Campaign Donations and Government Contracts in Brazilian States

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Abstract

Corporate firm may obtain public contracts in their favor by donating money to political candidates. We use a quasi-electoral experiment to show that donor firms receive higher value contracts by investing in winning candidates rather than losing candidates for the average of all candidates, for candidates from traditional parties, and for candidates from left-wing parties. Our main results when the non-mutual exclusive relationship between candidates and donor firms exist show that the net expected return is elevated for all candidates, candidates from traditional parties, and candidates of left-wing parties.
1. Introduction

There is a long tradition of works trying to figure out how interest groups influence government actions in order to obtain specific results. However, from reading Großer, Reuben and Tymula (2013) and Boas, Hidalgo, and Richardson (2014), it is possible to observe that the great majority of these empirical works find it difficult to establish causality because they do not solve problems related to endogeneity, for instance.

In order to avoid this kind of problem, Boas, Hidalgo, and Richardson (2014) explore a quasi-electoral experiment in which they identify the mechanism used by firms to reach the public market in Brazil. Basically, firms finance the campaign of federal deputies and the winner deputies from PT receive contracts that are worth more their donors than losing deputies from the same party. The authors argue that members of parties participate in this situation to raise campaign cash for future elections.

Although the design of the quasi-experiment allows to avoid bias as a result of the influence of observable and non-observable variables and to show if there is a difference or not in the value of contracts for losing and winning candidates, the investigation into the mechanism developed by the authors would be expanded. Points that were not to see on the literature of financing of campaign with targets in the public market using the political arena.

First, differences of relationship between donor firms and candidates may promote difference of more or less return of contracts for donor firms in the public market. Given that the relationship between donor firms and candidates involve different interest (Mann, 2003), in our vision, two equilibrium can occur these relationships: a mutual exclusive relationship (MER) and a non-mutual exclusive relationship (NMER).

Candidates allocate their time on different political tasks. Donor firms choose candidates where they have either full or not full influence on their agenda. When donor firms and candidates choose a MER, this equilibrium, probably, is result of a simultaneous combination of one candidate that does not like to allocate several time searching funding and one donor firm which prefer full and exclusive influence on agenda of candidate. In the otherwise, that is more common, any more flexible interest of candidates and donor firms determine a NMER.

Second, to capture heterogeneities in the relationship of politicians in the executive and legislative branches, we decided to concentrate our investigation on state government in Brazil because we know, a priori, that the internal by-laws of state legislatures are different and may determine different relationships between politicians from the executive and legislative branches. The chance of a homogenous relationship between the same executive and legislative branches at the federal level is bigger. Studies have described the relationship between politicians in two political powers at the federal level in Brazil (Pereira and Muller 2002; and Limongi and Figueiredo, 2005), but this relationship has not been interpreted at the sub-national level.

We know, for example, that the legislative branch in Espirito Santo State requires only 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 by each deputy.

Moreover, the branch structure at the sub-national level has substantial autonomy like the federal government in Brazil, which can develop policies that follow the preferences of local voters, rather than national voters. In a different way, Samuels (2003) shows that party nominations are set at the sub-national (state) and not the national level. 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. 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. It is clear also that the way in which donor firms obtain a return from their campaign contributions may involve corruption, since winning contracts depends on public procurement. Ferraz and Finan (2007), for instance, have shown that several types of manipulation occur in these processes, which end up favoring some firms in the public procurement process. 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.

Even in the absence of individual difference in financing between winning and losing candidates close to the threshold of intra-coalition competition election for state deputy, the important calculation of risk-neutral donor firms ex-post making decisions regarding financing is what the net expected return is likely to be. Observing the net expected return, donor firms may direct their campaign financing funds as a whole to groups where the return is higher independent of the winning and losing candidates in each group.

In this paper, we consider the difference of relationship between donor firms and candidates (MER and NMER), this relationship into of different state branches and measure of net expected return for donor firms at the state level in Brazil. We use the intra-coalition dispute of state deputies as a quasi-experiment, data from campaign donations to state deputy candidates in 2006, and contracts for the 2007-2010 government term. Having shown that there is not electoral manipulation and that important background variables do not affect the electoral result (Eggers et al, 2013), the quasi-experiment permits us to verify if there is difference in the return to winning and losing intra-coalition candidates which justifies calculating the net expected return.

