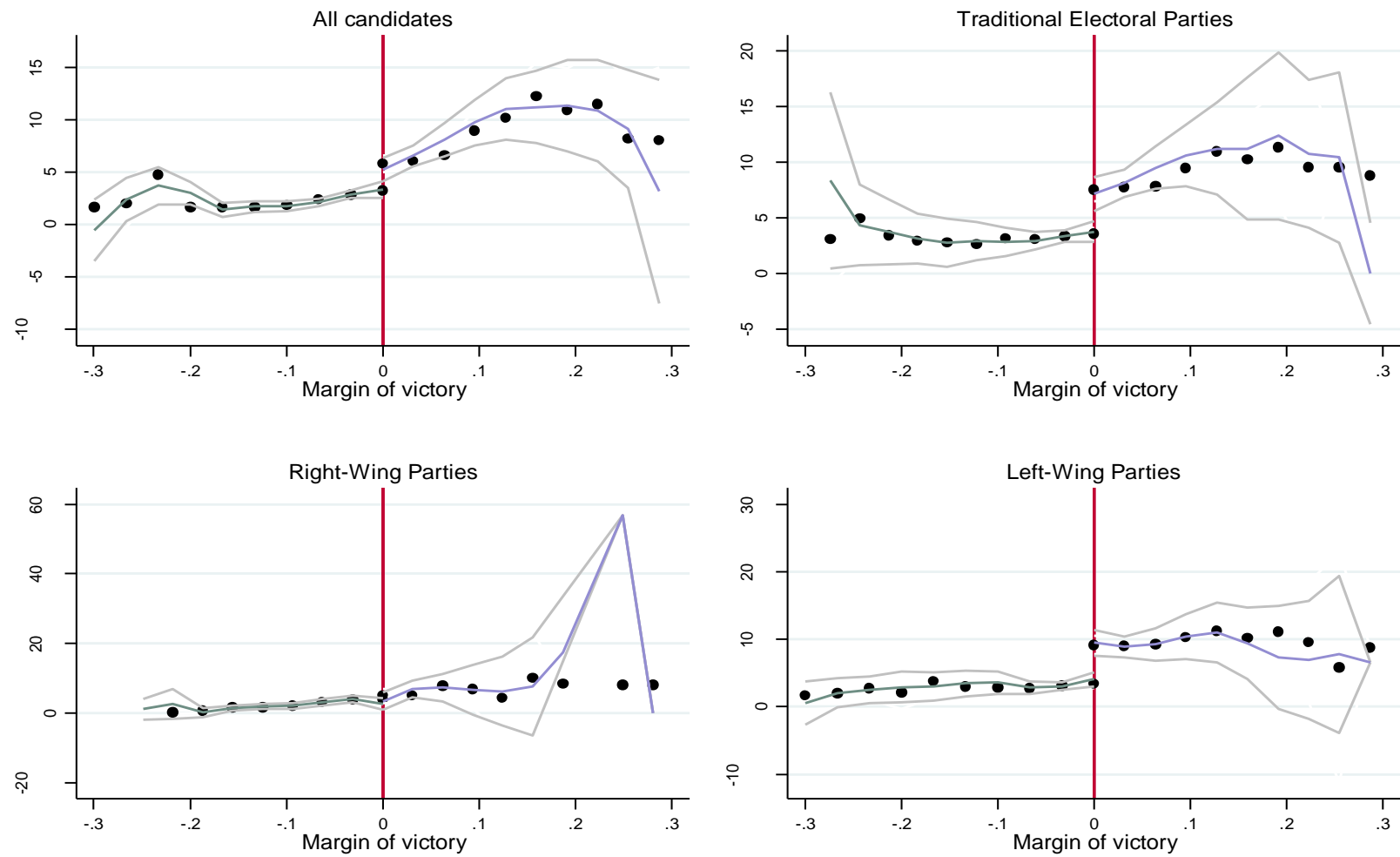


Figure 3: Contracts after Elections by Candidates



**Table 2: Main Results**

Variables	Ln All Contracts btw State and Donor Firms				
	(1)	(2)	(3)	(4)	(5)
lwald	0.899 (0.902)				
lwald50	-0.340 (1.092)				
State Deputy Elected		<b>3.405***</b> <b>(0.570)</b>	<b>4.331***</b> <b>(0.697)</b>	<b>3.859***</b> <b>(0.608)</b>	<b>3.491***</b> <b>(0.618)</b>
Constant		3.236*** (0.279)	2.765*** (0.361)	2.839*** (0.336)	-5.374 (4.187)
Observations	1,852	1,446	1,037	1,446	1,446
R-squared		0.089	0.064	0.092	0.121
<b>Ln Contracts btw State and Donor Firm: Traditional Parties</b>					
lwald	<b>2.432*</b> <b>(1.463)</b>				
lwald50	0.194 (1.914)				
State Deputy Elected		<b>3.209***</b> <b>(0.779)</b>	<b>3.556***</b> <b>(0.936)</b>	<b>3.678***</b> <b>(0.879)</b>	<b>3.469***</b> <b>(0.889)</b>
Constant		3.961*** (0.412)	3.513*** (0.512)	3.635*** (0.500)	-8.331 (6.597)
Observations	861	789	648	789	789
R-squared		0.089	0.069	0.090	0.120
<b>Contracts btw State and Donor Firms: Left-Wing Parties</b>					
lwald	<b>4.568***</b> <b>(1.711)</b>				
lwald50	2.520 (2.245)				
State Deputy Elected		<b>5.653***</b> <b>(0.925)</b>	<b>5.353***</b> <b>(1.106)</b>	<b>5.246***</b> <b>(1.065)</b>	<b>3.485***</b> <b>(1.041)</b>
Constant		3.457*** (0.484)	3.864*** (0.601)	3.721*** (0.593)	-17.005*** (6.133)
Observations	606	521	429	521	521
R-squared		0.149	0.151	0.150	0.268

Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 (1) Lwald is the estimate under the bandwidth that's selected using the Imbens and Kalyanaraman (2009) procedure. RD program get local linear estimates (using a triangular kernel); (2) OLS using margin of victory, margin of victory squares and with margin of victory between 10%(-10% and 10%); (3) with margin of victory between 5% (-5% and 5%); (4) including margin of victory cubic; (5) including covariates: percentage of women candidates, schooling of state deputies (primary, high school, and superior education), aging of state deputies, state deputies reelection, and state deputies' campaign finance.

Table 3: Average Net Expected Return for donors firms with different levels of electoral competition

Margins of victory	Average Net Expected Return for donors firms(ER-CF)	Average Expected Return for donors firms (ER)	Average Campaign Finance(CF)
<b>All Contracts btw State and Donor Firms</b>			
30%	3,137,180.78	3,178,450.00	41,270.20
10%	3,189,792.19	3,238,155.40	48,363.21
5%	3,705,488.29	3,766,366.31	60,878.02
<b>Contracts btw State and Donor Firm: Traditional Parties</b>			
30%	5,555,839.62	5,617,522.08	61,682.46
10%	5,337,976.81	5,402,338.72	64,361.91
5%	5,519,745.34	5,593,935.06	74,189.72
<b>Contracts btw State and Donor Firms: Left-Wing Parties</b>			
30%	4,658,209.20	4,719,127.53	60,918.33
10%	4,288,375.18	4,354,259.68	65884.50
5%	4,826,443.45	4,901,271.15	74,827.70

Figure 4A: Contracts after Elections by Candidates  
Deputies are from Electoral Executive Coalition

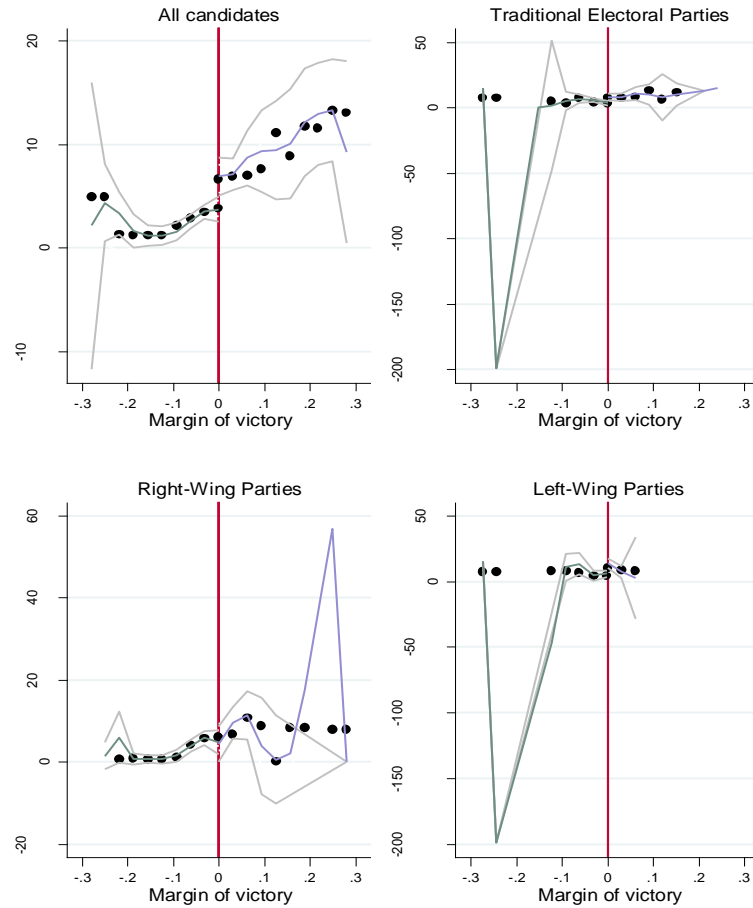


Figure 4B: Contracts after Elections by Candidates  
Deputies are not from Electoral Executive Coalition

