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PATRONAGE AND SELECTION IN PUBLIC SECTOR ORGANIZATIONS

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Abstract. In all modern bureaucracies, politicians retain some discretion in public employment decisions, which may lead to frictions in the selection process if political connections substitute for individual competence. Relying on detailed matched employer-employee data on the universe of public employees in Brazil over 1997–2014, and on a regression discontinuity design in close electoral races, we establish three main findings. First, political connections are a key and quantitatively large determinant of employment in public organizations, for both bureaucrats and frontline providers. Second, patronage is an important mechanism behind this result. Third, political considerations lead to the selection of less competent individuals.

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1. Introduction

The quality of individuals employed in the public sector is a crucial determinant of government performance. Therefore, identifying and quantifying frictions in the process through which governments select public employees is essential (Finan et al., 2015). While rigid civil service systems have been introduced in most countries in the world, politicians retain some discretion in the selection process virtually everywhere through the use of temporary contracts, the establishment of job categories exempted from formal selection rules, or the exertion of influence on the outcomes of public examinations (Evans and Rauch, 1999; Grindle, 2012). While some discretion can allow politicians to select individuals deemed able and motivated to perform the job, it can also be used to engage in patronage practices: public sector jobs could be used to reward political supporters of the party in power.[1] Patronage represents an obvious friction in the selection of a high-quality public workforce, since political support can act as a substitute for individual competence in the process of government hiring.

Although accounts of this phenomenon are common, we have little systematic evidence on the channels through which political discretion in public employment decisions is used in modern bureaucracies.[2] Do political connections affect hiring? Is patronage an important mechanism explaining their relevance in public employment decisions? And if so, what is the impact of patronage on the selection of public sector workers? The lack of data and suitable empirical settings has made answering these questions challenging.

This paper empirically investigates whether discretion in public employment decisions is used as a patronage tool, and the consequences on the selection process, in the context of the Brazilian public sector. Among Latin American countries, Brazil is considered a primary example of a de jure professionalized and meritocratic civil service system (Iacoviello, 2006); yet, de facto politicians can exert significant influence on the selection of public sector workers (Grindle, 2012).

The main empirical challenge in the study of patronage has been the lack of comprehensive information on both the careers of public sector workers and their connections to political power. We build a new dataset that allows us to overcome this challenge. To do so, we combine data from two sources. First, we use a matched employer-employee

[1]We adopt the definition of patronage as a quid pro quo relationship between the party in power and its political supporters in which public jobs are used as a reward and exchanged for political support (Weingrod, 1968).

[2]Patronage was at the core of local political machines in the early twentieth century United States (Riordon, 1905; Wilson, 1961). Chubb (1982) (p. 91) writes that in Southern Italy "a substantial part of politics revolves around the posto ('job or position') [...] a job signifies a vote and vice versa". "[The use of patronage] in the governance of Latin America has a long tradition [...] easily dating to the conquest" (Grindle, 2010).

dataset covering the entire public sector for the 1997–2014 period. Second, we use administrative data on about 2,000,000 supporters of local parties, namely political candidates and campaign donors in municipal elections. The data allow us to track the full labor market careers of supporters of different parties, and to study whether those supporting the party in power enjoy easier access to public jobs. Crucially, the availability of data on the universe of public jobs allows us to analyze the role of political connections at all layers of the public hierarchy, from high level bureaucratic positions, to the middle-tiers of the bureaucracy, and to jobs as frontline providers. Additionally, we have information on the characteristics of political supporters, such as their education, private sector careers, amount of support provided to a party, and details of the specific occupation for which they are hired.

Relying on the richness of the data, we conduct several empirical tests to show that: (i) political connections are a key determinant of hiring in public sector organizations; (ii) patronage is an important mechanism behind this result; (iii) political considerations lead to the selection of less competent individuals.

Our analysis proceeds in three steps. In the first step, we estimate the extent to which politically connected individuals enjoy easier access to public sector jobs. To isolate the causal link between political connections and an individual's public sector career, we compare supporters of the winning party (i.e., the party of the elected mayor) to supporters of the losing party in the same municipal election (i.e., the party of the runner-up mayoral candidate), in a regression discontinuity design in close elections.[3] We find that individuals who are connected to the party in power are 10.5 percentage points more likely to be employed in the public sector. Relative to a 22.5% employment probability in the control group, this represents a striking 47% increase.[4] This effect is large and statistically significant for both groups of political supporters we analyze.

In the second step of the analysis, we conduct several tests which suggest that patronage is an important mechanism behind our results. We first document that our findings are not limited to a specific category of public sector jobs: politically connected individuals are significantly more likely to be employed in the bureaucracy and as frontline providers. The effects are mostly driven by jobs over which the mayor can exert more power, namely positions not requiring a competitive examination. Additionally, in line with the quid pro quo nature of patronage relationships, the extent of preferential access to public jobs

[3]We focus on elections where the winning party has a 5 percentage points margin over the runner-up, but results are robust to using a bandwidth of 1 percentage point.

[4]Our effects on higher public employment probability translate into a net increase in labor market earnings (i.e., including private and public sector): on average, politically connected individuals increase their earnings in the formal economy by 25%.

enjoyed by a supporter, and the associated monetary returns, are monotonically increasing in the amount of support provided.

We also consider two main alternative explanations – ideology and screening – and evaluate whether the evidence is consistent with these mechanisms playing an important role. First, supporters of the winning party may be more likely to obtain a public job because they share the same ideology of the party in power. This may be because, on the one hand, the party aims to increase the ideological alignment of the public workforce to its mission, and, on the other, supporters may derive utility from working under a party that shares their views. We provide two tests inconsistent with this mechanism. First, we show that individuals who recently switched political alliances enjoy a similar degree of preferential access to public jobs than individuals who were loyal to the party for a long period of time. To the extent that party loyalty is a proxy for an individual's degree of ideological alignment, these findings indicate that ideology is unlikely to be a primary mechanism. Second, we find that supporters of a given party experience an increased access to public jobs only in the specific municipality where they provide direct political support, and not in other, neighboring municipalities where their party is also in power. To the extent that ideology is shared within a party, and that geographical proximity allows individuals to easily access jobs in a neighboring municipality, we would expect otherwise if ideology played a primary role.

A second alternative explanation is that the effects we observe are driven by a party's ability to better select members within their network (i.e., their political supporters) based on unobservable characteristics. We show evidence inconsistent with this mechanism by examining the long-term careers of politically connected individuals. We find that the careers of supporters of the winning party are strongly linked to the fortunes of the party in the long run, since when the party loses power in the future supporters immediately lose their jobs. These patterns are unlikely to be due to better screening on unobservables, such as motivation to work in the public sector. If this were the case, to the extent that a supporter's traits that are *ex-ante* difficult to observe are revealed after several years on the job, we would expect the supporter's career not to be strongly affected by subsequent changes in political power.

In the third and final step of the analysis, we examine the selection effects of patronage in public employment: are the most or the least competent supporters more likely to benefit from political connections? Indeed, patronage would imply that political support — rather than competence — determines hiring, and this may have negative effects on the quality of the selected public workforce. We measure competence using three measures based on administrative data. First, we manually collect information on the educational requirements to adequately perform each of the 2,511 occupation categories in Brazil.

Coupled with information on supporters' educational attainment, this allows us to build a measure of qualification for each individual-job pair in the data. Second, as in Dal Bó et al. (2013), we consider a supporter's previous private sector earnings as a measure of her skills, under the assumption that highly skilled workers have better private sector opportunities. Third, following Besley et al. (2017) and Dal Bó et al. (2017), we calculate private sector earnings' residuals, stemming from a fully saturated Mincer regression. By partialling out individual demographics and job characteristics, this measure reflects a dimension of ability that goes beyond observable characteristics. Using a version of our baseline specification augmented with interaction terms for individual-level competence, we find that supporters of the party in power are negatively selected along all measures. That is, the least competent among the supporters are the most likely to benefit from their political connections.

Our paper contributes to a recent body of research on the personnel economics of the state, reviewed in details by Finan et al. (2015). Studies in this growing literature have analyzed the role of incentives in the selection and performance of public sector workers (Dal Bó et al., 2013; Ashraf et al., 2016; Khan et al., 2016; Fisman and Wang, 2017; Deserranno, 2017; Weaver, 2017; Ashraf and Bandiera, 2017; Bertrand et al., 2018; Khan et al., 2018), the impact of political oversight over the bureaucracy (Iyer and Mani, 2011; Rogger, 2014; Gulzar and Pasquale, 2016; Ornaghi (2016)), and bureaucrats' management practices and effectiveness (Best et al., 2016; Rasul and Rogger, 2017). Of particular relevance for our paper are Akhtari et al. (2017), who show that political discretion negatively affects public education provision in Brazil, and Xu (2018), who finds that socially connected governors perform worse during periods characterized by political discretion in the British Empire.[5] Our paper contributes to this literature by using detailed micro-data across the entire public sector hierarchy, to provide a comprehensive investigation of how discretion can be used to engage in patronage practices in a modern bureaucracy, and to identify its impact on the selection of public sector workers.[6]

Our paper is also closely related to two studies that investigate the role of political connections in public sector employment in Brazil. Both Brollo et al. (2017) and Barbosa and Ferreira (2019) also find a significant increase in public sector employment among supporters of the party in power, but focusing on a different set of supporters, namely registered party members. Compared to our paper, Brollo et al. (2017) do not find significant evidence of negative selection effects for this set of supporters, while Barbosa

[5]Other studies of patronage include Folke et al. (2011) and Ujhelyi (2014), who exploit the introduction of civil service systems across U.S. states to study the impact on incumbents' re-election probability and the allocation of government spending, respectively.

[6]We also speak to the literature on the role of political connections for individuals (Markussen and Tarp, 2014; Gagliarducci and Manacorda, 2017; Folke et al., 2017; Labonne and Fafchamps (2017)).

and Ferreira (2019) do not study selection effects but show that political connections matter more for powerful parties, and in poorer, smaller, and more corrupt municipalities. The primary difference is that we focus on the set of "elite" supporters, namely political candidates and campaign donors, for whom the quid pro quo patronage relationship we study may likely be stronger. Empirically, there are two main advantages of focusing on this set of political supporters. First, thanks to the unique availability of the tax identifier, we can match them perfectly to the employer-employee dataset, avoiding measurement error that can arise from performing a matching by name, and obtaining a significantly higher matching rate. Second, our data on elite supporters provide further details on the type and intensity of political support, which we use to identify patronage as a mechanism.

The remainder of the paper is organized as follows. In Section 2, we provide details on key features of the Brazilian institutional context that are of interest for our analysis. In Section 3, we describe the data sources. In Section 4, we present the empirical strategy and the main findings on political connections and public sector employment. In Section 5, we investigate the role of patronage and alternative channels. In Section 6, we study the selection effects of patronage. Section 7 concludes.

2. Institutional Context

In this section, we describe the main features of Brazil's municipal electoral system, with a focus on the role played by the two groups of political supporters we consider, namely candidates to local councils and individual campaign donors. We then discuss the selection process of public sector workers.

2.1. **Local Politics in Brazil.** Brazil's 5,570 municipalities are governed by a mayor (*prefeito*) together with a council of local legislators (*Câmara de Vereadores*), simultaneously elected every four years. Detailed electoral rules are outlined in Law no. 4737/65 and Law no. 9504/1997. A voter can cast two votes in a municipal election: one for a mayoral candidate and one for an individual candidate to the council (or, alternatively, a generic vote for a party). Mayors are term-limited, allowed to be in office for a maximum of two consecutive terms. They are elected by plurality rule, with municipalities with more than 200,000 registered voters holding a second round in case no candidate receives a majority in the first round. While mayors are associated to a specific party, they are typically supported by a coalition of parties.

We focus on two sets of political supporters of local parties. The first group consists of candidates who run for a seat on the council of local legislators. Candidates for the local council run individually in a unique at-large district comprising the whole municipality, and do not face term limits. Candidates are associated with a specific party, which is

usually part of an electoral coalition, and are elected using an open-list proportional representation system. Seats, whose number ranges from 9 to 55 as a function of the municipal population, are awarded to a coalition in proportion to the total number of "personal" votes received by its candidates and of "generic" votes received by the parties comprising the coalition. Subsequently, the seats awarded to a coalition are assigned to the candidates who receive the highest number of "personal" votes within the coalition.[7] Although being a local legislator is remunerative, with the average legislator earning a wage that is approximately 2.6 times the average wage in her municipality, elected candidates are not required to give up their outside jobs upon election, as being a legislator is a part-time activity (Ferraz and Finan, 2011).

The second group of political supporters in our analysis are individual campaign donors. Donors are allowed to donate up to 10% of their gross annual income, and Law no. 8713/1993 requires candidates to submit to electoral courts a detailed overview of all contributions they receive.[8] In the 2008 and 2012 elections, administrative data show that the average share of total donations coming from individuals was 28% for mayoral candidates and 40% for candidates to the local council.

2.2. **The Allocation of Jobs in the Public Sector.** Municipalities are responsible for the provision of a wide range of public goods in areas such as education, health and transportation (Souza, 2002), with funding mainly coming from state and federal transfers. As a result, municipalities employ the largest share of public sector employees — 56% as of 2014, up from 40% in 1997, according to our administrative data.

Selection in most public sector jobs is based on objective selection criteria: applicants present academic and professional credentials, and undertake a formal civil service examination (*Concurso Publico*), which is job-specific and consists of a combination of written and oral tests. Public sector workers hired through this procedure acquire tenure after three full years of service, following which they can be fired only for reasons of misconduct and after a judicial ruling. Over the period 1997-2014, approximately 70% of public sector jobs are allocated through *Concurso Publico*, with this share slightly increasing over time.

Nevertheless, public sector workers can also be hired without a civil service examination, under three special exempt categories: commissioned posts (*cargos comissionados*),

[7]Therefore, the electoral system gives a strong incentive to present lists with many candidates, as even votes for an unelected candidate contribute to the assignment of seats to the coalition. Electoral rules limit the number of candidates on the ballot by specifying that each party (coalition) can present a maximum of $1.5S$ ($2S$) candidates, where S is the total number of council seats in the municipality.

[8]Up until the 2012 municipal elections, mayoral candidates and candidates to the local council could receive campaign donations from both corporations and individuals. Donations from corporations have been prohibited by Law 13.165/2015.

positions of trust (*função de confiança*), and temporary jobs (*emprego temporario*). Hiring in the first two categories allows politicians discretion in the selection of individuals for positions of manager or administrative assistant.[9] However, the risk of political abuse of these positions is often at the center of public debate, as there are several examples of politicians who disregard these regulations and rely on these positions as political tools.[10]

Further political discretion in public hiring is given for jobs that "meet a temporary need of exceptional public interest" (Artcle 37 IX of the Brazilian Constitution). In these cases, the law states that no civil service exam is necessary. The law also contains a detailed list of the instances that fall under this category. Examples of abuse of these positions also abound.[11]

Finally, while we cannot quantify its magnitude, anecdotal evidence indicates fraud is widespread in public examinations, especially at the local level. Illegal interference with public examinations is typically achieved by (i) providing individuals with the answer sheet prior to the exam, (ii) replacing specific individual tests ex-post, and (iii) directly changing the list of winning candidates. In 2012, the team of journalists of *Fantastico*, one of the most popular TV shows of the premier Brazilian network, Globo, uncovered a number of such cases across the country.[12]

3. Data

We assemble an individual-level longitudinal dataset combining information from two main sources. Employee-level data over the 1997–2014 period come from the Relação Anual de Informações Sociais database (RAIS). Data on local politicians and individual donors for the 2000–2012 elections, together with information on electoral results, come from the Superior Electoral Court (TSE). In this section we provide a description of the data sources and discuss the matching of the datasets.