Our empirical strategy and estimates differ from those of Boas, Hidalgo and Richardson (2014) because 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.

The value of the contracts to donor firms is bigger for winning candidates than for losing candidates for the average of all state deputy candidates, state deputy candidates from traditional parties, and state deputy candidates from left-wing parties. All are when the MNER exist. We did not find difference between winner and loser candidates when the MER exist. Thus, we extended our investigation only for the NMER. Unlike Boas, Hidalgo, and Richardson (2014) who obtain their main result for winning and losing candidates based on PT. Like PT at federal level, our results are responsible from PSDB. Additionally, the net expected return reveals different advantages for each of these groups when the firms invest in both types of candidate.

The most important of results associated with the difference in relationship between politicians in state power is with parties in the electoral coalition for government and electoral and government coalition when the NMER exist. Winning state deputy candidates receive more than losers for the average of all candidates and the net expected return is greater than the return obtained in the initial results. This result suggests that the governor may be paying a premium for this set of deputies which helps donor firms make a better allocation of campaign funds.

There is no difference in contracts when the governor is either in their first or second term and when the governor is a candidate in the next election when the NMER exists. We do not measure the net expected return because there are no significant differences in contracts for donor firms between winning and losing state deputy candidates in these dimensions.
This paper is organized as follows. Section 2 describes the institutional background for this study. Section 3 describes our data set, Section 4 presents our empirical strategy and our measure of net return, and Section 5 reviews our main results. Finally, Section 6 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 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. 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 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. Subsequently, seats are distributed to each coalition using a formula equivalent to Hond's 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.

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 and is directed only to parties who earmark these funds for elections to executive positions (Boas, Hidalgo, and Richardson, 2014). 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. 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. 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

There are four key participants in the process of campaign financing at the state level: donor firms, state candidates/elected deputies, the state executive, and municipal politicians. Donor firms see campaign finance as a “business” in which they can make gains on their initial investment in a state candidate in the form of public contracts after elections. Because the public procurements of state governments observe Federal Law 8666, 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. Furthermore, the state executive may or may not approve contracts for the firms that financed the state deputy’s campaign. In a nutshell, firms’ campaign donation in an exchange for procurement contracts is a 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. The third participant we mentioned is the state executive, who has an interest in negotiating support both during and after the election with the state candidates, and later, with the elected deputies. 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, Limongi and Figueiredo (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 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 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.

Based on the 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 (2014) 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. Ferraz and Finan (2008) list some wrongdoings in the “Convenio” 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. 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 candidates independent of relationship choose between candidates and donor firms.

Boas, Hidalgo, and Richardson (2014) 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, 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. Other important point did not investigate by Boas, Hidalgo, and Richardson (2014) is the existence of different return between winner and loser candidates where there is either MER or NMER.

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).

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. The dimension of traditional electoral parties may reveal the background that involve this relationship.

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 (2014) 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 Limongi and Figueiredo, 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 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, then during the final term of office, it is possible that the governor will extract more rent than he/she did during the first term (Ferraz and Finan, 2007). Because contracts with donor firms may be a mechanism for politicians 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, 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.

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.

Finally, the percentage of donor firms and candidates who maintain a MER is 34% of sample (margin between -30% and 30%). NMER has an average of 7.77 donor firms associated to each candidate.

The data that we used in our investigation are: Campaign Finance Revenue by Candidates (Nominal Reais), All Public Contracts btw State and Donor Firms (Nominal Reais), High School, Higher Education, Aging, Percentage of Women Candidates, Reelected, Donor Firms. We shared on two sub-groups (MER and NMER) the same variables (with -30% and +30% margin of victory for state candidates in an electoral coalition). Observing the result of difference between the groups of elected and non-elected, the difference between them exist. The exception is the group of NMER where the level of statistic equality between the variables occur. Considering that there is not differences of contracts between winner and loser candidates when the MER exist, we solve to extend our investigation only with NMER.