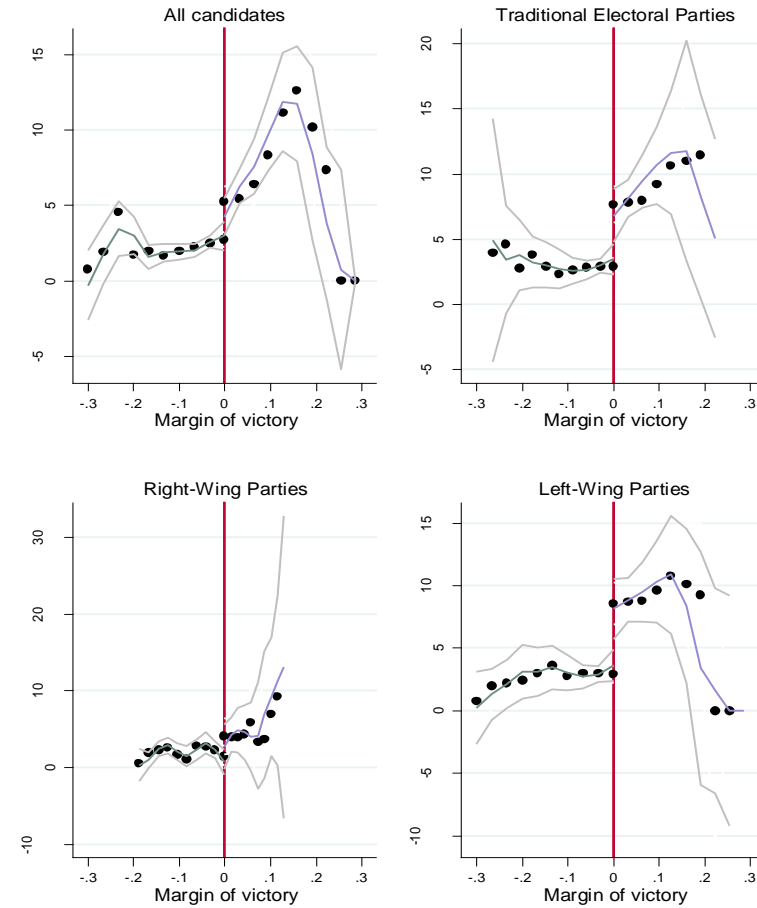


Table 4A: State Executive Effect

<i>When the deputies are from electoral governor coalition</i>					
Variables	Ln All Contracts btw State and Donor Firms				
	(1)	(2)	(3)	(4)	(5)
Lwald	0.899 (0.902)				
State Deputy Elected		<b>3.405***</b> <b>(0.570)</b>	<b>4.331***</b> <b>(0.697)</b>	<b>3.859***</b> <b>(0.608)</b>	<b>3.491***</b> <b>(0.618)</b>
Observations	1,852	1,446	1,037	1,446	1,446
R-squared		0.089	(0.064)	0.092	0.121
<i>When the deputies are not from electoral governor coalition</i>					
Variables	Ln Contracts btw State and Donor Firm: Traditional Parties				
	(1)	(2)	(3)	(4)	(5)
Lwald	<b>3.345***</b> <b>(1.274)</b>				
State Deputy Elected		<b>3.296***</b> <b>(1.000)</b>	<b>3.395***</b> <b>(1.231)</b>	<b>3.408***</b> <b>(1.160)</b>	<b>2.626**</b> <b>(1.181)</b>
Observations	600	543	416	543	543
R-squared		0.107	0.088	0.107	0.141
Variables	Ln Contracts btw State and Donor Firms: Left-Wing Parties				
	(1)	(2)	(3)	(4)	(5)
Lwald	<b>4.136***</b> <b>(1.549)</b>				
State Deputy Elected		<b>5.007***</b> <b>(1.157)</b>	<b>4.526***</b> <b>(1.386)</b>	<b>4.282***</b> <b>(1.349)</b>	<b>2.644**</b> <b>(1.328)</b>
Observations	469	397	306	397	397
R-squared		0.136	0.144	0.139	0.230
<i>When the governors are in the First Term</i>					
Variables	Ln All Contracts btw State and Donor Firms				
	(1)	(2)	(3)	(4)	(5)
Lwald	-0.561 (1.097)				
State Deputy Elected		<b>4.144***</b> <b>(0.634)</b>	<b>4.915***</b> <b>(0.765)</b>	<b>4.532***</b> <b>(0.664)</b>	<b>4.338***</b> <b>(0.684)</b>
Observations	1,479	1,176	828	1,176	1,176
R-squared		0.101	0.083	0.104	0.129
Variables	Ln Contracts btw State and Donor Firm: Traditional Parties				
	(1)	(2)	(3)	(4)	(5)
Lwald	-0.503 (2.053)				
State Deputy Elected		<b>3.648***</b> <b>(0.858)</b>	<b>3.400***</b> <b>(1.027)</b>	<b>3.988***</b> <b>(0.960)</b>	<b>3.834***</b> <b>(0.988)</b>
Observations	666	624	510	624	624
R-squared		0.101	0.095	0.102	0.126

Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 (1) Lwald is the estimate under the bandwidth that's selected using the Imbens and Kalyanaraman (2009) procedure. RD program get local linear estimates (using a triangular kernel); (2) OLS using margin of victory, margin of victory squares and with margin of victory between 10% (-10% and 10%); (3) with margin of victory between 5% (-5% and 5%); (4) including margin of victory cubic; (5) including covariates: percentage of women candidates, schooling of state deputies (primary, high school, and superior education), aging of state deputies, state deputies reelection, and state deputies' campaign finance.



**Table 4B: State Executive Effect**

<i>When the governors are in the First Term</i>					
Variables	<b>Ln Contracts btw State and Donor Firms: Left-Wing Parties</b>				
	(1)	(2)	(3)	(4)	(5)
Lwald	<b>3.685*</b> (1.909)				
		<b>6.591***</b>	<b>5.444***</b>	<b>5.722***</b>	<b>3.822***</b>
State Deputy Elected		<b>(0.982)</b>	<b>(1.168)</b>	<b>(1.126)</b>	<b>(1.123)</b>
Observations	487	416	345	416	416
R-squared		0.183	0.206	0.188	0.298
<i>When the governor is not governor candidate in the next election</i>					
Variables	<b>Ln All Contracts btw State and Donor Firms</b>				
	(1)	(2)	(3)	(4)	(5)
lwald	0.942 (0.889)				
		<b>3.303***</b>	<b>4.107***</b>	<b>3.704***</b>	<b>3.380***</b>
State Deputy Elected		<b>(0.582)</b>	<b>(0.708)</b>	<b>(0.615)</b>	<b>(0.624)</b>
Observations	1,806	1,417	1,017	1,417	1,417
R-squared		0.085	0.059	0.088	0.115
Variables	<b>Ln Contracts btw State and Donor Firm: Traditional Parties</b>				
	(1)	(2)	(3)	(4)	(5)
lwald	<b>3.006**</b> (1.325)				
		<b>3.156***</b>	<b>3.461***</b>	<b>3.598***</b>	<b>3.392***</b>
State Deputy Elected		<b>(0.789)</b>	<b>(0.939)</b>	<b>(0.882)</b>	<b>(0.893)</b>
Observations	845	785	645	785	785
R-squared		0.087	0.068	0.088	0.118
Variables	<b>Ln Contracts btw State and Donor Firms: Left-Wing Parties</b>				
	(1)	(2)	(3)	(4)	(5)
lwald	<b>4.826***</b> (1.607)				
		<b>5.609***</b>	<b>5.232***</b>	<b>5.170***</b>	<b>3.295***</b>
State Deputy Elected		<b>(0.943)</b>	<b>(1.112)</b>	<b>(1.078)</b>	<b>(1.057)</b>
Observations	593	517	427	517	517
R-squared		0.145	0.148	0.146	0.265

Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 (1) Lwald is the estimate under the bandwidth that's selected using the Imbens and Kalyanaraman (2009) procedure. RD program get local linear estimates (using a triangular kernel); (2) OLS using margin of victory, margin of victory squares and with margin of victory between 10%(-10% and 10%); (3) with margin of victory between 5% (-5% and 5%); (4) including margin of victory cubic; (5) including covariates: percentage of women candidates, schooling of state deputies (primary, high school, and superior education), aging of state deputies, state deputies reelection, and state deputies' campaign finance.