3.1. Labor Market Data.

RAIS is an administrative matched employer-employee dataset managed by the Ministry of Labor (MTE), which provides information on the universe of workers in both the public and formal private sector.[13] Unique individuals' (CPF) and

[9]The difference between positions of trust and commissioned posts is that the former requires that the individual is already employed as a civil servant.

[10]For example, in 2012, the mayor of Jundiai exploited commissioned posts to appoint more than 300 people whose jobs did not fall under the category of manager or assistant. The public prosecutor of Sao Paulo ordered all individuals to be fired and initiated a trial against the mayor. See www.mpsp.mp.br, accessed April 2019.

[11]For instance, in 2015, the public prosecutor of Pernambuco accused the mayor of Belo Jardim of illegally hiring 574 teachers through temporary contracts. See www.mppe.mp.br, accessed April 2019.

[12]See g1.globo.com/fantastico, accessed April 2019.

[13]Data reporting is monitored and incentivized for both private and public sector organizations, but some evidence suggests that enforcement may be somewhat laxer for the public sector (Santos et al.,

employers' (CNPJ) tax identifiers allow for tracking of individuals over time and across employers, providing a complete picture of an individual's labor market career.

For each worker-job pair, we have information on hiring and separation dates, wages, hours worked, contract details, worker's demographic characteristics (such as age, gender, and education) as well as employer's location, industry, and legal status.

Importantly, we have information on the specific occupation of each worker, which can fall into one of the 2,511 categories in which the Brazilian labor market is classified (*Classificação Brasileira de Ocupações 2002 – CBO*).[14] Using this classification, we group public sector occupations into four broad categories: Bureaucrat – Manager (e.g., manager of public sector agency at the municipal or state level, school headmaster, administrative director, health services manager); Bureaucrat – Lower level (e.g., administrative assistant, administrative supervisor, receptionist); Frontline provider – High Skills (e.g., primary school teacher, secondary school teacher, doctor, nurse, nursing technician and assistant); Frontline provider – Low Skills (e.g., community health worker, garbage collector, street cleaner, night guard, driver, cook).[15]

The *CBO* documentation also describes the educational level typically required to perform a specific occupation. This information allows us to manually code, for each worker-job pair in RAIS, whether or not the worker is qualified for the job (namely, whether her educational level is the same or higher than the required educational level).

3.2. **Electoral Data.** We obtain publicly available electoral records for the 2000, 2004, 2008, and 2012 municipal elections from TSE, which provides information on election results, both for mayoral candidates and for candidates to the local council.[16] It also provides rich information on all candidates, including basic demographic characteristics, affiliations to parties and coalitions, funds raised during the campaign, and each candidate's individual tax identifier (CPF). After dropping the 0.3% of candidates without a valid CPF, we have 1,031,083 candidates who run for a seat in the local council in the period 2000–2012, with 27% of candidates running in multiple elections, and only 14% of candidates ever elected to the council.

2016). Additionally, two categories of formal workers do not appear in RAIS: elected politicians and self-employed individuals. However, in such circumstances, only the specific job as politician or self-employed worker is missing: all other jobs of the politician or self-employed individual do appear in the dataset.

[14]Before 2002, a different classification was used by the Ministry of Labor. For consistency, we only focus on the period 2003–2014 for all results that rely on information on a worker's occupation.

[15]Categorization in these occupations is based on the first digit of the *Classificação Brasileira de Ocupações 2002* code: 1 for Bureaucrat - Managers, 2/3 for Frontline provider - High Skills, 4 for Bureaucrat - Lower level, 5 or higher for Frontline provider - Low Skills.

[16]For the remainder of the paper, we use the term "candidate" to refer to a candidate to the local council; we use the expression "mayoral candidate" to refer to a candidate running for mayor.

For the 2004, 2008, and 2012 municipal elections, TSE provides data on all individual contributions to electoral campaigns. We drop the 9% of records that do not include a CPF, records of donors supporting different mayoral candidates in the same election (0.31% of them), and donors who are also candidates (25% of them). Our final sample includes 1,057,216 unique campaign donors. Appendix Table A1 provides further summary statistics on all supporters in our sample.

We classify candidates and donors on the basis of the electoral coalition they support. Throughout the paper, we use the expressions "being connected to" or "being a supporter of" a specific party to refer to supporters of the coalition of a mayoral candidate of a specific party. Specifically, we classify a candidate as a supporter of the party of a mayoral candidate if she belongs to any party in that coalition. Similarly, we classify a donor as a supporter of the party of a mayoral candidate if she contributed to any party in that coalition.

3.3. **Matching and Final Dataset.** We match our datasets of candidates and donors to RAIS using the CPF, which is available in both datasets. We find 66.9% of political supporters appearing in RAIS during the period 1997–2014 (67.3% of candidates and 66.4% of donors). Thanks to the perfect matching on the individual tax identifier, we can classify the unmatched supporters as those who never have a job in the formal private sector nor in the public sector during our sample period. In these cases, these individuals enter the sample with 0s as their measure of employment and earnings. Therefore, throughout the analysis, our dataset is a balanced panel. Additionally, we exclude the jobs as elected members of the local council when computing labor market outcomes.

We construct the balanced panel dataset at the supporter-year level, with individuals potentially employed both in the private and public sector at the same time, with information on employment status, annual earnings, and job characteristics.[17]

Table 1 provides an overview of the labor market careers of candidates and donors who enter the RAIS dataset in the period 1997–2014, comparing them to the 87.5 million other workers present in the dataset. Political supporters are significantly more likely than the average worker to have ever been employed in the public sector: among the universe of workers, 18.6% are employed in the public sector in at least one year over the 1997–2014 period, while this share is 51.9% for donors and 68.6% for local candidates. Conditional on being employed in the public sector, earnings of local candidates are on average slightly

[17]All earnings measures are expressed in 2000 Brazilian Reals, and are winsorized at the 1% level. As mentioned above, if an individual is not employed in a given year-sector we impute 0 earnings. For the small subset of individuals having multiple occupations within the same year-sector, we keep the highest paying job, following Colonnelli and Prem (2017). We keep both full-time (91% of the total) and part-time (9% of the total) public sector jobs.

lower than earnings in the population, while local candidates earn more in the private sector. Consistent with donors belonging to a relatively wealthy group of citizens, they earn more than the other two groups when they are employed in either the public or the private sector. Conditional on working in the public sector, candidates and donors are more likely than the average worker to be employed in a bureaucratic position, especially at the managerial level.

4. Identifying the Importance of Political Connections in the Selection of Public Sector Workers

Our analysis begins by estimating the causal impact of being politically connected to the winning party on an individual's career in the public sector.

4.1. Regression Discontinuity Design.

Within a given municipal election, we approximate the ideal experiment—where political connections would be randomly allocated to individuals—by comparing the careers of supporters of the winning party to those of supporters of the runner-up party. Since the choice of whom to support is not random, we further focus on elections where the margin of victory of the winning party over the runner-up party is small.[18]

The identification assumption is that, for the specific subset of competitive electoral races that we consider, whether a party wins or loses the election — and therefore the set of individuals who become politically connected —is "as good as" random.

In our main specification, we use a local linear regression approach (Gelman and Imbens, 2016) where we restrict the sample to elections where the winning party and the runner-up are within a 5 percentage points difference.[19] The regressions pool all close elections together and include observations for the four years after each election (i.e., for the length of the electoral term). We estimate the following model:

$$y_{ikpmt} = \beta Mayor_{pmt} + \theta_k MV_{pmt} + \gamma_{kmt} + \epsilon_{ikpmt} \tag{4.1}$$

where y_{ikpmt} is the labor market outcome of supporter i (such as employment probability or earnings), who supports the mayoral candidate of party p in the election taking place in municipality m and year t, measured k periods (i.e., years) after the election year. γ_{kmt} are period-municipality-election year fixed effects. MV_{pmt} measures the margin of victory of the mayoral candidate of party p over the primary opponent in the same election (thus taking negative values for supporters of the runner-up candidate). $Mayor_{pmt}$ is an indicator variable that equals one if the mayoral candidate of party p won the election

[18]This approach is standard in the literature (Lee and Lemieux, 2010, Fisman et al., 2014).

[19]Within our sample period, 65.6% of municipalities experience at least one close election, as displayed in Appendix Figure A1.

in municipality m and year t. To extend the RDD approach to our setting, we allow the effect of the running variable MV_{pmt} to vary flexibly over time. The coefficient β measures the average treatment effect of interest over the four years post-election. We present results both pooling all supporters (candidates and donors) and estimating the effect separately for the two types of supporters. Throughout the analysis, standard errors are double clustered at the supporter and election level.

In order to document the dynamics of the effect over time, and to visually assess our identifying assumptions, we also estimate the following specification, where the treatment effect is allowed to vary over time in both the pre- and post-period:

$$y_{ikpmt} = \sum_{s=-3}^{+4} \beta_s Mayor_{pmt} \mathbb{1}(s = k) + \theta_k MV_{pmt} + \gamma_{kmt} + \epsilon_{ikpmt} \tag{4.2}$$

The coefficients β_s captures the effect of supporting the winning party s years before/after the election year.

The identification assumption implies that potential outcomes are continuous around the zero margin of victory cutoff. Appendix Figures A2-A5 provide evidence in support of this assumption. Additionally, Appendix Tables A2-A4 show that a number of labor market, political, and demographic characteristics are balanced across winning and losing supporters and winning and losing parties.

4.2. **Main Results.** Table 2 shows the results of the estimation of equation (4.1), pooling all supporters (columns 1 and 4) and separately differentiating between candidates and donors (columns 2, 3, 5, 6). We estimate a large and statistically significant impact of supporting the winning party on both the probability of being employed in the public sector and on annual total earnings in the four years following the election. As mentioned earlier, we exclude the jobs as elected officials from the computation of either of these measures. Table 2 shows that supporters of the winning party are 10.5 percentage points more likely to have a public sector job in the post-election period—a striking 47% higher likelihood than the supporters of the runner-up party. The effect is sizable for both groups of supporters: a 12.4 percentage points effect for candidates (a 51% increase relative to candidates in the control group) and a 6.7 percentage points effect for donors (a 33% increase relative to donors in the control group).[20]

The higher employment probabilities translate into significant increases in total earnings (34% and 10% for candidates and donors, respectively), which indicate that we are not

[20]Appendix Table A5 shows the effect is significant for both the candidates winning a seat in the local council and for those who do not, even though the effects are mostly driven by the latter, larger category.

capturing a simple substitution of political supporters away from the private and towards the public sector, as political supporters enjoy a net increase in labor market earnings.[21]

Figure 1 provides a visual representation of the main effects on public sector employment probability for both candidates and donors.[22] Panels A and D illustrate the dynamics in the raw data, which lend credibility to our empirical strategy, given the striking similarity in both levels and trends among winning and losing supporters in the years leading up to the election. Panels B and E instead report the point estimates from specification (4.2), showing that the effects fully materialize at the time of the election and persist for the whole post-election period. Finally, Panels C and F of Figure 1 provide additional support to our empirical strategy by highlighting the presence of a discontinuous jump in public sector employment probability taking place at the zero margin of victory cutoff, for both candidates and donors.[23]

5. Patronage and Alternative Mechanisms

In this section, we exploit the rich administrative data on personal information, contract details, and occupations of political supporters to shed light on the mechanisms through which political connections determine supporters' careers in the public sector.

First, the result that we established in the previous section may be consistent with a quid pro quo patronage relationship where public sector jobs are used by politicians to reward individuals for their political support. Second, it may reflect the mayor's desire to increase team cohesion by selecting ideologically like-minded and trustworthy individuals, or a related labor supply response by supporters depending on their ideological alignment with the mayor's party. Third, what we observe may be the result of mayors having better soft information about their own supporters along dimensions that are typically difficult to observe, such as public service motivation. Disentangling the relative roles played by these mechanisms is important as they have obviously different implications for the efficiency of public service delivery.

Of course, as for all types of corrupt exchanges, patronage is a secretive, informal agreement between the parties (Olken and Pande, 2012; Banerjee et al., 2013), making it difficult to isolate its magnitude in a definitive manner. Notwithstanding this challenge, the granularity of our data allows us to provide various empirical tests of key predictions of the mechanisms discussed above. These tests are not aimed at disproving that other

[21]Appendix Table A6 shows the effects on private and public sector earnings separately.

[22]See Appendix Figure A6 for the analogous figure for total earnings.

[23]Appendix Table A7 shows that our main estimates are robust to using the optimal bandwidths of Calonico et al. (2014) (which are larger than 5 percentage points), and to a more conservative bandwidth of 1 percentage point. Appendix Table A8 shows that our findings are robust to defining as "connected" only supporters of the specific party (instead of coalition) of the winning mayoral candidate.

mechanisms are at work, but rather at showing that patronage is likely an important mechanism behind our results.

5.1. **Heterogeneity Across Public Sector Occupations.** Patronage may take place at all levels of the public sector hierarchy, as ultimately electoral support is the primary driver of the relationship between politicians and their clients. This implies that political connections should play an important role for the hiring of a vast set of bureaucrats and frontline providers.

Table 3, Panel A, shows that political connections affect employment outcomes throughout all types of occupations. Supporters of the winning party are significantly more likely to be employed in the bureaucracy, both in a managerial position (almost twice as likely as supporters in the control group) and at lower levels of the bureaucracy (a 62% higher probability). At the same time, political connections also have a sizable and significant effect for jobs as frontline providers, both for high-skill occupations (where we observe a 13% treatment effect) and for low-skill ones (where we observe a 27% treatment effect). Appendix Table A9 shows that these patterns are similar for both candidates and donors.

Figure 2 illustrates the importance of political connections at an extremely granular level, as we report the average effect for all six-digit occupation codes (the most detailed classification used by the *CBO*), split as above into four panels representing the distribution of jobs across the public sector hierarchy.[24] Political connections matter across a broad spectrum of occupations. For instance, among many others, we find that the effect is large and statistically significant for jobs as doctor, school headmaster, director of a public hospital, community health worker, civil construction supervisor, and in other occupations requiring specific skills such as chemists and actuaries.

5.2. **Discretion in Hiring.** An additional important source of heterogeneity relates to the distinction between meritocratic and discretionary jobs, as patronage should in principle only affect the latter. This distinction is outlined in Section 2.2, which however adds one crucial caveat to this interpretation: given the widespread fraud and corruption in local public sector hiring, politicians may be able to exert some degree of discretion over all types of jobs.

We test for this directly in Columns 1 and 2 of Table 3, Panel B, where we focus on the split between meritocratic and discretionary jobs. The former are those requiring a formal civil service examination (the *Concurso*), while the latter include temporary public sector jobs and appointment-based jobs falling into one of the three special discretionary

[24]Each occupation-specific effect is calculated as the estimated β from equation (4.1) using an indicator for employment in the specific occupation as dependent variable, normalized by the share of supporters in the control group employed in the occupation.

categories discussed in Section 2.2.[25] Consistent with patronage, we find that political connections matter especially for jobs over which the mayor has discretion, with about two-thirds of the effect coming from discretionary jobs. Specifically, supporters of the mayor are 106% more likely than supporters of the runner-up to obtain a job falling into a discretionary category. However, we still find that supporters of the mayor are 21% more likely to obtain jobs in the public sector requiring a formal civil service examination. This may be partly due to fraud and corruption in hiring, and partly to a supply-side story, which we discuss in Section 5.4. Nonetheless, these results paint a picture where discretion in hiring may be used as a political tool, and where even the presence of a civil service system may not be sufficient to shield public jobs from political influence.

We further find no effect on the probability of obtaining a job over which the mayor cannot exert direct influence. In Columns 3 and 4 of Table 3, Panel B, the dependent variables are indicators equal to one for municipal public jobs and for state or federal jobs, respectively. The whole effect that we document is driven by jobs over which the mayor has discretionary power, namely jobs allocated at the municipal level.[26]

5.3. **Intensity of Political Support.** If patronage is at play, its quid pro quo nature would predict that the extent of preferential treatment enjoyed by a supporter is proportional to the amount of support provided to the party.