Following the definition of variables: the dummy has a value equal to 1 if the state candidate deputy has a high school diploma and zero otherwise. In addition, the dummy has a value equal to 1 if the state candidate deputy has a higher education 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, a reelected deputy generally has more political experience than a new deputy, and the percentage of women candidates. All of the political variables for the 2006 election come from the TSE (Superior Electoral Court).

4. Empirical Strategy
4.1. The empirical strategy to calculate net expected returns

The strategy developed by Lee (2008) and adapted by Boas, Hidalgo, and Richardson (2014) 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. 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 have an impact on donor firm’s returns; and whether campaign financing differs between the elected and non-elected state deputies.

To measure of the percentage of the margin of votes 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.

Boas, Hidalgo, and Richardson (2014) 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 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 (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:

\[ VCE_{t+1,i} = \beta_0 + \beta_M \cdot Elected_{t,i} + \theta(Margin_{t,i}) + \beta_X \cdot X_{t,i} + \epsilon_{t,i} \]  

(1)
where $VCE_{t+1,i}$ is an outcome of interest; $Elected_{t,i}$ is a dummy variable that indicates whether the state deputy was elected; $Margin_{t,i}$ is the margin of votes for each candidate; $X_{t,i}$ stands for observable variables; 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, 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, 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.

### 4.2. The Net Expected Return

This work aims to build a measure of net expected return for donor firms when the experiment indicate difference of return between loser and winner candidates. Without this difference obtained on experiment, the measure may be endogenous. For the sake of simplicity, we assume that donor firms are risk-neutral and their expected payoff in the donation-public contracts business is:

$$E(NR)_i = \left[ p_w \times R_w + (1-p_w) \times R_L \right] - C_i$$

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.

### 5. Main Results

Although it is possible to investigate the net expected for the NMER, we have to verify if these results are robust before (Imbens and Lemieux, 2007). We observed difference in the values of contracts between elected and non-elected state deputies (see Table 1).

**Table 1: Main Results – NMER**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Ln All Contracts btw State and All Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>Lwald</td>
<td>2.524**</td>
</tr>
<tr>
<td>Lwald50</td>
<td>1.690</td>
</tr>
</tbody>
</table>
State Deputy Elected  
\[ 3.900^{***} \quad 3.044^{***} \quad 3.926^{***} \quad 3.054^{***} \]
\[ (0.949) \quad (0.799) \quad (0.856) \quad (0.861) \]
Constant  
\[ 3.162^{***} \quad 3.656^{***} \quad 2.881^{***} \quad -10.737^{*} \]
\[ (0.519) \quad (0.417) \quad (0.499) \quad (6.224) \]
Observations 864 532 697 697 697
R-squared 0.060 0.077 0.088 0.147

Ln Contracts btw State and Donor Firm: Traditional Parties

Lwald 2.765*
\[ (1.424) \]
Iwald50 1.891
\[ (1.896) \]
State Deputy Elected  
\[ 3.136^{***} \quad 3.574^{***} \quad 3.954^{***} \quad 3.404^{***} \]
\[ (1.191) \quad (1.022) \quad (1.175) \quad (1.175) \]
Constant  
\[ 4.041^{***} \quad 3.985^{***} \quad 3.727^{***} \quad -5.980^{**} \]
\[ (0.693) \quad (0.586) \quad (0.706) \quad (2.537) \]
Observations 420 334 389 389 389
R-squared 0.103 0.115 0.116 0.183

Contracts btw State and Donor Firms: Left-Wing Parties

Lwald 3.038
\[ (2.671) \]
Iwald50 0.896
\[ (3.598) \]
State Deputy Elected  
\[ 4.893^{***} \quad 5.889^{***} \quad 5.674^{***} \quad 3.786^{***} \]
\[ (1.510) \quad (1.273) \quad (1.486) \quad (1.426) \]
Constant  
\[ 4.709^{***} \quad 3.964^{***} \quad 4.110^{***} \quad -11.955^{***} \]
\[ (0.863) \quad (0.719) \quad (0.888) \quad (3.464) \]
Observations 281 216 253 253 253
R-squared 0.162 0.144 0.144 0.319

Note. 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. The RD program uses local linear estimates (using a triangular kernel); (2) OLS using a margin of victory, the margin of victory squares and with the margin of victory between 5%(-5% and 5%); (3) with the margin of victory between 10% (-10% and 10%); (4) including the margin of victory cubic; (5) including the following covariates: the percentage of women candidates, schooling of state deputies (primary, high school, and superior education), aging of state deputies, state deputies reelection, and Ln state deputies' campaign finance.