**Table 5: Average Net Expected Return for donors firms with different levels of electoral competition**

Margins of victory	Average Net Expected Return for donors firms(ER-CF)	Average Expected Return for donors firms (ER)	Average Campaign Finance(CF)
<i>When the deputies are from electoral governor coalition</i>			
<b>Ln All Contracts btw State and Donor Firms</b>			
30%	4,574,998.55	4,640,977.24	65,978.69
10%	5,072,008.95	5,144,212.55	72,203.60
5%	6,326,716.39	6,418,375.00	91,658.61
<i>When the deputies are not from electoral governor coalition</i>			
<b>Ln Contracts btw State and Donor Firm -Traditional Parties</b>			
30%	4,052,472	4,095,741	43,269
10%	3,611,641	3,657,919	46,277.84
5%	3,483,045	3,537,705	54,659.92
<b>Ln Contracts btw State and Donor Firms: Left-Wing Parties</b>			
30%	2,977,621	3,017,761	40,140.82
10%	2,281,378	2,326,101	44,723.44
5%	2,469,121	2,520,903	51,781.79
<i>When the governors are in the First Term</i>			
<b>Ln All Contracts btw State and Donor Firms</b>			
30%	5,395,457.00	5,436,086.00	40,629.00
10%	3,090,037.00	3,137,415.00	47,378.46
5%	3,561,370.00	3,622,636.00	61,266.21
<b>Ln Contracts btw State and Donor Firm -Traditional Parties</b>			
30%	5,371,618.00	5,436,086.00	64,467.94
10%	5,344,403.00	5,411,805.00	67,401.28
5%	5,412,802.00	5,492,136.00	79,334.15
<b>Ln Contracts btw State and Donor Firms: Left-Wing Parties</b>			
30%	5,373,448.00	5,436,086.00	62,638.09
10%	3,739,323.00	3,809,234.00	69,911.29
5%	4,191,288.00	4,271,059.00	79,771.41
<i>When the governor is not governor candidate in the next election</i>			
<b>Ln All Contracts btw State and Donor Firms</b>			
30%	5,591,049.00	5,632,043.00	40,994.00
10%	3,232,018.00	3,280,181.00	48,163.55
5%	3,768,642.00	3,829,567.00	60,924.60
<b>Ln Contracts btw State and Donor Firm -Traditional Parties</b>			
30%	5,570,192.00	5,632,043.00	61,850.76
10%	5,357,462.00	5,421,794.00	64,332.70
5%	5,553,766.00	5,627,959.00	74,192.35
<b>Ln Contracts btw State and Donor Firms: Left-Wing Parties</b>			
30%	5,571,035.00	5,632,043.00	61,007.29
10%	4,296,788.00	4,362,608.00	65,820.02
5%	4,843,684.00	4,918,373.00	74,689.02

Figure 5A: Contracts after Elections by Candidates  
Executive is in the first term

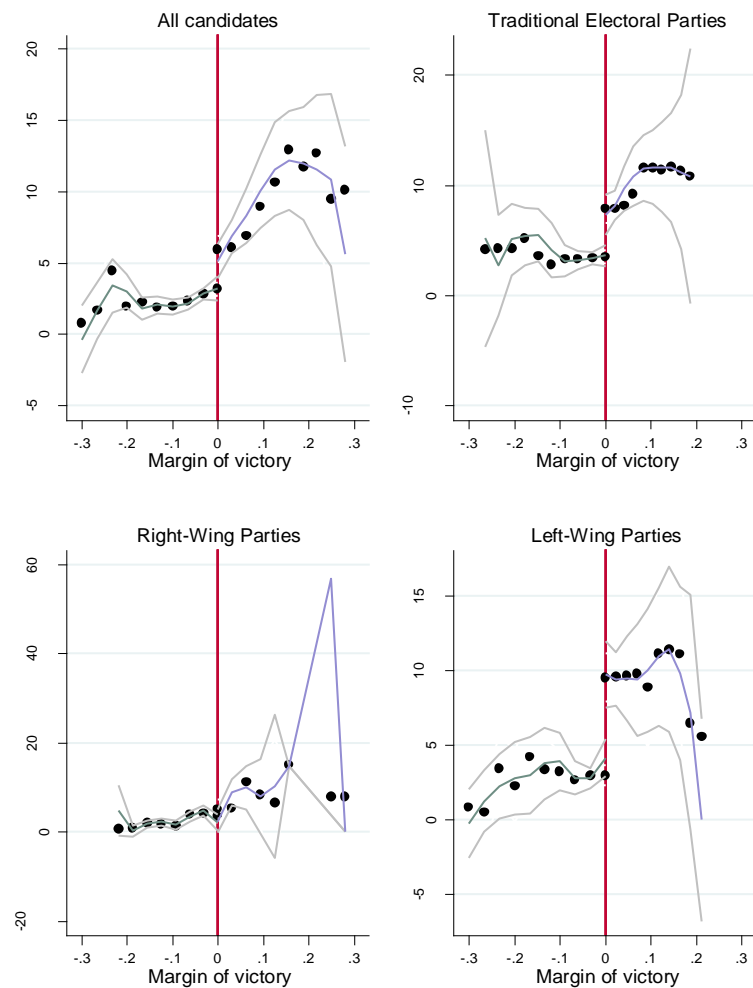


Figure 5B: Contracts after Elections by Candidates  
Executive is in the second term