Starting with candidates, we rank them into quintiles based on their vote share distribution within the coalition they support. More successful candidates increase the overall number of seats awarded to the coalition. Additionally, personal votes for a candidate to the local council are also likely to translate into votes for the mayor supported by the candidate, and thus can be considered a signal of the amount of support to the mayor.[27] We create five indicator variables, one for each quintile, turning to one if the candidate's vote share within the coalition falls into that specific quintile. We then estimate an augmented version of equation (4.1) to investigate how the extent of preferential treatment varies across the distribution of amount of support provided. We also estimate a similar version of this specification for donors, where the quintiles are computed using the amount of money donated to the political campaign.

Since the *intensity* of support for both candidates and donors may be correlated with several other individual characteristics (such as education or wealth), these specifications

[25]We classify as meritocratic jobs those for which the variable Contract Type (*Tipo de Vinculo*) in RAIS takes value 30 (*ESTATUTARIO*) or 31 (*ESTAT RGPS*). Unfortunately, we do not have a perfect disaggregation between each specific discretionary category.

[26]Appendix Table A9 shows results separately for candidates and donors.

[27]We focus on the political candidates who fail to obtain a seat in the local council, which are the individuals driving the vast majority of the effect, as shown in Appendix Table A5.

also include a host of additional covariates (and their interaction with the *Mayor* indicator). Specifically, we control for a measure of wealth (average total earnings in the four years before the election) and the share of years the supporter was employed in the public sector out of the four pre-election years. For candidates, we can additionally control for demographic covariates such as education (an indicator for high school completion, and an indicator for college completion), gender and age.[28]

Figure 3 gives a graphical representation of the results, using employment probability (top panels) and total earnings (bottom panel) as dependent variables. We observe a strictly monotonic relationship between the extent of preferential treatment and the amount of political support provided, consistent with patronage. The patterns are similar for candidates and donors.

Motivated by these findings, we further compute an approximate return on investment from donating, as discussed in Appendix Section A.2. We find a staggering median return of BRL 1.89 per BRL 1 donated which, to our knowledge, represents the first direct estimate of returns to campaign financing for individual donors.

5.4. **Ideological Alignment.** An alternative interpretation of the preferential treatment in public employment enjoyed by supporters connected to the ruling party is that it stems from ideological alignment. Specifically, supporters of the winning party may be granted preferential access to public jobs because the mayor aims to increase the alignment of the bureaucracy to her mission. This seems inconsistent with our earlier results on patronage by occupation, which show that political connections matter for a wide range of positions, not only for top-level bureaucrats. However, there may also be a labor supply response by political supporters, if they are more averse or keen to work under a given party. A direct prediction of these channels is that the degree of ideological alignment drives the extent of preferential access to public jobs. On the contrary, a patronage mechanism predicts that only the degree of electoral support matters. Here we provide suggestive tests for these channels.

First, we investigate whether long-term supporters of the mayor's party are more likely to benefit from the allocation of public jobs than short-term supporters. For each election, we focus on supporters who have run or donated in the previous election as well, and we divide them into "party loyals"—those who supported the mayor's party also in the previous election—and "party switchers"—those who supported a different party in the

[28]In general, a caveat of this analysis is that votes obtained and money donated are only proxies for political support, and these proxies may capture other individual characteristics as well, which are difficult to control for; for example, votes obtained may also capture how popular a candidate is.

previous election.[29] The rationale for this test is that if ideology matters, and loyalty to the party proxies for it, then party loyals should benefit disproportionally more when their party is in power. However, contrary to this prediction, Columns 1 (candidates) and 2 (donors) of Table 4 show small differences in the estimated effects in these different subsamples.[30]

Second, we check whether preferential access to public jobs extends to supporters located in a different but neighboring municipality.[31] To the extent that these individuals share the same ideology of the mayor, as proxied by the party they support, and that geographical proximity allows them to access jobs in a neighboring municipality, we would expect these individuals to also obtain more public jobs if ideology was at play. Table 4, Columns 3, 4, 5 and 6 suggest this is not the case. While the mayor's direct supporters enjoy a significant increase in employment probability (15.6 percentage points for candidates and 11.4 percentage points for donors), the effect becomes essentially zero for candidates and donors of that party from neighboring municipalities.

Finally, as mentioned earlier, ideology related issues may also induce a labor supply response by political supporters. On the one hand, supporters of the losing party may be less willing to work for the winning local administration and, on the other, supporters of the winning party may be more keen to do so. Empirically, disentangling such a supply-side story from the primary demand-side one of our discussion is ultimately impossible without data on job applications for all public sector jobs. However, two pieces of evidence cast doubts on the supply-side story playing a primary role. First, the effects are stronger for discretionary positions, namely those where the job allocation is primarily demand-driven, as discussed in Section 5.2. Second, and importantly, there is a high public sector premium in Brazil.[32] Hence, the lucrative nature of these jobs, coupled with the net gain in total earnings enjoyed by the political supporters of the mayor that we document, suggest that individuals' preferences to work under a specific administration are likely second order in this context.

[29]As electoral coalitions can change across election cycles, in this test we consider the party, not the coalition, as the unit of analysis.

[30]Since the loyal/swicther status is not exogenously assigned, we attempt to address this issue by controlling for the additional individual-level covariates described in Section 5.3 (and their interaction with the *Mayor* indicator).

[31]Specifically, for the two parties in a municipality involved in a close election, we consider all candidates who run for, and donors who donated to, one of those parties in a neighboring municipality (where these parties did not win).

[32]We show this in Appendix Table A10 where, using both total and hourly wages, and controlling for a host of occupation and worker characteristics, we uncover a significant premium for working in a given occupation in the public sector, relative to the private sector, which ranges from 13.6% to 22.7%, depending on the job category.

Overall, while these tests cannot completely rule out that ideology explains part of the estimated preferential treatment, they do suggest that it is unlikely for this explanation to be a significant driver of our main effects.

5.5. **Screening and Long-term Careers of Political Supporters.** The preferential treatment enjoyed by political supporters could be the result of party members having better "soft" information about members of their network, and thus being able to screen them on dimensions of quality that are difficult to observe, such as motivation to work in the public sector. If this were the case, to the extent that a supporter's ex-ante unobservable traits are revealed after several years on a public job, we would expect the supporter's career not to be linked to the long-term fortunes of the party supported.

We examine this prediction by looking at the supporters' long-term careers. We first classify supporters into three groups: supporters of a party that wins two consecutive elections (in period 0 and period 4); supporters of a party that wins the election in period 0 but loses in period 4; supporters of a party that loses elections in both periods 0 and 4.[33] We then estimate the following equation:

$$y_{ikmpt} = \sum_{s=-3}^{+6} \beta_s^{Both} MayorBoth_{pmt} \mathbb{1}(s=k) + \sum_{s=-3}^{+6} \beta_s^{One} MayorOne_{pmt} \mathbb{1}(s=k) + \\ + \theta_k MV_{pmt} + \gamma_{kpt} + \epsilon_{ikmpt} \tag{5.1}$$

where $MayorOne_{pmt}$ is an indicator equal to one for supporters of a party that wins the election in municipality m in election year t (i.e. in period $k = 0$), but loses four years later (i.e. in period $k = 4$). $MayorBoth_{pmt}$ is an indicator equal to one for supporters of a party that wins the election in municipality m in both $k = 0$ and $k = 4$. By including period-party-election year fixed effects (γ_{kpt}), we leverage variation in the electoral success of the same party across different municipalities. The analysis sample includes data from three years before to six years after the first election (i.e., up to two years after the second election).

Figure 4 plots the estimates of β_s^{Both} and β_s^{One}. Relative to supporters whose party loses both elections, supporters whose party remains in power for both election cycles have a higher probability of public sector employment that persists beyond period 4. In contrast, supporters whose party loses the subsequent election see a sharp drop in public sector employment probability after period 4. Consistent with patronage, these patterns

[33]In this analysis, we only include supporters of parties that present a mayoral candidate in two consecutive elections in the same municipality. We focus on supporters of the party of the mayor or of the runner-up, and not of their coalition, since coalitions can change across election cycles.

show that public sector jobs allocated to supporters are deeply linked to the fortunes of their party.

6. Political Connections and Selection Effects in the Public Sector

In this section, we ask whether the preferential treatment enjoyed by politically connected individuals affects the quality of the public workforce. In presence of patronage, the provision of political support substitutes individual competence as the determinant of employment decisions. Therefore, patronage implies that our main effects should be especially pronounced at the bottom of the competence distribution.

6.1. **Measuring Individual Competence.** While capturing all dimensions of public sector workers' competence is impossible, we focus on three intuitive measures.

First, we consider a standard measure of individual competence: education. In particular, we construct a measure of educational mismatch at the supporter-job pair level. That is, we combine information on an individual's education with manually collected data on the required level of education to perform each occupation in the public sector (middle school, high school, or college degree), collected from the *Classificação Brasileira de Ocupações 2002* and as described in Section 3.1.[34]

Second, we consider another common measure: private sector earnings. As in Dal Bó et al. (2013), we consider a supporter's outside opportunity as a measure of skills, under the assumption that highly skilled workers are compensated with higher earnings in the private sector. Specifically, we focus on individuals who had a formal private sector job one or two years prior to the election. We then regress their private sector earnings on year times municipality fixed effects, and use the residuals of this regression as our measure of competence. We then divide supporters in terciles based on the residualized earnings distribution among all supporters in their same coalition.

As a third measure of competence, we follow Besley et al. (2017) and Dal Bó et al. (2017) and estimate residuals from a Mincer earnings regression controlling for a full set of interactions between a worker's age, education, and sector of employment, as well as for municipality fixed effects to account for location-specific differences in earnings. This is a more nuanced version of our second measure above, where the intuition is simple: private sector workers who earn more relative to similar (on observables) workers are likely to be of higher ability. More details on our Mincer estimation are presented in Appendix

[34]Since we do not have information on the education of all supporters for the sample of donors, we exclude them from the estimation using this specific measure of competence.

Section A.3.[35] Again, we divide supporters in terciles based on the distribution of residual ability scores among all supporters in their same coalition.[36]

6.2. **Estimating Selection Effects.** To test whether and how the importance of political connections depends on individual competence, we estimate various specifications of the following form:

$$y_{ikpmt} = \beta^{QM} Q_i * Mayor_{pmt} + \beta^{M} Mayor_{pmt} + \beta^{Q} Q_i + \theta_k MV_{pmt} + \gamma_{kmt} + \epsilon_{ikpmt} \tag{6.1}$$

where Q_i is an indicator variable for a specific competence measure, and all other variables are defined as earlier in the paper. The coefficient of interest to test for the presence of selection effects is β^{QM}, which tells us how the preferential treatment varies as a function of a supporter's competence level.

Table 5, Panel A, presents the results when we use educational qualifications as a measure of competence. We estimate three different specifications, where we focus on jobs for which the required level of education is a middle school, high school, or university degree, respectively. In each of these specifications, y_{ikpmt} is an indicator variable equal to one if supporter i in period k is employed in a public sector job that requires a specific educational level. Q_i is an indicator variable equal to one if supporter i has a level of education that is equal to or higher than the one required to perform that specific occupation. We find that being qualified for a job matters overall, but it matters significantly less for politically connected individuals. That is, preferential treatment in public employment is significantly stronger among supporters who are not qualified for the position. As shown in Column 1, supporting the winning party increases the chances of obtaining a position requiring a middle school degree by 0.7 percentage points if supporters are qualified for the job, and by 1.7 percentage points if they are not. Column 3 reveals a similar pattern for public jobs requiring a university degree, with effects of 5.4 percentage points for qualified supporters and of 6.9 percentage points for unqualified supporters. The coefficient on the interaction term in Column 2, for the specification focusing on jobs requiring a high school degree, is also negative, but small and statistically insignificant.

We next focus on supporters' previous private sector earnings as a measure of their competence. We interact the variable $Mayor_{pmt}$ with an indicator for the supporter being in the second tercile of the earnings distribution (Q_i^M), as well as an indicator for

[35]A caveat of our analysis is that only 27% (39%) of candidates (donors) in our sample have private sector experience pre-election.

[36]The three competence measures are not highly correlated, suggesting they each capture a different dimension of individual competence. Indeed, education has a correlation of 0.184 and −0.153 with private sector earnings and residual ability, respectively, while there is a correlation of 0.427 between private sector earnings and residual ability.

the supporter being in the top tercile (Q_i^H). Low competence supporters in the bottom tercile represent the excluded category. Panel B of Table 5 illustrates these findings. We find that the effect is disproportionally larger for less competent individuals: moving from the first to the third tercile of the earnings distribution decreases the treatment effect by 38% for candidates (Column 2) and by 20% for donors (Column 3).

Finally, we rely on the residual ability scores. We report these results in Panel C of Table 5, which is analogous to Panel B, but where the tercile indicators are based on the distribution of supporters' residual ability scores. Consistent with the results based on other measures, we find that the relevance of political connections is significantly more pronounced among less competent supporters: among candidates, the treatment effect at the top tercile of the distribution is 13% lower than at the bottom tercile, while it is 30% lower among donors.[37]

6.3. **Discussion.** Our analysis of economic channels in Section 5 shows that efficiency-enhancing mechanisms that could explain the importance of political connections in public sector hiring, such as shared ideology or better screening, do not seem to be the primary drivers of our findings. Instead, the dynamics we observe are consistent with several predictions of a patronage system, in which individuals give political support to specific parties or politicians, and are rewarded with public jobs the party or politician have discretion over when in power. Nevertheless, we cannot ultimately isolate the causal effects of patronage on public sector delivery, due to the obvious absence of counterfactual municipalities with no patronage. Our previous results on negative selection of politically connected public sector workers do point towards a potential source of inefficiency, but performance as a public sector worker is a function of selection as well as incentives (Jia et al., 2015; Xu, 2018), and our analysis cannot causally investigate the latter.

Nevertheless, to this regard, it is useful to consider our findings in light of a related complementary paper. In the same context of Brazil's local elections, Akhtari et al. (2017) show that when the party in power in the municipality changes, the quality of education provision (measured by test scores) worsens, concurrently with the replacement of public sector workers in the area of education with less competent ones. Within this context, our analysis points to patronage as a clear potential mechanism for public sector turnover, while their analysis suggests that, at least through this channel, patronage may have a negative effect on public service delivery.

[37]In Appendix Table A11, we provide a breakdown of all the selection results by bureaucrats versus frontline providers. We find negative selection across most measures and occupation types, with the one exception of education for the subset of jobs in bureaucratic positions requiring a completed college degree.

Figure 5 further strengthens the link between the two papers. The top two panels show that turnover of public sector workers –measured both through the share of public workers who are new hires (Panel A) and through the share of public workers who separate from their job (Panel B)– spike around elections. These spikes are particularly pronounced for the political supporters we study, namely local candidates (in blue) and campaign donors (in red), relative to other public workers (in green). The bottom three panels, where we focus on elections where the incumbent party loses, show that municipalities with higher levels of patronage experience higher levels of turnover.[38] On the x-axis, we plot the extent of patronage in the election.[39] On the y-axis, we plot the share of hires and separations in the public sector of the municipality in the year after the election. Panel C shows that a 1 standard deviation increase in patronage is associated with a 0.156 (0.109) standard deviation increase in hires (separations). As seen in Panels D and E, these correlations are stronger for jobs in the bureaucracy, but they are also large and significant for jobs as frontline providers. Consistent with patronage being an important driver of public turnover, municipalities characterized by greater patronage are associated with higher turnover of public employees around the election following a change in the party in power.