The results are robust because they withstand the majority of differences in specifications. All elected state deputies provide between 252% and 392% 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 higher for candidates from traditional parties, which yielded an increased contract value of between 276% and 395%. Finally, left-wing parties showed an increased contract value of 378% and 588% for elected state deputies. Our most comparable result with the results of Boas, Hidalgo, and Richardson (2014) is the local linear estimation, although the bandwidth is not directly comparable because they worked with raw votes and do not share if the candidates receive money exclusively from one donor firm or more. They obtained a 193% difference in contract values between elected and non-elected federal deputies financed by donor firms.

The Net Expected Return: We opt to measure the return considering a deterministic measure initially without consider the standard deviation by simplicity.

Table 2 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 2, and there were three different margins of victory. We adopt different margins of victory considering the procedure of robustness (see Imbens and Lemieux, 2007).

Table 2: Average Net Expected Return for NMER with different levels of electoral competition

<table>
<thead>
<tr>
<th>Margins of victory</th>
<th>All Contracts btw State and Donor Firms</th>
<th>Contracts btw State and Donor Firm: Traditional Parties</th>
<th>Contracts btw State and Donor Firms: Left-Wing Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average Net Expected Return for donors firms(ER-CF)</td>
<td>Average Expected Return for donors firms (ER)</td>
<td>Average Campaign Finance(CF)</td>
</tr>
<tr>
<td>30%</td>
<td>3,384,153.92</td>
<td>58,683.65</td>
<td>3,323,470.27</td>
</tr>
<tr>
<td>10%</td>
<td>3,574,376.23</td>
<td>67,267.44</td>
<td>3,507,108.8</td>
</tr>
<tr>
<td>5%</td>
<td>3,980,199.07</td>
<td>78,549.32</td>
<td>3,901,649.76</td>
</tr>
<tr>
<td>30%</td>
<td>5,842,560</td>
<td>84,017.05</td>
<td>5,758,542.95</td>
</tr>
<tr>
<td>10%</td>
<td>5,839,740.74</td>
<td>86,798.32</td>
<td>5,752,942.43</td>
</tr>
<tr>
<td>5%</td>
<td>5,869,737.52</td>
<td>93,900.26</td>
<td>5,775,837.26</td>
</tr>
<tr>
<td>30%</td>
<td>6,000,109.21</td>
<td>86,042.46</td>
<td>5,914,066.75</td>
</tr>
<tr>
<td>10%</td>
<td>5,967,869.81</td>
<td>89,930.89</td>
<td>5,877,938.93</td>
</tr>
<tr>
<td>5%</td>
<td>6,550,475.76</td>
<td>97,454.11</td>
<td>6,453,021.65</td>
</tr>
</tbody>
</table>

Note. Values in Brazilian currency (Real)

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 for NMER. 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 left-wing 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 not also valid for NMER. However, Hypothesis 3 is partially confirmed because we could investigate right-wing parties. Our results are different from those of Boas, Hidalgo, and Richardson (2014) in terms of measure and the number of parties.

The Heterogeneity of the State Power (Executive and Legislative): Despite the definition of a coalition (electoral and electoral/government), the choice for a second term and the candidature of the governor in the next election being endogenous, we used the same four specifications as in Table 1 (now only from 2 to 5) to check if each of these dimensions of state power imposes differences in contracts on groups already analyzed in the main results. All differences observed are shown in Table 3.