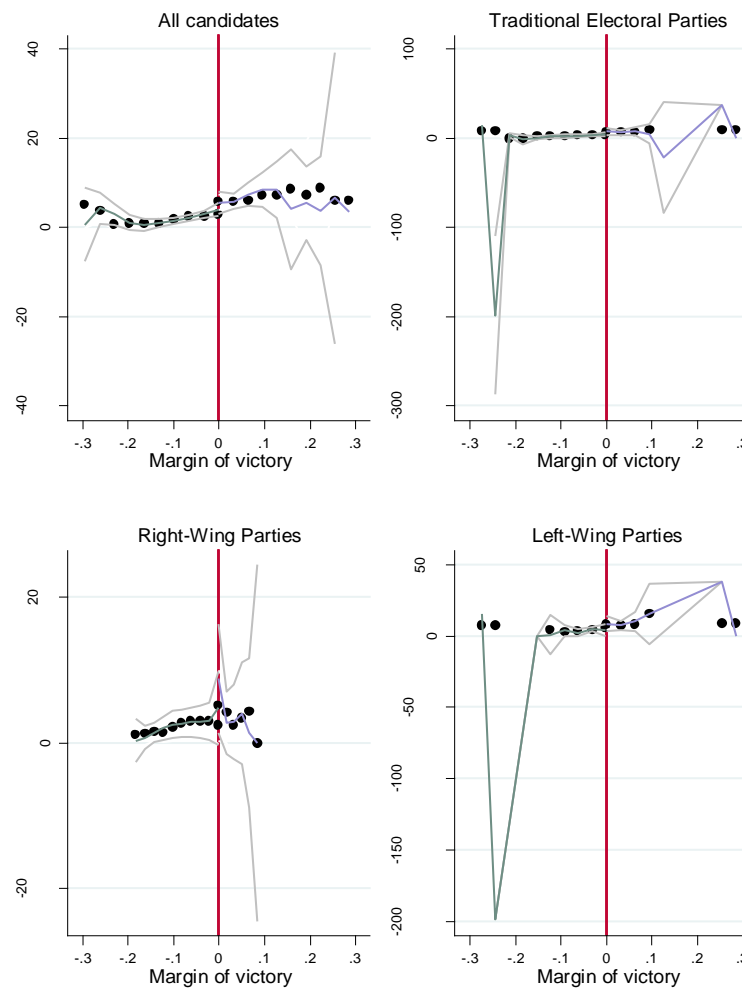


Figure 6A: Contracts after Elections by Candidates  
Executive is candidate in the next election