7. Conclusion

Despite the introduction of civil service systems across virtually all countries in the world over the 20th century, politicians retain considerable discretion in government hiring. Ample anecdotal evidence suggests this discretion may result in patronage, whereby public sector jobs are used to reward political supporters of the party in power, substituting competence with political support as a determinant of hiring decisions. These viewpoints are reflected in the way several international organizations like the World Bank have recently started to emphasize strict reforms to selection in public organizations as part of their development programs (Evans, 2008). However, a counterargument often put forward by politicians and other policy makers is that discretion is fundamental to ensure that the best overall candidates are selected, as rigid examinations are an imperfect selection tool.

Whether discretion in government hiring leads specifically to patronage and the subsequent selection of less competent individuals remains a key open question in this debate. Our paper provides a systematic account of patronage in the selection of public sector

[38]We focus on elections decided by a margin of victory of 10 percentage points or less; as we showed in Figure 1, the magnitude of the effect is stable across different margin of victories.

[39]When we consider each close election separately, this is simply the share of supporters of the winning mayoral candidate employed in the public sector after the election, minus the share of supporters of the losing mayoral candidate employed in the public sector after the election.

workers in a modern bureaucracy, and at all levels of the public sector hierarchy. We study hiring dynamics in the Brazilian municipal public sector over the 1997-2014 period. We first link information on more than two million political supporters (political candidates and campaign donors) to matched employer-employee data. We then exploit variation in connection to the party in power leveraging the outcome of competitive electoral races.

The rich micro-data allow us to show not only that political connections are a key determinant of employment in public organizations, but also that patronage is an important mechanism behind these effects, and that political considerations lead to the selection of less competent individuals. These findings are potentially wide-ranging as Brazil is considered to be a primary example of a de jure professionalized and meritocratic civil service among Latin American countries, suggesting that the Brazilian case may well represent a lower bound for the presence of this phenomenon in the public sectors of today's developing countries.

Of course, our investigation is limited by the nature of our quasi-experiment, as we cannot speak to several related questions of interest, such as the welfare costs of patronage, as our discussion in Section 6.3 highlights. Additionally, we are silent regarding the trade-offs individuals face when deciding whether to become a political supporter or not, which has ex-ante significant implications on the ultimate composition of a public sector workforce. It is also of great policy interest to understand whether patronage leads to an excessively large bureaucracy. Future empirical work should shed light on these issues.

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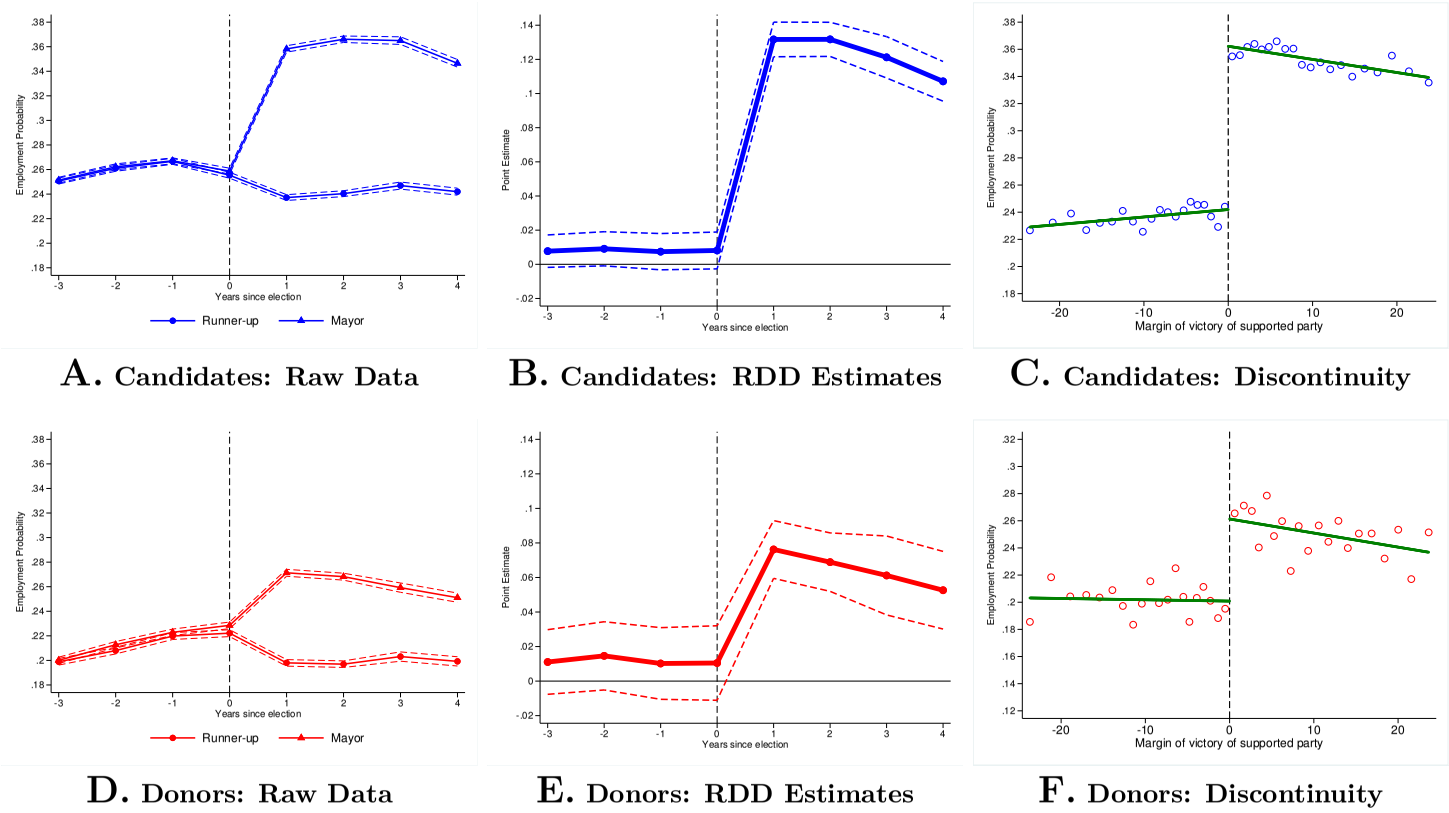
FIGURE 1. **Effect of Supporting the Winning Party on Public Employment Probability**

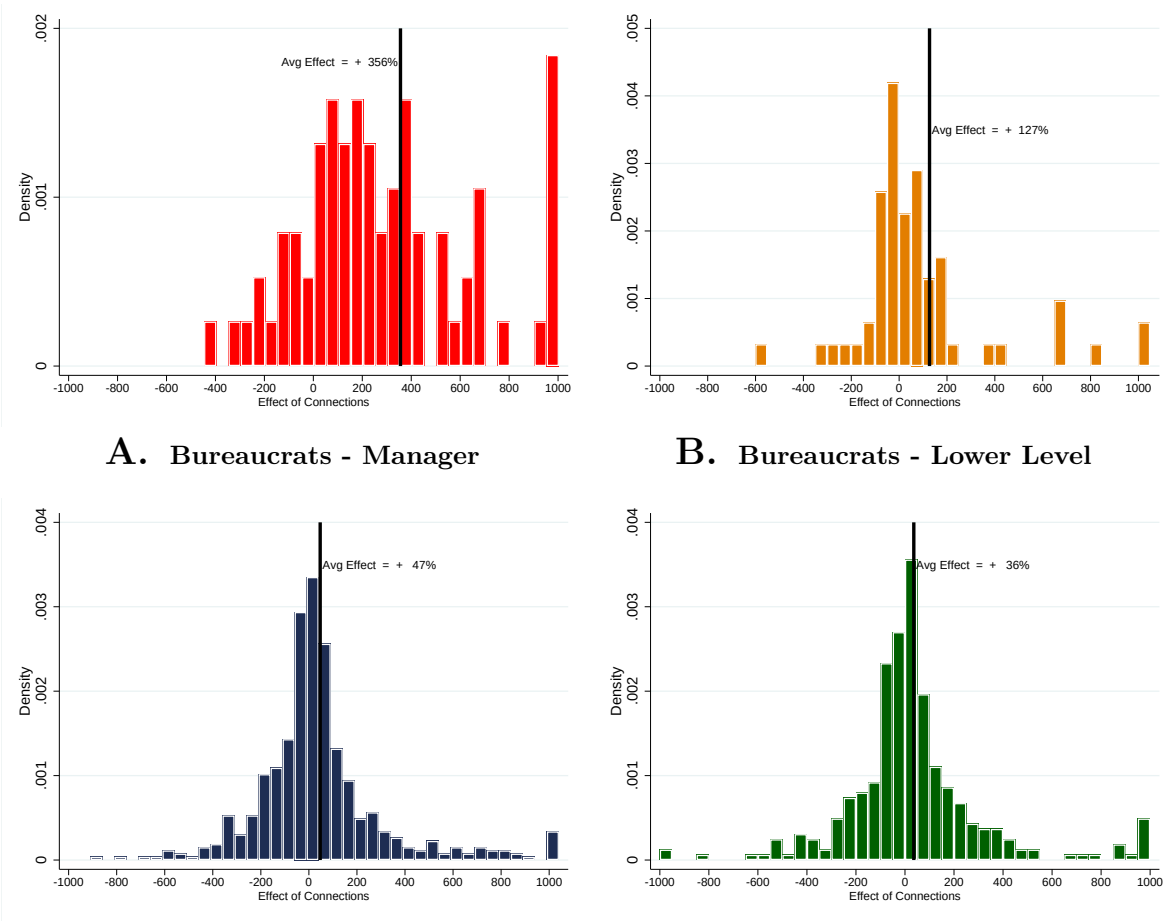


A. Candidates: Raw Data **B.** Candidates: RDD Estimates **C.** Candidates: Discontinuity

D. Donors: Raw Data **E.** Donors: RDD Estimates **F.** Donors: Discontinuity

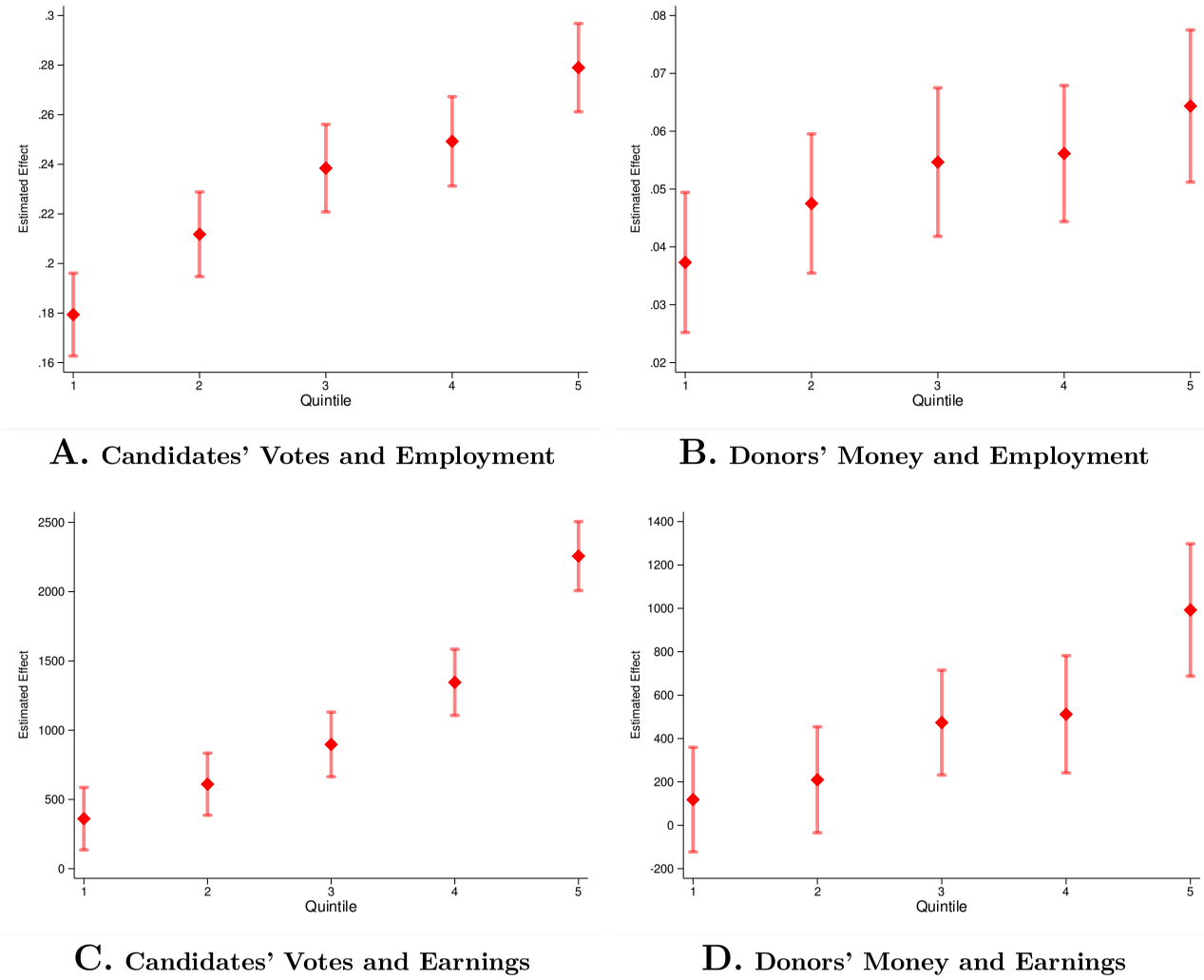
Notes: The figure shows the estimated effect of supporting the winning party on probability of employment in the public sector. The top panels focus on the sample of candidates (2000-2012 period) while the bottom panels focus on donors (2004-2012 period). Panels (a) and (d) show the raw data, namely the public employment probability for supporters of the elected mayor (triangles) and for supporters of the runner-up (circles), from three years before to four years after the election, with 95% confidence intervals. Panels (b) and (d) plot the estimated β_k coefficients from equation (4.2), with 95% confidence intervals based on standard errors double clustered at the supporter and election level. Panels (c) and (f) show the public sector employment probability in the 4 years after the election, by bins of the margin of victory of the party supported, and the best-fit lines on both sides of the discontinuity computed on the underlying data. The sample in Panels (a), (b), (d), (e) is restricted to elections with a 5 percentage points margin of victory between the winner and the runner-up.