Electoral Coalition of the Governor: Table 3 shows that the value of contracts has a correlation positive when the candidates and donor firms with a NMER are on electoral governor coalition. Considering the discontinuity that exists between winning and losing state deputies in contracts for all candidates, we should calculate the average net expected return for donors firms following the same methodological strategy used before. The measure of average net return for all candidates is in Table 4.
Table 3: Different State (Executive and Legislative) heterogeneities on contracts of NMER

<table>
<thead>
<tr>
<th>Variables</th>
<th>Ln All Contracts</th>
<th>Ln Contracts with Traditional Parties</th>
<th>Ln Contracts with Left-wing Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(2) (3) (4) (5)</td>
<td>(2) (3) (4) (5)</td>
<td>(2) (3) (4) (5)</td>
</tr>
<tr>
<td>S.Deputy Elected</td>
<td>3.889***</td>
<td>3.942***</td>
<td>3.602***</td>
</tr>
<tr>
<td>Electoral Governor</td>
<td>1.046*</td>
<td>1.021**</td>
<td>1.513***</td>
</tr>
<tr>
<td>Coalition</td>
<td>0.575</td>
<td>0.488</td>
<td>0.732</td>
</tr>
<tr>
<td>Observ. R²</td>
<td>0.065</td>
<td>0.093</td>
<td>0.192</td>
</tr>
<tr>
<td></td>
<td>6.373***</td>
<td>6.012***</td>
<td>6.120***</td>
</tr>
<tr>
<td>S.Deputy Elected</td>
<td>(1.117)</td>
<td>(1.014)</td>
<td>(1.374)</td>
</tr>
<tr>
<td>Electoral Governor</td>
<td>3.311***</td>
<td>2.857***</td>
<td>3.545***</td>
</tr>
<tr>
<td>Coalition</td>
<td>0.721</td>
<td>0.623</td>
<td>0.852</td>
</tr>
<tr>
<td>Observ. R²</td>
<td>0.170</td>
<td>0.183</td>
<td>0.340</td>
</tr>
<tr>
<td></td>
<td>3.898***</td>
<td>3.930***</td>
<td>3.398***</td>
</tr>
<tr>
<td>S.Deputy Elected</td>
<td>(0.948)</td>
<td>(0.856)</td>
<td>(1.177)</td>
</tr>
<tr>
<td>Electoral Governor</td>
<td>-0.731</td>
<td>-0.644</td>
<td>-0.448</td>
</tr>
<tr>
<td>Coalition</td>
<td>(0.690)</td>
<td>(0.569)</td>
<td>(0.799)</td>
</tr>
<tr>
<td>Observ. R²</td>
<td>0.062</td>
<td>0.089</td>
<td>0.183</td>
</tr>
<tr>
<td></td>
<td>3.962***</td>
<td>3.904***</td>
<td>3.984***</td>
</tr>
<tr>
<td>S.Deputy Elected</td>
<td>(0.950)</td>
<td>(0.858)</td>
<td>(1.230)</td>
</tr>
<tr>
<td>Electoral Governor</td>
<td>-2.647</td>
<td>-2.608</td>
<td>-2.327</td>
</tr>
<tr>
<td>Coalition</td>
<td>(2.277)</td>
<td>(2.938)</td>
<td>(7.334)</td>
</tr>
<tr>
<td>Observ. R²</td>
<td>0.062</td>
<td>0.088</td>
<td>0.220</td>
</tr>
</tbody>
</table>

Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1: (2) OLS using a margin of victory, the margin of victory squares and with the margin of victory between 5%-5% and 5%; (3) with the margin of victory between 10% (-10% and 10%); (4) including the margin of victory cubic; (5) including the following covariates: the percentage of women candidates, schooling of state deputies (primary, high school, and superior education), aging of state deputies, state deputies reelection, and Ln state deputies’ campaign finance.
The average net expected return is around Br$ 5.5 and 12.6 millions depending on the margin of victory considered. In the same way, a lower margin of victory involves higher average campaign financing by donor firms. As the average net return of contracts in the main result is around Br$ 3.3 and 3.9 millions we demonstrated the importance of the heterogeneity of state power. Hypothesis 4 is valid. Hypothesis 1 and 2 are valid when we consider a NMER. However, Hypothesis 3 is not important in the issue of electoral coalitions. There is no difference in the value of contracts between winning and losing candidates. Thus, we do not calculate the net expected return for donor firms.