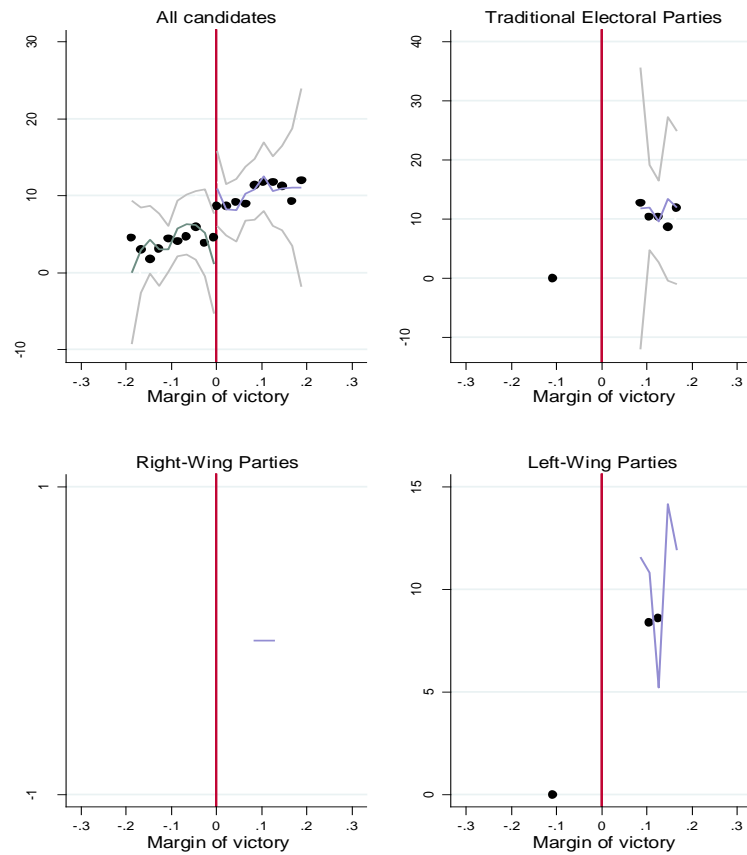
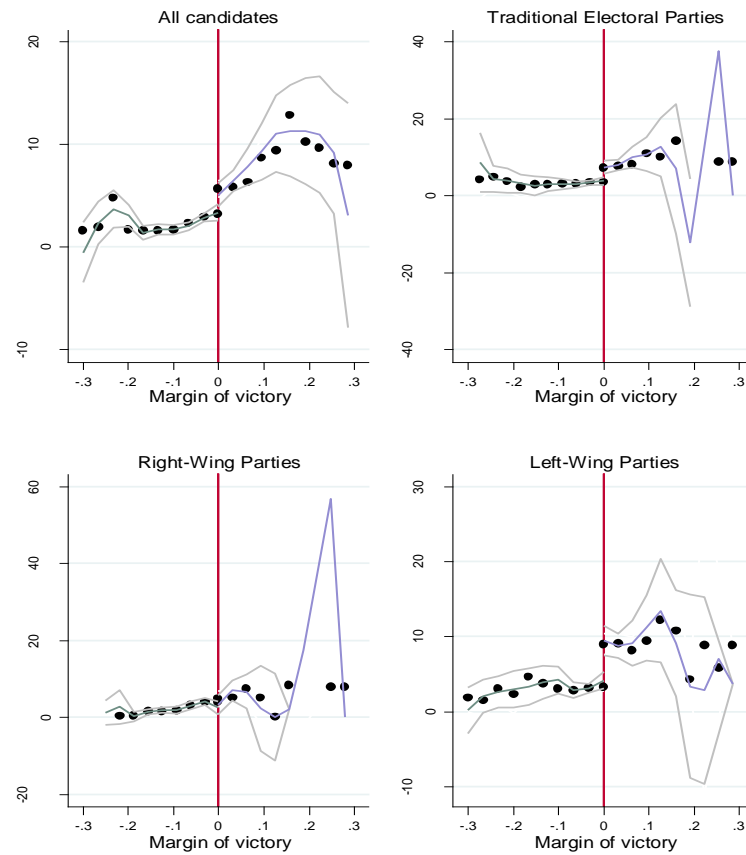


Figure 6B: Contracts after Elections by Candidates  
Executive is not candidate in the next election



## References

- Ansolabehere, S., Figueiredo, J. M. and Snyder, J. M. (2003) Why is there so little money in U.S. politics?. *Journal of Econometrics Perspectives*, v. 17, n. 1, p. 105-130.
- Becker, G.S. and Stigler, G. J. (1974) Law enforcement, malfeasance, and compensation of enforcers. *The Journal of Legal Studies*, vol 31(1), p. 1-18.
- Boas, T. C.; Hidalgo, D. F.; Richardson, N. P. (2013) The spoils of victory: campaign donations and government contracts in Brazil. Working paper.
- Bourdoukan, A. Y. (2012) O bolso e a urna: financiamento político em perspectiva comparada. 2009. Tese (Doutorado em Ciência Política) - Faculdade de Filosofia, Letras e Ciências Humanas, Universidade de São Paulo, São Paulo, 2009. Disponível em: <<http://www.teses.usp.br/teses/disponiveis/8/8131/tde-23112009-102329/>>.
- Boubakri, N., Guedhami, O., Mishra, D., and W. Saffar. (2012). Political Connections and the Cost of Equity Capital. *Journal of Corporate Finance* 18(3): 541-559.
- Bronars, Stephen G. and Lott, John R. (1997) Do campaign donations alter how a politician votes? Or do donors support candidates who value the same things that they do? *Journal of Law and Economics*. 1997. 40 (2) pp. 317-50.
- Claessens, S.; Feijen, E.; Laeven, L. (2008) Political connections and access to finance: the role of campaign contributions. *Journal of Financial Economics*, v. 88, n. 3, p. 554-580.
- Cox G. W. and McCubbins, M.D. (1986). Electoral Politics as a Redistributive Game. *Journal of Politics* 48: 370-89.
- Coopdge, M. (1997) A Classification of Latin American Political Parties. Helen Kellogg Institute for International Studies
- de Figueiredo, J. M., and E. Garrett (2005). "Paying for Politics," *Southern California Law Review*, 78 (3): 591-668.
- Dixit, A. and J. Londregan. (1995). Redistributive Politics and Economic Efficiency. *American Political Science Review* 89: 856-66.
- Ferraz, C. and Finan, F. (2008) Exposing Corrupt Politicians: the Effects of Brazil's Publicly Released Audits on electoral Outcomes. *The Quarterly Journal of Economics*, vol. 123(2), p. 703-745.
- Ferraz, C.; Finan, F. (2012) Electoral accountability and corruption in local governments: evidence from audit reports. 2007. Disponível em: <[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=998235](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=998235)>.
- Gerber, Alan (1998) Estimating the effect of campaign spending on election outcomes using instrumental variables, *American Political Science Review* 92, p.401-11
- Großer, Jens, Ernesto Reuben and Agnieszka Tymula (2013). Political Quid Pro Quo Agreements: An Experimental Study, *American Journal of Political Science*, volume 57, Issue 3, pages 582-597.
- Holmstrom, B. (1982) Moral Hazard in Teams, *The Bell Journal of Economics*, vol 13(2), p.324-340.
- Imbens, G.W.; Lemieux, T. (2008) Regression discontinuity designs: guide to practice. *Journal of Econometrics*, v. 142, n. 2, p. 615-635.
- Lee, D. S. (2008) Randomized experiments from non-random selection in U.S. house elections. *Journal of Econometrics*, v. 142, n. 2, p. 675-697.
- Lee, D. S. and Card, D. (2008) Regression Discontinuity Inference with Specification Error, *Journal of Econometrics*, 142 (2008), pp. 655-674.
- Lee, D. S. Moretti, E. and Butler, M. (2004) Do Voters Affect or Elect Policies? Evidence from the U.S. House, *Quarterly Journal of Economics*, 119(2004), 807-859.
- Levitt, S. D. (1994) Using repeat challengers to estimate the effect of campaign spending on election outcomes in the U.S. House, *Journal of Political Economy* 102, 777-98
- Lindbeck, A. and J. Weibull. (1987). Balanced Budget Redistribution and the Outcome of Political Competition. *Public Choice* 52: 273-97