FIGURE 2. **Distributions of the Effects of Supporting the Winning Party Across Public Sector Occupations**



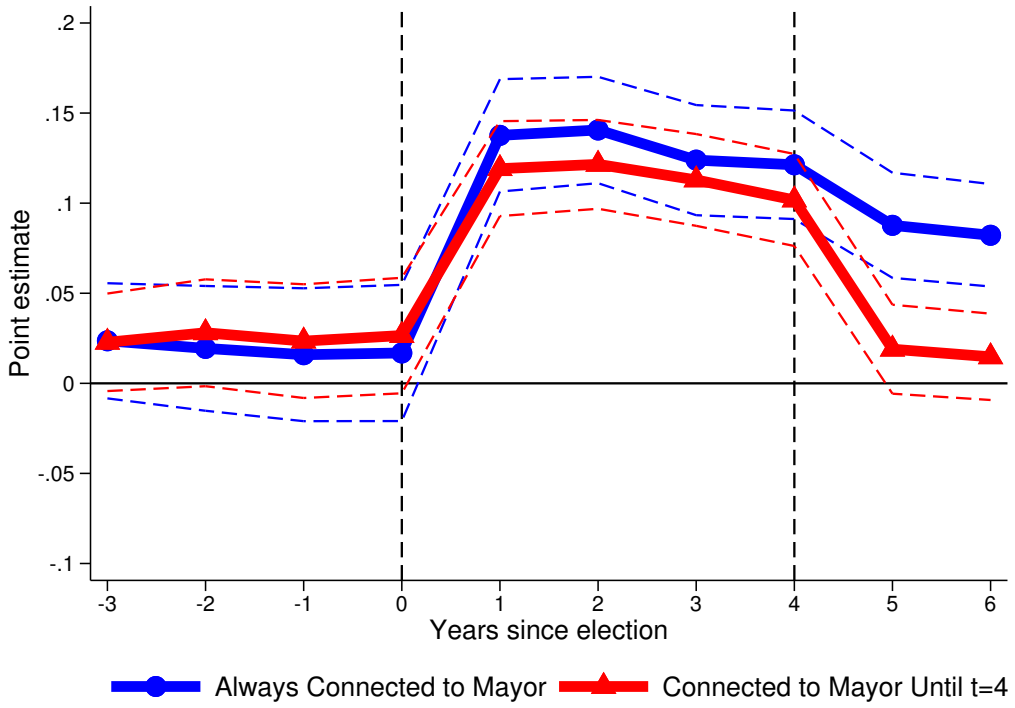
Notes: The figure shows the distribution of occupation-specific estimates of β from equation (4.1), normalized by the share of supporters in the control group employed in that occupation. In each regression, the dependent variable is an indicator equal to one if the supporter is employed in the specific occupation in the public sector. We consider only occupations for which we observe non-zero employment for both supporters of the winning party and supporters of the runner-up. The sample is restricted to supporters of the winning party or of the runner-up in a close election, using a 5 percentage points margin of victory to define an election as close. Panel (a) shows the distribution of the effects for occupations in the "Bureaucrats - Manager" category. Panel (b) shows the distribution of the effects for occupations in the "Bureaucrats - Lower Level" category. Panel (c) shows the distribution of the effects for occupations in the "Frontline High Skills" category. Panel (d) shows the distribution of the effects for occupations in the "Frontline Low Skills" category. The vertical lines in each panel indicate the average effect in that occupational category. All occupations with an effect greater than 1000% are assigned a value of 1000%.

FIGURE 3. **Preferential Treatment in the Public Sector Is Increasing in Amount of Support Provided**



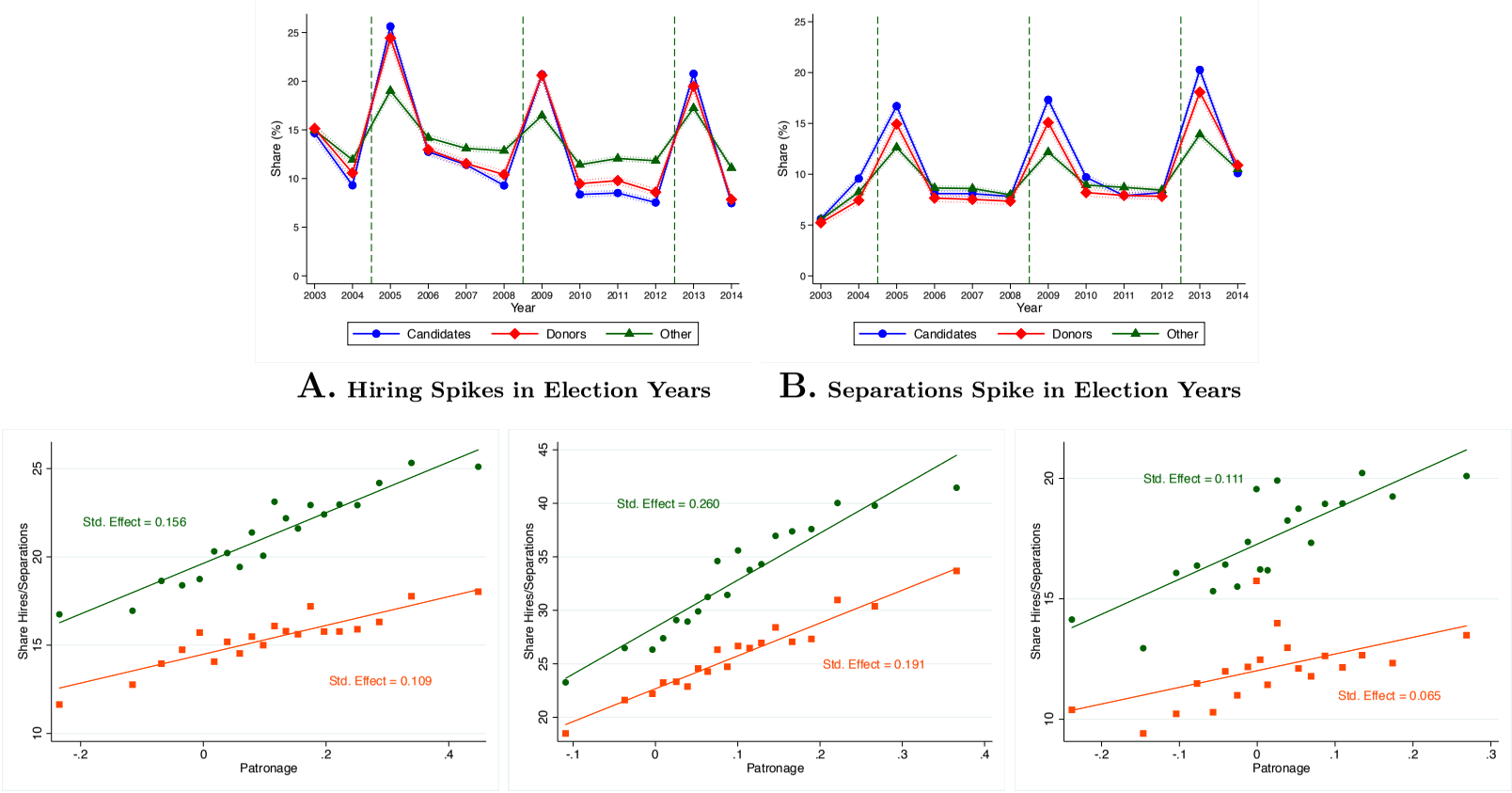
Notes: The figure presents the estimated effects of supporting the winning party at different quintiles of the candidates' vote share distribution (left panels) or the distribution of amount of money contributed by donors (right panels). The dependent variable is an indicator variable equal to one if the supporter is employed in a public sector job in the top figures, and annual public sector earnings in the bottom figures. See Section 5.3 for the list of variables included as controls. The sample is restricted to supporters of the winning party or of the runner-up in a close election, using a 5 percentage points margin of victory to define an election as close. The samples in the left panels include candidates to the local council who were not elected, and elections in the 2000-2012 period. The samples in the right panels include donors,and elections in the 2004-2012 period. 95% confidence intervals are based on standard errors double clustered at the candidate and election level.

FIGURE 4. **Supporters' Public Sector Employment Probability Depends on the Party Fortune in the Long Run**



Notes: The figure presents the estimated β_k^{One} and β_k^{Both} coefficients from equation (5.1) using the probability of employment in the public sector as the outcome variable. We separately focus on three groups of supporters: those supporting a party winning two consecutive elections (in year 0 and in year 4); those supporting a party winning the election in year 0 but losing the election in year 4; those supporting a party losing both the election in year 0 and the election in year 4. Plotted in blue is the effect of supporting a party winning both the elections versus supporting a party losing both the elections. Plotted in red is the effect of supporting a party winning only the first election versus supporting a party losing both the elections. The sample is restricted to the subset of supporters of a party involved in a close election in year 0, using a 5 percentage points margin of victory to define an election as close. The dotted lines show 95% confidence intervals and are based on standard errors double clustered at the supporter and election level.

FIGURE 5. **Patronage and Turnover in the Municipal Public Sector**



A. Hiring Spikes in Election Years **B.** Separations Spike in Election Years

C. Patronage and Turnover – All Jobs **D.** Patronage and Turnover – Bureaucrats **E.** Patronage and Turnover – Frontline

Notes: The top two panels show the average share of yearly hires (Panel A) and separations (Panel B) in the municipal public sector in Brazilian municipalities. The vertical dotted lines indicate the time of local elections, which were held in November of 2004, 2008, 2012, with the mayor taking office in January of 2005, 2009, 2013. The shares are calculated separately for the sample of local candidates (in blue) of campaign donors (in red) and for all the other workers (in green). The bottom three panels show the correlation between an election-specific measure of patronage and the share of hires (in green) and separations (in red) in the public sector of the municipality in the year after the election. We focus on elections where the incumbent party loses power, and on elections decided by a margin of victory of 10 percentage points or less. Panel C considers all jobs, Panel D considers only jobs in the bureaucracy, and Panel E considers only jobs as frontline providers. "Std. Effect" indicates the slope of the best fit line calculated on the underlying data, multiplied by the standard deviation of the patronage estimates and divided by the standard deviation of the share of hires/separations.

TABLE 1. **Descriptive Statistics on Labor Market Outcomes**

	Candidates (694,273 obs.)			**Donors** (701,954 obs.)			**Universe of Workers** (87,528,336 obs.)		
Panel A: Employment conditional on being in RAIS									
Ever employed in:	*Share*			*Share*			*Share*		
Public Sector	0.686			0.519			0.186		
Private Sector	0.621			0.755			0.915		
Panel B: Earnings conditional on employment									
Annual Earnings:	*Mean*	*Median*	*SD*	*Mean*	*Median*	*SD*	*Mean*	*Median*	*SD*
Public Sector	12,123	7,548	117,475	17,300	10,088	41,390	13,659	7,678	62,697
Private Sector	7,775	4,620	29,739	10,551	4,807	70,710	7,070	4,128	61,299
Panel C: Hierarchy in the public sector									
Employed as:	*Share*			*Share*			*Share*		
Bureaucrat - Manager	0.158			0.178			0.082		
Bureaucrat - Lower Level	0.240			0.268			0.216		
Front-Service - High Skills	0.370			0.409			0.439		
Front-Service - Low Skills	0.231			0.145			0.263		

Notes: The table provides a comparison of the labor market outcomes of political supporters and of the universe of other workers in *RAIS* during the period 1997-2014.

TABLE 2. **Effect of Supporting the Winning Party on Public Employment Probability and Total Earnings**

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:	Employed Public			Total Earnings		
Group of Supporters:	All	Candidates	Donors	All	Candidates	Donors
Mayor	0.105	0.124	0.067	1,077.973	1,281.960	533.717
	(0.005)	(0.005)	(0.009)	(118.236)	(82.703)	(252.498)
Observations	1,447,538	867,888	550,832	1,447,538	867,888	550,832
Mean D.V. Runner-up	0.225	0.241	0.199	4,322	3,749	5,262
Supporters	418,146	233,238	177,590	418,146	233,238	177,590
Elections	5,419	5,413	3,162	5,419	5,413	3,162

Notes: The table presents the estimated β from equation (4.1), and the dependent variable is an indicator for employment in the public sector (columns 1-3) or total earnings (columns 4-6). Results in columns (1) and (4) are estimated on the sample of all supporters. Results in columns (2) and (5) are estimated on the sample of candidates to the local council, and results in columns (3) and (6) are estimated on the sample of donors. The sample is restricted to supporters of the winning party or of the runner-up in a close election, using a 5 percentage points margin of victory to define an election as close. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Standard errors are shown in parentheses and are double clustered at the supporter and election level.

TABLE 3. **Effect of Supporting the Winning Party Across Public Sector Occupations**

Dep. Var. is Employment as:	(1) Bureaucrat Manager	(2) Bureaucrat Lower Level	(3) Frontline High Skills	(4) Frontline Low Skills
Panel A: Type of occupation				
Mayor	0.053	0.031	0.012	0.013
	(0.003)	(0.003)	(0.003)	(0.002)
Observations	1,186,480	1,186,480	1,186,480	1,186,480
Mean D.V. Runner-up	0.028	0.050	0.094	0.049
Supporters	361,979	361,979	361,979	361,979
Elections	4,160	4,160	4,160	4,160
Panel B: Contract Type				
Dep. Var. is Employment as:	(1) Concurso	(2) Discretionary	(3) Municipal	(4) State/Federal
Mayor	0.033	0.072	0.113	-0.009
	(0.004)	(0.003)	(0.004)	(0.002)
Observations	1,447,538	1,447,538	1,447,538	1,447,538
Mean D.V. Runner-up	0.157	0.068	0.138	0.086
Supporters	418,146	418,146	418,146	418,146
Elections	5,419	5,419	5,419	5,419

Notes: The table presents the estimated β from equation (4.1), and the dependent variables are indicators for employment in the occupational category of the public sector indicated in the title of the column. Panel A focuses on the type of occupation. Panel B focuses on the type of contract. The sample is restricted to supporters of the winning party or of the runner-up in a close election, using a 5 percentage points margin of victory to define an election as close. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Standard errors are shown in parentheses and are double clustered at the supporter and election level.

TABLE 4. **Effect of Supporting the Winning Party: Ideology Tests**

Type of Supporter:	(1) Candidates	(2) Donors	(3) Own Supporters Candidates	(4) Neighboring Candidates	(5) Own Supporters Donors	(6) Neighboring Donors
Mayor	0.184	0.082	0.156	0.001	0.114	0.001
	(0.029)	(0.031)	(0.006)	(0.000)	(0.015)	(0.001)
Mayor X Switcher	-0.027	0.002				
	(0.010)	(0.027)				
Switcher	0.011	-0.014				
	(0.007)	(0.020)				
Observations	82,160	9,496	299,188	701,276	129,150	181,296
Mean D.V. Runner-up	0.258	0.337	0.140	0.001	0.098	0.001
Supporters	22,646	3,821	81,063	149,768	41,669	51,410
Elections	3,361	536	4,679	4,679	893	893

Notes: Columns 1 and 2 present estimates from a version of equation (4.1) augmented by an indicator equal to one if the supporter is a "switcher", namely supported a different party in the previous election, and its interaction with the *Mayor* indicator. Column 1 focuses on the sample of candidates, while Column 2 focuses on the sample of donors. See Section 5.3 for the list of variables included as additional controls. Columns 3-6 present the estimated effects in the samples of candidates and donors supporting the winning party or the runner-up party in the municipality (columns 3 and 5, respectively), and in the samples of candidates and donors supporting the same parties but in neighboring municipalities (columns 4 and 6, respectively). See section 5.4 for additional details. The sample is restricted to supporters of the winning party or of the runner-up in a close election, using a 5 percentage points margin of victory to define an election as close. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Standard errors are shown in parentheses and are double clustered at the supporter and election level.