Simultaneous Electoral and Government Coalition of Governor: In addition to the governor’s electoral coalition, we try to check if there is a difference in results that goes beyond the electoral moment (coalition of government). In order to avoid the self-classification of parties in the coalition, we searched other works to obtain this classification. However, the classification of state coalitions in Brazil is fairly limited. There is a classification for just a few states in the “case studies”. Considering this limitation, we classify three states using the work of Centurione (2012): Goiás, Federal District and São Paulo. Thus, our sample is much smaller. However, the results of electoral coalition and electoral and government coalition are very similar (see Table 3).

Governor in the Second Term: Table 3 also shows that there is no difference in the value of contracts when the governor is either in his/her first or second term, considering all parties, traditional parties, and left-wing parties. Thus, hypothesis 5 does not appear to be valid.

Governor is a candidate in the next election: Table 3 already shows that there is no difference in the value of contracts when the governor is a candidate in the next election. In the case of traditional parties, we do not have winner candidates. Thus, hypothesis 6 does not appear to be valid. In general terms, the results show that heterogeneity of power, in this case, the state executive and legislative branches, is important when investigating the mechanism between donor firm, deputy candidates and the executive which has not been considered in the literature.

6. Conclusions and Final Remarks
This paper investigates whether firms exploit the political market as a way of obtaining economic advantage in the public market. Basically, the mechanism is that firms finance state deputies’ campaigns in order to obtain state government contracts through the relationship between the executive and legislative branches.

We use a quasi-electoral experiment based on Lee (2008), Lee and Card (2008), Lee, Moretti and Butler (2004), and Hidalgo, Boas, Hidalgo, and Richardson (2014) considering the problems that this kind of investigation imposes on the researchers as Großer, Reuben and Tymula (2013) mentioned. Our investigation centers in eight representative and heterogeneous
states from the twenty-seven that exist in Brazil centralized in the 2006 election, because we were unable to obtain public information on contracts before.

Moreover simply to observe the differences between contracts for firms that makes donations to winners and those that donate to the losers as Boas, Hidalgo, and Richardson (2014) did for federal deputies in Brazil, we extend this investigation to include the difference of relationship between donor firms and candidates, this relationship into of different state branches and measure of net expected return for donor firms at the state level in Brazil. We understand that our choice permits us to expand the initial view of this mechanism considering that the net return may reveal the strategic behavior of firms for exploring different political links.

Centralized on NMER, our main results show that contracts for donor firms are higher for winning candidates than for losing candidates for the average of all state deputy candidates, state deputy candidates from traditional parties, and state deputy candidates from left-wing parties. Unlike Boas, Hidalgo, and Richardson (2014) who obtain their main result for winning and losing candidates centralized on PT, our results for left-wing parties depends on the PSDB. Additionally, the net expected return reveals different advantage for each of these groups when the firms invest in both types of candidates. Our results show that the net expected return of donor firms depends on where the candidates are politically located. For the all candidates, for instance, the net expected return is high.

As our investigation was carried out at the state level, we can explore other differences in behavior between the executive and legislative on NMER. Thus, we chose to explore the same issue when parties are in an electoral coalition for governor, in an electoral and government coalition for governor simultaneously, when the governor is in his/her first or second term, given that the Brazilian legislation establishes a second term as a term limit, and when the governor is a candidate in the next election.

The most important of the results was with parties in an electoral coalition/electoral and government coalition. A winning state deputy receives more than a losing state deputy candidates for the average of all contracts and the net expected returns are higher than those obtained in our initial investigation. This result suggests that the governor may be paying a premium for this group of deputies, which help her/him at time of the election and on government. If donor firms observe this result and they are risk-neutral, the supply of funds for campaign may have been directed to candidates in this group. There is no difference in contracts when the governor is in either his/her first or second term and when the governor is a candidate in the next election.

References