- Faccio, M., Masulis, R. W., and J. J. McConnell. (2006). Political Connections and Corporate Bailouts. *The Journal of Finance* 61(6): 2597-2635.
- Faccio, M. (2010). Differences between Politically Connected and Nonconnected Firms: A Cross-Country Analysis. *Financial Management* 39(3): 905-928.
- Figueiredo, A, Limongi, F.. (2005) Processo orçamentário e comportamento legislativo: emendas individuais, apoio ao Executivo e programas de governo. *Dados*, v.48, n.4, p. 737-776. 2005.
- Goldman, E., Rocholl, J., and J. So. (2009). Do Politically Connected Boards Affect Firm Value? *Review of Financial Studies* 22(6): 2331-2360.
- Mainwaring, Scott P. 2002. *Rethinking Party Systems in the Third Wave of Democratization: The case of Brazil*. Stanford University Press.
- McCarty, N.; Rothenberg, L.S. (1996) Commitment and the Campaign Contribution Contract. *American Journal of Political Science*, v. 40, n. 3, p. 872-904.
- McCrary, J.(2008) Manipulation of the running variable in the regression discontinuity design: a density test. *Journal of Econometrics*. v.42, n.2, p. 698-714.
- Milligan, K. and Rekkas, M. (2008) Campaign spending limits, incumbent spending, and election outcomes. *Canadian Journal of Economics*, Vol. 41(4), p.1351-1374
- Pereira, C.; Muller, B.(2002) Comportamento estratégico em presidencialismo de coalizão: as relações entre Executivo e Legislativo na elaboração do orçamento brasileiro. *Dados*, vol.45, n.2, p. 265-301.
- Persson, T. and Tabellini, G. (2000). *Political Economics: explaining economic policy*. The MIT Press.
- Rekkas, M. (2007) The impact of campaign spending on votes in multiparty elections, *Review of Economics and Statistics* 89, p.573–85
- Samuels, D.(2001) Money, elections, and democracy in Brazil. *Latin American Politics and Society*, v. 43, n. 2, p. 27–48.
- Samuels, D. (2003) *Ambition, Federalism, and Legislative Politics in Brazil*. Cambridge University Press.
- Samuels, D. (2006) Sources of mass partisanship in Brazil. In *Constructing Democratic Governance in Latin America*. *Latin American Politics and Society*, v. 48, n. 2, p. 1–27.
- Tiebout, C. (1956) A pure theory of local expenditures. *Journal of Political Economy*, vol. 64, p. 416-424
- Trevisan, A.M. (2003) *O combate à corrupção nas prefeituras do Brasil*. São Paulo: Ateliê Editorial, 32 p.