Table 5. **Patronage and Selection**

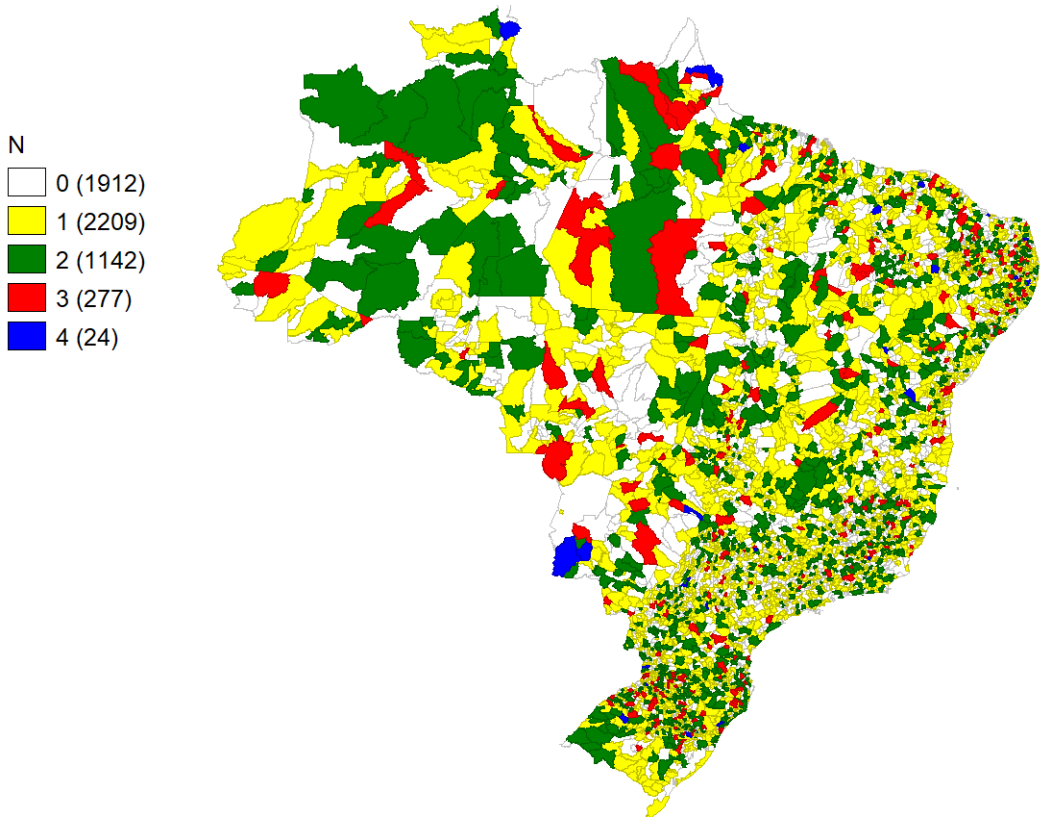
Panel A: Educational qualifications			
	(1)	(2)	(3)
Dep. Var. is Employment in Public Job Requiring:	Middle School Degree	High School Degree	University Degree
Mayor x Qualified	-0.010	-0.003	-0.015
	(0.002)	(0.003)	(0.006)
Mayor	0.017	0.047	0.069
	(0.002)	(0.004)	(0.004)
Qualified	0.012	0.082	0.352
	(0.001)	(0.002)	(0.005)
Observations	601,354	601,354	601,354
Mean D.V. Runner-up	0.027	0.042	0.046
Supporters	175,845	175,845	175,845
Elections	4,152	4,152	4,152
Panel B: Previous Private Earnings			
	(1)	(2)	(3)
Group of Supporters:	All Supporters	Candidates	Donors
Mayor x Tercile 3	-0.038	-0.059	-0.013
	(0.006)	(0.010)	(0.008)
Mayor x Tercile 2	-0.013	-0.015	-0.010
	(0.006)	(0.010)	(0.008)
Mayor	0.112	0.154	0.065
	(0.008)	(0.012)	(0.011)
Tercile 3	-0.012	-0.020	-0.010
	(0.004)	(0.006)	(0.005)
Tercile 2	-0.006	-0.010	-0.001
	(0.004)	(0.006)	(0.005)
Observations	224,132	104,630	117,202
Mean D.V. Runner-up	0.103	0.121	0.088
Supporters	71,515	31,438	39,452
Elections	4,010	3,679	2,500
Panel C: Residual Ability Score			
	(1)	(2)	(3)
Group of Supporters:	All Supporters	Candidates	Donors
Mayor x Tercile 3	-0.032	-0.023	-0.030
	(0.006)	(0.008)	(0.009)
Mayor x Tercile 2	-0.016	-0.007	-0.027
	(0.006)	(0.008)	(0.009)
Mayor	0.147	0.175	0.101
	(0.008)	(0.010)	(0.013)
Tercile 3	-0.115	-0.107	-0.106
	(0.004)	(0.006)	(0.006)
Tercile 2	-0.115	-0.103	-0.108
	(0.004)	(0.006)	(0.006)
Observations	418,012	211,612	204,864
Mean D.V. Runner-up	0.277	0.291	0.250
Supporters	131,928	62,725	68,826
Elections	4,855	4,794	3,086

Notes: The table presents the estimated coefficients from equation (6.1). In Panel A, the dependent variables are indicators for employment in a public sector job that requires a middle school degree (column 1), high school degree (column 2) and university degree (column 3). *Qualified* is an indicator equal to one if the supporter has an educational level that qualifies her for the job. The sample includes candidates to the local council. In Panel B, *Tertile 2* and *Tertile 3* are indicators equal to one if supporters fall in the second or third tercile, respectively, of supporters' private sector earnings in the years before the election. In Panel C, *Tertile 2* and *Tertile 3* are indicators equal to one if supporters fall in the second or third tercile, respectively, of supporters' Residual Ability Scores, calculated as explained in Section 6.1. The sample is restricted to supporters of the winning party or of the runner-up in a close election, using a 5 percentage points margin of victory to define an election as close. "Mean D.V. Runner-up" shows the average of the dependent variable in the post-election period for the supporters of the runner-up who are unqualified for the job (Panel A) or in the bottom tercile (Panels B and C). Standard errors are shown in parentheses and are double clustered at the supporter and election level.

ONLINE APPENDIX (not for publication)

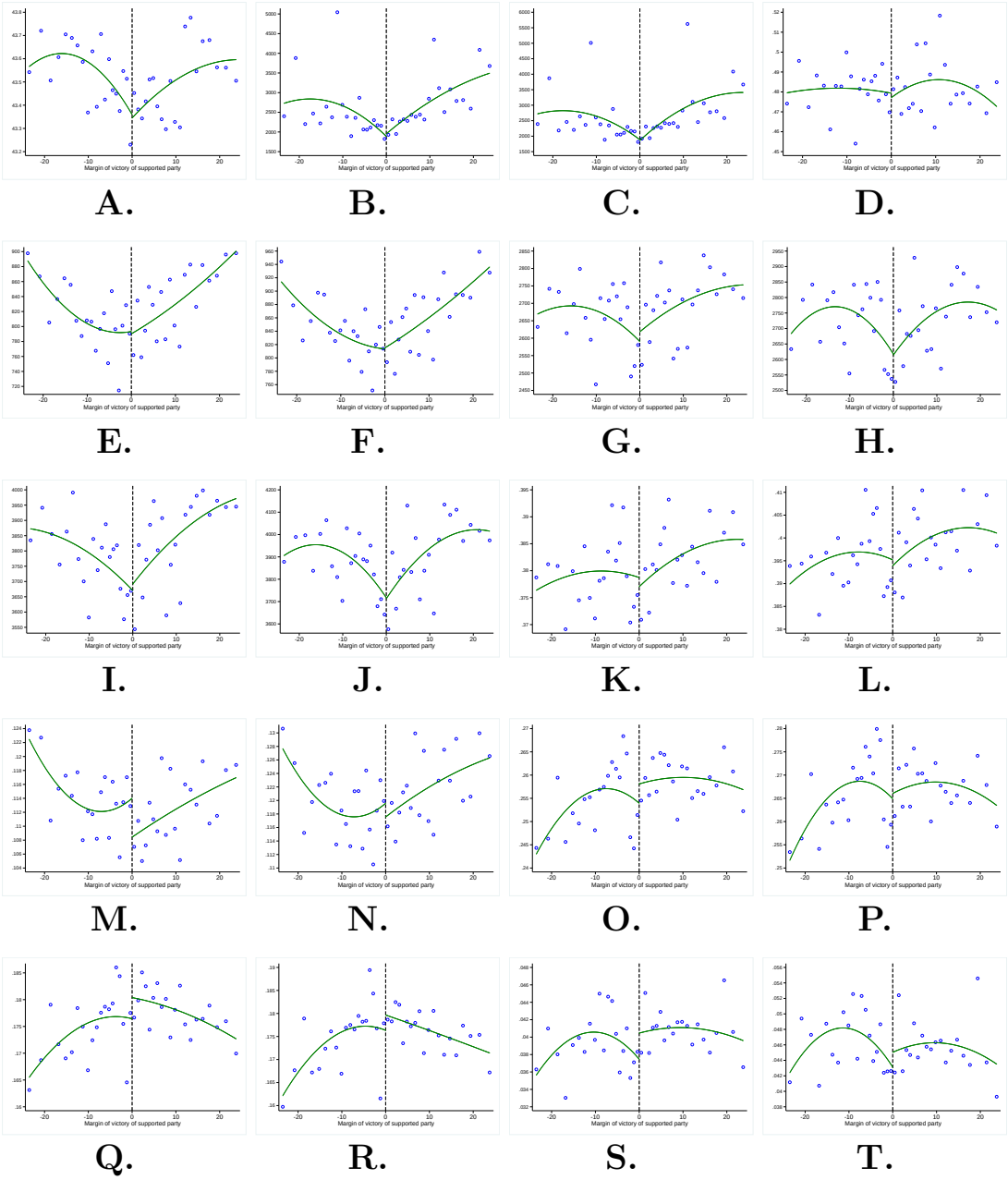
Appendix A.1. Additional Tables and Figures

Figure A1. **Municipalities with Close Elections**



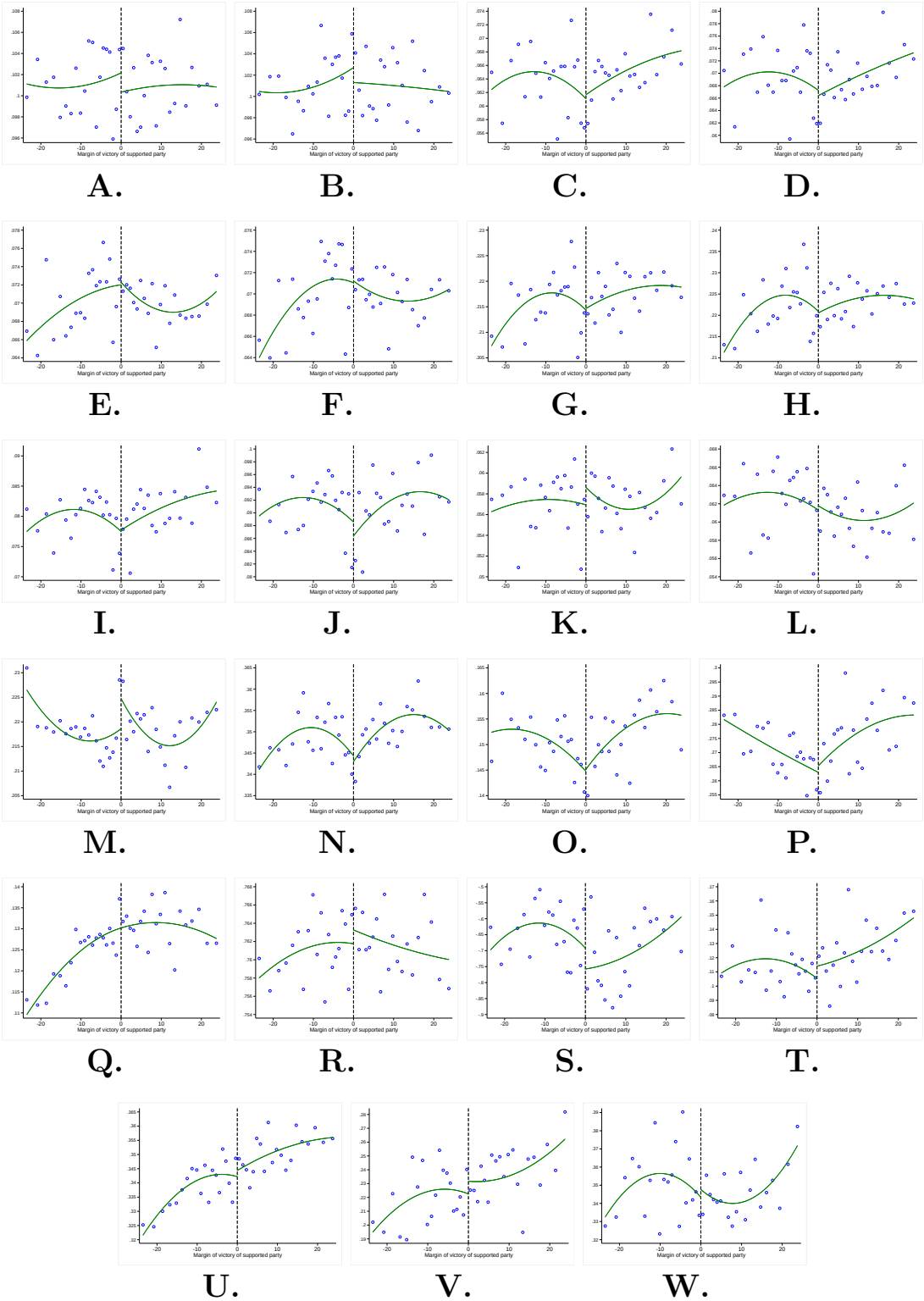
Notes: The figure shows how many times each Brazilian municipality enters the main sample of close elections, defined as elections with a 5 percentage points margin of victory or less between the winner and the runner-up, over the 4 elections in the 2000-2012 period.

FIGURE A2. **Smoothness of Covariates at the Cutoff – Candidates (Part 1)**



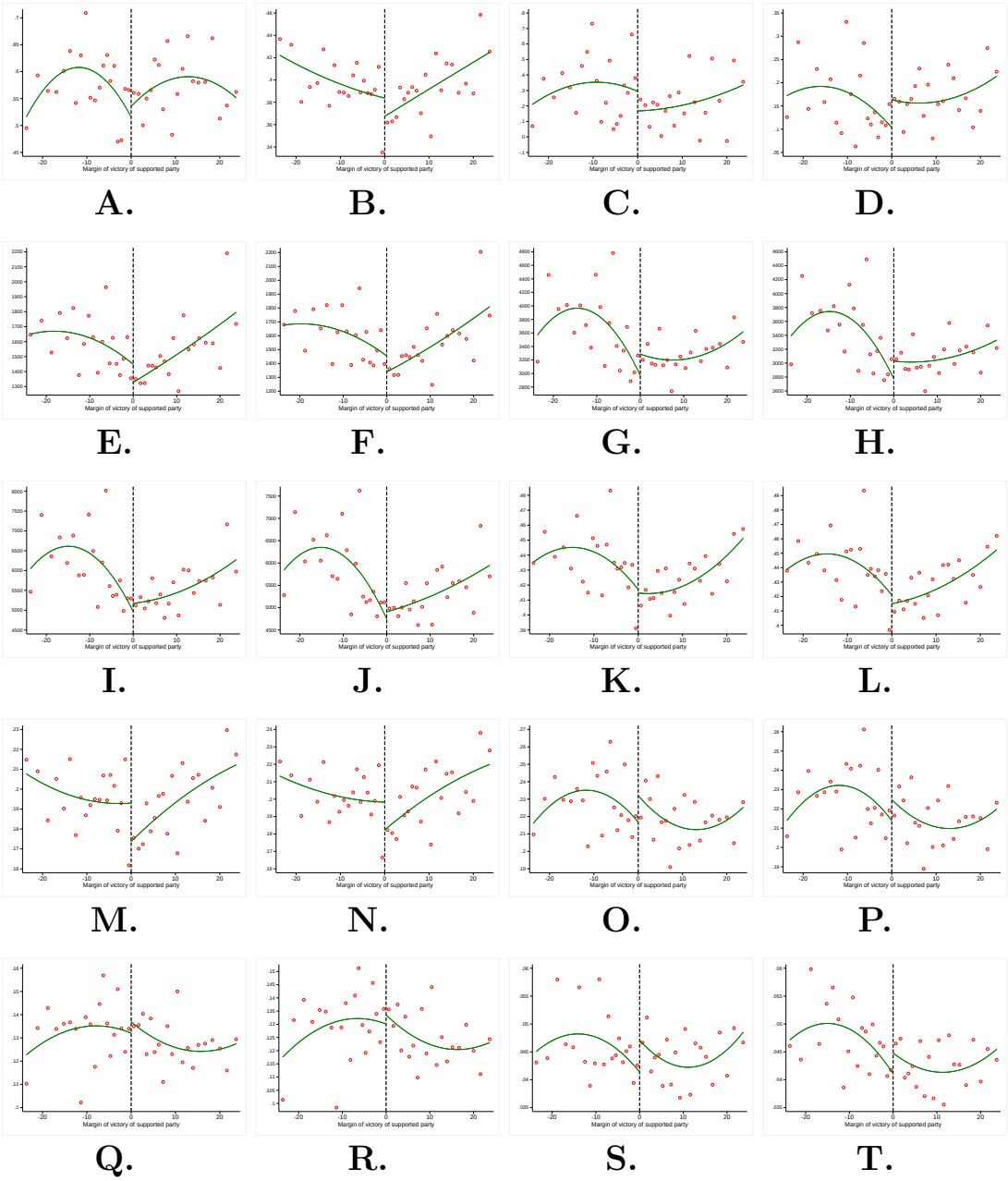
Notes: The figure shows shows graphical evidence for the smoothness of candidates' covariates in the pre-election period. Panel A: Age. Panel B: Contributions Received. Panel C: Contributions Spent. Panel D: Fed. Government Party. Panel E: Earnings Private t=0. Panel F: Earnings Private t=-1. Panel g: Earnings Public t=0. Panel H: Earnings Public t=-1. Panel I: Earnings Total t=0. Panel J: Earnings Total t=-1. Panel K: Employed Any t=0. Panel L: Employed Any t=-1. Panel M: Employed Private t=0. Panel N: Employed Private t=-1. Panel O: Employed Public t=0. Panel P: Employed Public t=-1. Panel Q: Employed Public Concurso t=0. Panel R: Employed Public Concurso t=-1. Panel S: Employed Bureaucrat - Manager t=0. Panel T: Employed Bureaucrat - Manager t=-1

FIGURE A3. **Smoothness of Covariates at the Cutoff – Candidates (Part 2)**



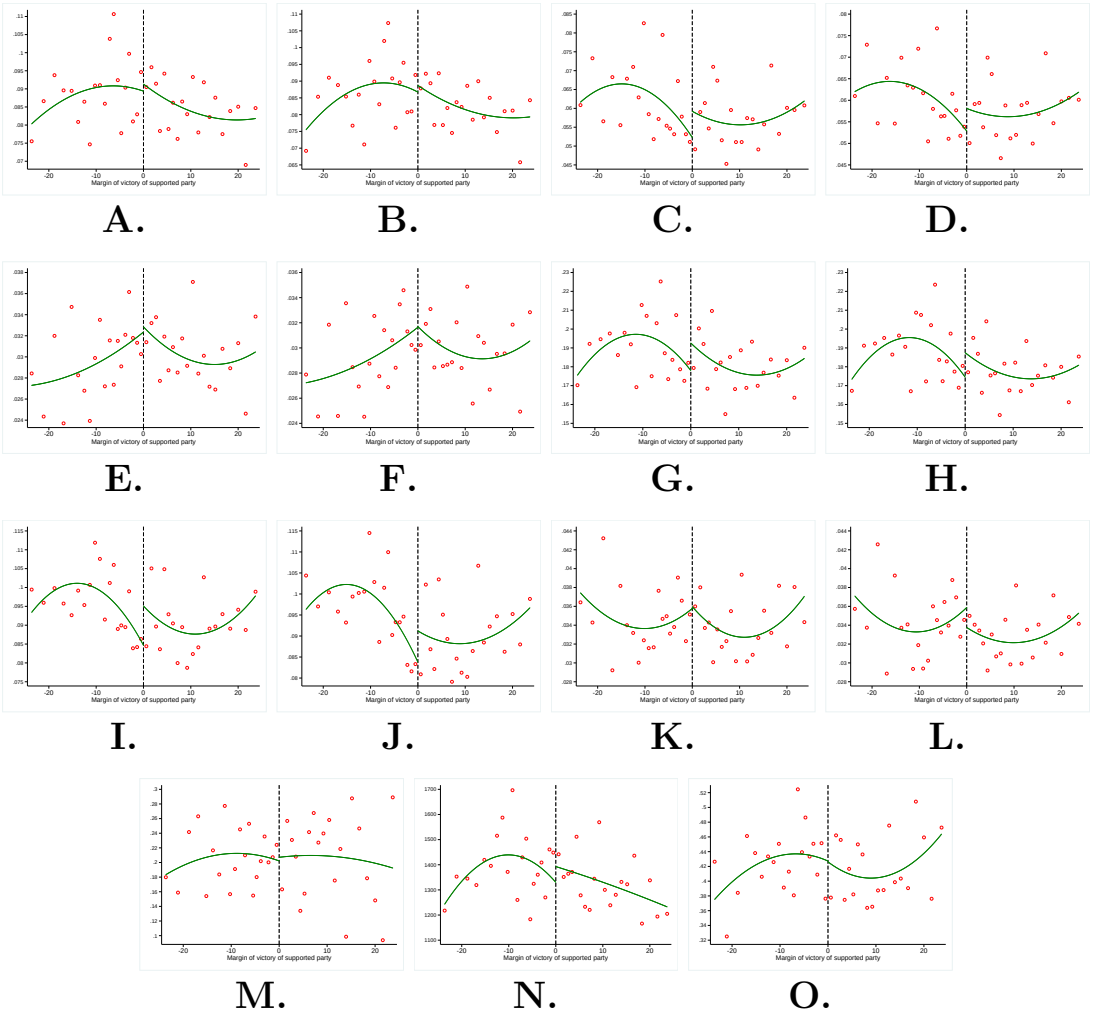
Notes: The figure shows shows graphical evidence for the smoothness of candidates' covariates in the pre-election period. Panel A: Employed Frontline High Skills t=0. Panel b: Employed Frontline High Skills t=-1. Panel C: Employed Frontline High Skills t=0. Panel D: Employed Frontline High Skills t=-1. Panel E: Employed Frontline Low Skills t=0. Panel F: Employed Frontline Low Skills t=-1. Panel G: Employed Qualified t=0. Panel H: Employed Qualified t=-1. Panel I: Employed Public-Discretionary t=0. Panel J: Employed Public-Discretionary t=-1. Panel K: Employed Unqualified t=0. Panel L: Employed Unqualified t=-1. Panel M: Secondary School. Panel N: High School. Panel O: University Degree. Panel P: Mincer Sample. Panel Q: Incumbent. Panel R: Male. Panel S: Residual Ability Score. Panel T: President Party. Panel U: Run Past Election. Panel V: Governor Party . Panel W: Party Already in Power

FIGURE A4. **Smoothness of Covariates at the Cutoff – Donors (Part 1)**



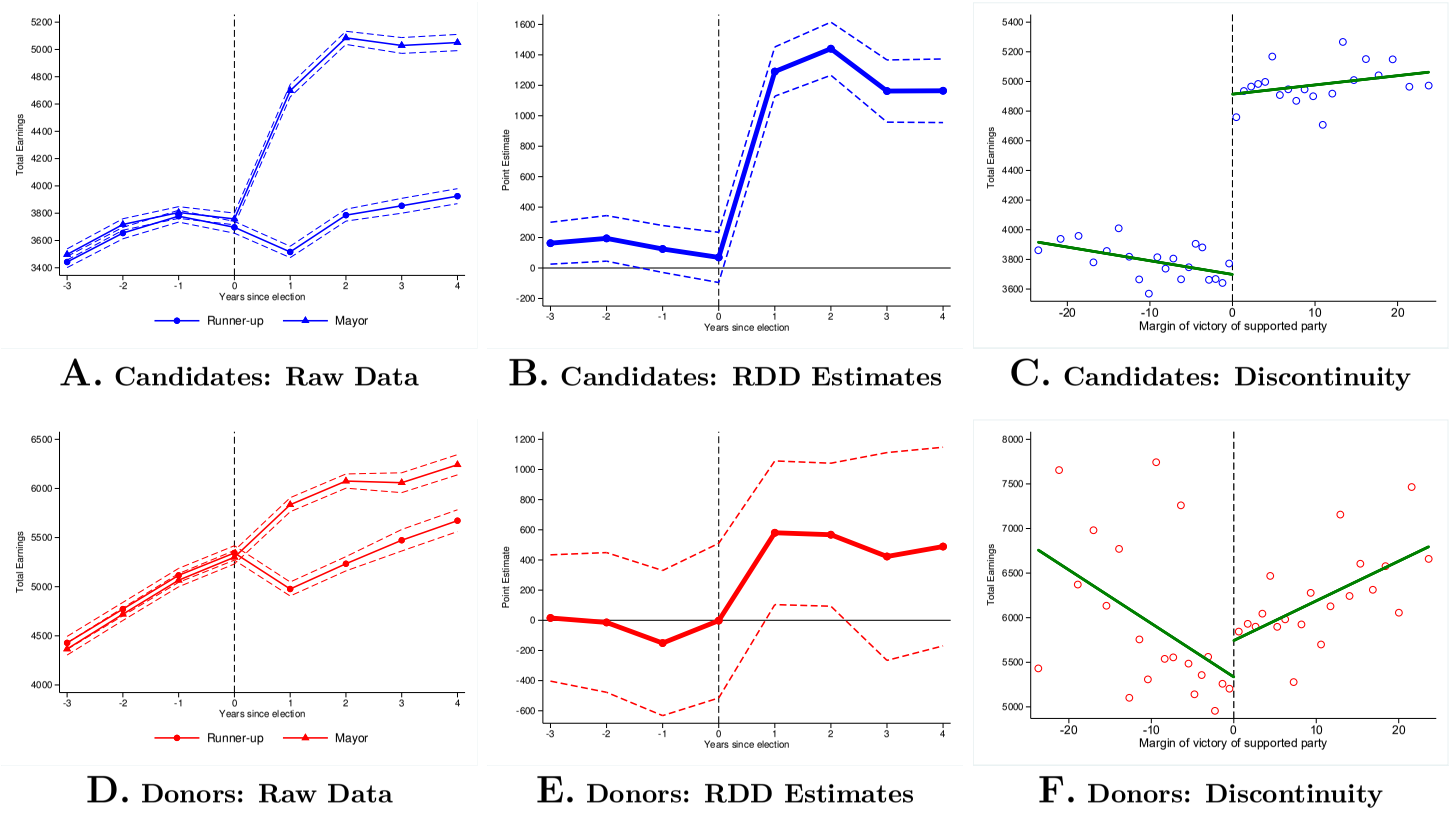
Notes: The figure shows shows graphical evidence for the smoothness of donors' covariates in the pre-election period. Panel A: Fed. Government Party. Panel B: Mincer Sample. Panel C: Residual Ability Score. Panel D: President Party. Panel E: Earnings Private t=0. Panel F: Earnings Private t=-1. Panel g: Earnings Public t=0. Panel H: Earnings Public t=-1. Panel I: Earnings Total t=0. Panel J: Earnings Total t=-1. Panel K: Employed Any t=0. Panel L: Employed Any t=-1. Panel M: Employed Private t=0. Panel N: Employed Private t=-1. Panel O: Employed Public t=0. Panel P: Employed Public t=-1. Panel Q: Employed Public Concurso t=0. Panel R: Employed Public Concurso t=-1. Panel S: Employed Bureaucrat - Manager t=0. Panel T: Employed Bureaucrat - Manager t=-1

FIGURE A5. **Smoothness of Covariates at the Cutoff – Donors (Part 2)**



Notes: The figure shows shows graphical evidence for the smoothness of donors' covariates in the pre-election period. Panel A: Employed Frontline High Skills t=0. Panel b: Employed Frontline High Skills t=-1. Panel C: Employed Frontline High Skills t=0. Panel D: Employed Frontline High Skills t=-1. Panel E: Employed Frontline Low Skills t=0. Panel F: Employed Frontline Low Skills t=-1. Panel G: Employed Qualified t=0. Panel H: Employed Qualified t=-1. Panel I: Employed Public-Discretionary t=0. Panel J: Employed Public-Discretionary t=-1. Panel K: Employed Unqualified t=0. Panel L: Employed Unqualified t=-1. Panel M: Governor Party. Panel N: Amount of Contributions. Panel O: Party Already in Power.

FIGURE A6. **Effect of Supporting the Winning Party on Total Earnings**



A. Candidates: Raw Data **B.** Candidates: RDD Estimates **C.** Candidates: Discontinuity

D. Donors: Raw Data **E.** Donors: RDD Estimates **F.** Donors: Discontinuity

Notes: The figure shows the estimated effect of supporting the winning party on total earnings. The top panels focus on the sample of candidates (2000-2012 period) while the bottom panels focus on donors (2004-2012 period). Panels (a) and (d) show the raw data, namely average total earnings for supporters of the elected mayor (triangles) and for supporters of the runner-up (circles), from three years before to four years after the election, with 95% confidence intervals. Panels (b) and (d) plot the estimated β_k coefficients from equation (4.2), with 95% confidence intervals based on standard errors double clustered at the supporter and election level. Panels (c) and (f) show the average total earnings in the 4 years after the election, by bins of the margin of victory of the party supported, and the best-fit lines on both sides of the discontinuity computed on the underlying data. The sample in Panels (a), (b), (d), (e) is restricted to elections with a 5 percentage points margin of victory between the winner and the runner-up.

TABLE A1. **Additional Descriptive Statistics on Political Supporters**

Variable	(1) Mean	(2) Std. Dev.	(3) Min	(4) Max	(5) Observations
Panel A: Candidates					
Times Candidate	1.39	0.74	1	4	1,031,083
Times Elected	0.21	0.60	0	4	1,031,083
Ever Elected	0.14	0.35	0	1	1,031,083
Number of Parties	1.72	0.69	1	4	274,792
Amount Spent in Race	1,474	23,515	0	13,426,718	1,079,734
Age	43.48	10.85	18	100	1,435,675
Male	0.76	0.43	0	1	1,436,252
Less than Middle School	0.28	0.45	0	1	1,436,387
Middle School	0.22	0.41	0	1	1,436,387
High School	0.35	0.48	0	1	1,436,387
College	0.16	0.36	0	1	1,436,387
Panel B: Donors					
Number Elections	1.07	0.27	1	3	1,057,216
Number of Parties	1.08	0.41	1	21	1,057,216
Amount Donated	727.23	5,795	0	5,609,230	1,144,191
Donated to Winning Coalition	0.48	0.5	0	1	1,144,191

Notes: The table presents summary statistics on the electoral careers and demographic characteristics of the universe of candidates to a Brazilian municipal council (Panel A) and of donors in municipal elections (Panel B) analyzed in the paper. *Times Candidate* is the number of elections in which an individual runs, *Times Elected* is the number of elections in which an individual is elected to the council, *Ever Elected* is an indicator equal to one if the individual was ever elected to the council, *Number of Parties* is the number of different parties to which the candidate was affiliated (with summary statistics calculated only on the subsample of individuals running in multiple elections), *Amount Spent in Race* is the amount of money (in 2000 Brazilian Reals) spent by a candidate in the race (sample restricted to the 2004-2012 period), *Age* is the age of the individual at the time of the election, *Male* is an indicator for the candidate being male, *Less than Middle School*, *Middle School*, *High School* and *College* are indicator variables for a supporter's highest level of education. The unit of observation is an individual-election, except in the first four rows, where it is an individual. *Number Elections* is the number of elections in which an individual donated, *Number of Parties* is the number of different parties to which the individual donated, *Amount Donated* is the amount of money (in 2000 Brazilian Reals) spent by a candidate in the race, *Donated to Winning Coalition* is an indicator equal to one if the donation was directed to a party or a candidate in the coalition of the mayoral candidate who will be elected. The unit of observation is an individual for the variables *Times Candidate*, *Times Elected*, *Ever Elected*, *Number of Parties*, *Number Elections* and *Number of Parties*.

Table A2. **Balance of Covariates: Candidates**

Covariate	(1) Coefficient	(2) P-value	(3) Mean Cont. Group	(4) Observations	(5) Supporters	(6) Elections
Earnings Public t=0	66.332	0.389	2,613	254,848	233,238	5,413
Earnings Private t=0	21.740	0.454	794	254,848	233,238	5,413
Earnings Total t=0	69.593	0.407	3,697	254,848	233,238	5,413
Employed Private t=0	-0.004	0.179	0.113	254,848	233,238	5,413
Employed Public t=0	0.008	0.140	0.255	254,848	233,238	5,413
Employed Any t=0	0.002	0.696	0.379	254,848	233,238	5,413
Employed Qualified t=0	0.004	0.451	0.216	191,805	178,993	4,154
Employed Unqualified t=0	0.003	0.364	0.057	191,805	178,993	4,154
Employed Bureaucrat - Manager t=0	0.002	0.588	0.038	192,232	179,338	4,154
Employed Bureaucrat - Lower Level t=0	0.005	0.153	0.102	192,232	179,338	4,154
Employed Frontline High Skills t=0	-0.001	0.862	0.063	192,232	179,338	4,154
Employed Frontline Low Skills t=0	0.001	0.750	0.072	192,232	179,338	4,154
Employed Public-Concurso t=0	0.007	0.091	0.177	254,848	233,238	5,413
Employed Public-Discretionary t=0	0.001	0.716	0.078	254,848	233,238	5,413
Earnings Public t=-1	95.992	0.188	2,664	254,848	233,238	5,413
Earnings Private t=-1	34.461	0.234	816.5	254,848	233,238	5,413
Earnings Total t=-1	124.925	0.111	3,778	254,848	233,238	5,413
Employed Private t=-1	-0.000	0.970	0.118	254,848	233,238	5,413
Employed Public t=-1	0.007	0.172	0.267	254,848	233,238	5,413
Employed Any t=-1	0.007	0.160	0.396	254,848	233,238	5,413
Employed Qualified t=-1	0.003	0.510	0.223	191,191	178,466	4,154
Employed Unqualified t=-1	0.003	0.318	0.062	191,191	178,466	4,154
Employed Bureaucrat - Manager t=-1	0.003	0.339	0.044	191,710	178,881	4,154
Employed Bureaucrat - Lower Level t=-1	0.004	0.215	0.102	191,710	178,881	4,154
Employed Frontline High Skills t=-1	-0.001	0.656	0.069	191,710	178,881	4,154
Employed Frontline Low Skills t=-1	0.001	0.724	0.071	191,710	178,881	4,154
Employed Public-Concurso t=-1	0.007	0.075	0.178	254,848	233,238	5,413
Employed Public-Discretionary t=-1	0.000	0.953	0.089	254,848	233,238	5,413
Mincer Sample	0.004	0.242	0.264	254,848	233,238	5,413
Residual Ability Score	-0.065	0.478	-0.681	67,445	63,423	5,060
Secondary School	-0.002	0.700	0.216	252,805	231,500	5,413
High School	-0.002	0.639	0.347	252,805	231,500	5,413
University Degree	0.008	0.015	0.147	252,805	231,500	5,413
Age	0.075	0.457	43.44	254,676	233,092	5,411
Male	0.000	0.929	0.762	254,824	233,216	5,413
Run Past Election	-0.000	0.993	0.343	254,848	233,238	5,413
Incumbent	-0.002	0.651	0.129	254,848	233,238	5,413
Party Already in Power	0.013	0.457	0.354	194,252	180,895	4,154
Governor Party	0.005	0.819	0.22	254,848	233,238	5,413
Fed. Government Party	0.014	0.321	0.483	254,848	233,238	5,413
President Party	0.012	0.472	0.109	254,848	233,238	5,413
Contributions Received	98.115	0.395	2,111	194,252	180,895	4,154
Contributions Spent	94.133	0.413	2,105	194,252	180,895	4,154

Notes: The table shows balance tests for candidates' covariates in the pre-election period. The coefficients and p-values in columns 1 and 2 are from regressions of the covariate on an indicator for treatment status (supporting the winning mayor), controlling for margin of victory and including election (*i.e.* municipality times election year) fixed effects, focusing on mayoral races decided by a margin of victory of 5 percentage points or less. Column 3 reports the mean of the covariate in the control group, namely among supporters of the runner-up party. *Earnings Public/Private/Total* are annual earnings in the public, private, and formal economy, respectively, in the year of the election (t=0) or the year before the election (t=-1). *Employed Public/Private/Any* are indicators taking value one if the supporter is employed in the public, private, and formal economy, respectively, in the year of the election (t=0) or the year before the election (t=-1). *Employed Bureaucrat - Manager/Bureaucrat - Lower Level/Frontline High Skills/Frontline Low Skills* are indicators taking value one if the supporter is employed in a public sector occupation in the specific category, in the year of the election (t=0) or the year before the election (t=-1). *Employed Qualified/Unqualified* are indicators taking value one if the supporters is employed in a public sector job for which she is qualified/unqualified in terms of education, in the year of the election (t=0) or the year before the election (t=-1). *Employed Public-Concurso/Discretionary* are indicators taking value one if the supporter is employed in a "meritocratic"/discretionary public sector job in the year of the election (t=0) or the year before the election (t=-1). *Mincer Sample* is an indicator taking value one if the supporter was ever employed in the private sector before her first election. *Residual Ability Score* is a continuous measure of ability derived using the approach described in section A.3. *Secondary School*, *High School*, and *University Degree* are indicators taking value one if the supporter's highest level of education is secondary school, high school, or university, respectively. *Age* is the supporter's age at the time of the election. *Male* is an indicator for the supporter being male. *Run Past Election* is an indicator taking value one if the candidate run also in the previous election. *Incumbent* is an indicator taking value one if the candidate had a seat in the municipal council at the time of the election. *Party Already in Power*, *Governor Party*, *Fed. Government Party*, *President Party* are indicators taking value one if the candidate's party is in the ruling coalition in power in the municipality at the time of the election, is the same as the state governor's party, is in the coalition of parties in the federal government, is the party of the Federal President, respectively. *Contributions Received* are the amount of contributions received by the candidate. *Contributions Spent* are the amount of contributions spent by the candidate in the race. P-values are based on standard errors clustered at the election level.

Table A3. **Balance of Covariates: Donors**

Covariate	(1) Coefficient	(2) P-value	(3) Mean Cont. Group	(4) Observations	(5) Supporters	(6) Elections
Earnings Public t=0	181.207	0.404	3,211	180,886	177,590	3,162
Earnings Private t=0	-42.408	0.594	1,481	180,886	177,590	3,162
Earnings Total t=0	-2.222	0.993	5,344	180,886	177,590	3,162
Employed Private t=0	-0.001	0.857	0.192	180,886	177,590	3,162
Employed Public t=0	0.010	0.342	0.222	180,886	177,590	3,162
Employed Any t=0	0.009	0.359	0.423	180,886	177,590	3,162
Employed Qualified t=0	0.007	0.496	0.183	180,040	176,783	3,162
Employed Unqualified t=0	0.003	0.342	0.035	180,040	176,783	3,162
Employed Bureaucrat - Manager t=0	0.006	0.287	0.044	180,463	177,178	3,162
Employed Bureaucrat - Lower Level t=0	0.001	0.842	0.088	180,463	177,178	3,162
Employed Frontline High Skills t=0	0.001	0.758	0.056	180,463	177,178	3,162
Employed Frontline Low Skills t=0	0.002	0.473	0.032	180,463	177,178	3,162
Employed Public-Concurso t=0	0.007	0.296	0.134	180,886	177,590	3,162
Employed Public-Discretionary t=0	0.003	0.667	0.089	180,886	177,590	3,162
Earnings Public t=-1	130.829	0.517	3,013	180,886	177,590	3,162
Earnings Private t=-1	-117.652	0.126	1,487	180,886	177,590	3,162
Earnings Total t=-1	-151.033	0.539	5,116	180,886	177,590	3,162
Employed Private t=-1	-0.002	0.802	0.198	180,886	177,590	3,162
Employed Public t=-1	0.010	0.336	0.22	180,886	177,590	3,162
Employed Any t=-1	0.006	0.496	0.427	180,886	177,590	3,162
Employed Qualified t=-1	0.008	0.372	0.181	180,052	176,800	3,162
Employed Unqualified t=-1	0.001	0.630	0.036	180,052	176,800	3,162
Employed Bureaucrat - Manager t=-1	0.006	0.310	0.045	180,497	177,210	3,162
Employed Bureaucrat - Lower Level t=-1	0.001	0.762	0.087	180,497	177,210	3,162
Employed Frontline High Skills t=-1	0.000	0.917	0.055	180,497	177,210	3,162
Employed Frontline Low Skills t=-1	0.002	0.348	0.031	180,497	177,210	3,162
Employed Public-Concurso t=-1	0.006	0.344	0.132	180,886	177,590	3,162
Employed Public-Discretionary t=-1	0.004	0.598	0.088	180,886	177,590	3,162
Mincer Sample	0.002	0.745	0.384	180,886	177,590	3,162
Residual Ability Score	-0.481	0.107	0.32	68,134	67,243	2,828
Party Already in Power	0.039	0.367	0.435	180,886	177,590	3,162
Governor Party	0.005	0.909	0.208	180,886	177,590	3,162
Fed. Government Party	0.039	0.457	0.546	180,886	177,590	3,162
President Party	0.030	0.475	0.119	180,886	177,590	3,162
Amount of Contributions	-17.667	0.842	1,387	180,886	177,590	3,162

Notes: The table shows balance tests for donors' covariates in the pre-election period. The coefficients and p-values in columns 1 and 2 are from regressions of the covariate on an indicator for treatment status (supporting the winning mayor), controlling for margin of victory and including election (*i.e.* municipality times election year) fixed effects, focusing on mayoral races decided by a margin of victory of 5 percentage points or less. Column 3 reports the mean of the covariate in the control group, namely among supporters of the runner-up party. *Amount of Contributions* is the donor's amount contributed to the party and coalition of the supported mayor. See Table A2 for a description of the other covariates listed in column 1.

Table A4. **Balance of Covariates: Mayoral Candidate-Level Variables**

Covariate	(1) Coefficient	(2) P-value	(3) Mean Cont. Group	(4) Observations	(5) Elections
Governor Party	-0.027	0.288	0.217	10,842	5,421
Number of Parties in Coalition	-0.022	0.846	4.365	10,842	5,421
Incumbent Party	0.010	0.703	0.261	10,842	5,421
Number of Candidates	-0.353	0.589	23.090	10,831	5,418
Number of Donors	0.770	0.790	25.440	7,074	3,912
DEM	-0.014	0.166	0.037	10,842	5,421
PCdoB	0.001	0.762	0.005	10,842	5,421
PDT	0.008	0.523	0.061	10,842	5,421
PFL	0.003	0.861	0.078	10,842	5,421
PL	-0.004	0.651	0.025	10,842	5,421
PMDB	-0.017	0.493	0.208	10,842	5,421
PMN	-0.001	0.832	0.007	10,842	5,421
PP	0.008	0.559	0.070	10,842	5,421
PPB	-0.003	0.780	0.028	10,842	5,421
PPS	-0.002	0.845	0.036	10,842	5,421
PR	-0.002	0.870	0.031	10,842	5,421
PRB	-0.002	0.665	0.006	10,842	5,421
PSB	-0.021	0.081	0.051	10,842	5,421
PSC	0.000	0.979	0.011	10,842	5,421
PSD	0.008	0.388	0.027	10,842	5,421
PSDB	0.010	0.629	0.134	10,842	5,421
PT	0.015	0.334	0.077	10,842	5,421
PTB	0.005	0.708	0.072	10,842	5,421
PV	0.003	0.630	0.010	10,842	5,421

Notes: The table shows balance tests for donors' covariates in the pre-election period. The coefficients and p-values in columns 1 and 2 are from regressions of the covariate on an indicator for treatment status (winning the election), controlling for margin of victory and including election (*i.e.* municipality times election year) fixed effects, focusing on mayoral races decided by a margin of victory of 5 percentage points or less. Column 3 reports the mean of the covariate in the control group, namely in the party of the runner-up party. *Governor Party* is an indicator equal to one if the mayoral candidate's party is the party in power at the state level. *Number of Parties in Coalition* is the number of parties supporting the mayoral candidate. *Incumbent* is an indicator equal to one if the mayoral candidate's party is the incumbent party in the municipality. *Number of Candidates/Donors* are the number of candidates/donors who are supporters of the mayoral candidate. The covariates in rows 6 to 24 are indicators equal to one if the mayoral candidate belongs to that specific party (considering only parties involved in at least 50 close races over the sample period).

Table A5. **Effect of Supporting the Winning Party – Winning versus Losing Candidates**

Dependent Variable:	(1)	(2)	(3)	(4)
	Employed Public		Total Earnings	
Type of Candidates:	Winners	Losers	Winners	Losers
Mayor	0.025	0.148	558.741	1,465.270
	(0.008)	(0.006)	(154.770)	(91.555)
Observations	160,918	705,352	160,918	705,352
Mean D.V. Runner-up	0.259	0.237	4,173	3,650
Supporters	41,841	196,802	41,841	196,802
Elections	5,322	5,412	5,322	5,412

Notes: The table presents the estimated β from equation (4.1), and the dependent variable is an indicator for employment in the public sector (columns 1-2) or total earnings (columns 3-4). Results in columns (1) and (3) are estimated on the sample of candidates to the council who won a seat in the council. Results in columns (2) and (4) are estimated on the sample of candidates to the council who did not win a seat. The sample is restricted to supporters of the winning party or of the runner-up in a close election, using a 5 percentage points margin of victory to define an election as close. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Standard errors are shown in parentheses and are double clustered at the supporter and election level.

Table A6. **Effect of Supporting the Winning Party on Public and Private Earnings**

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)
	Earnings Public			Earnings Private		
Group of Supporters:	All	Candidates	Donors	All	Candidates	Donors
Mayor	1,224.376	1,369.761	858.287	-110.537	-97.927	-145.062
	(94.321)	(74.758)	(188.512)	(35.889)	(27.366)	(84.661)
Observations	1,447,538	867,888	550,832	1,447,538	867,888	550,832
Mean D.V. Runner-up	2,702	2,565	2,935	1,155	877	1,606
Supporters	418,146	233,238	177,590	418,146	233,238	177,590
Elections	5,419	5,413	3,162	5,419	5,413	3,162

Notes: The table presents the estimated β from equation (4.1), and the dependent variable is an indicator for earnings in the public sector (columns 1-3) or earnings in the private sector (columns 4-6). Results in columns (1) and (4) are estimated on the sample of all supporters. Results in columns (2) and (5) are estimated on the sample of candidates to the local council, and results in columns (3) and (6) are estimated on the sample of donors. The sample is restricted to supporters of the winning party or of the runner-up in a close election, using a 5 percentage points margin of victory to define an election as close. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Standard errors are shown in parentheses and are double clustered at the supporter and election level.

TABLE A7. **Effect of Supporting the Winning Party – Optimal Bandwidth and 1 Percentage Points Margin of Victory Bandwidth**

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:	Employed Public			Total Earnings		
Group of Supporters:	All	Candidates	Donors	All	Candidates	Donors
Panel A: Optimal Bandwidth						
Mayor	0.105	0.125	0.068	1,106.230	1,244.982	944.790
	(0.004)	(0.003)	(0.008)	(95.392)	(56.826)	(254.085)
Observations	2,278,488	1,806,364	1,081,180	2,634,886	1,756,230	785,970
Optimal Bandwidth	8.086	11.503	10.041	9.564	11.105	7.031
Mean D.V. Runner-up	0.226	0.239	0.203	4,458	3,733	5,607
Supporters	645,309	448,366	345,675	737,166	437,685	254,966
Elections	8,366	11,188	5,898	9,654	10,883	4,361
Panel B: 1 Percentage Point Margin of Victory Bandwidth						
Mayor	0.103	0.112	0.082	1,026.271	1,077.375	402.621
	(0.011)	(0.012)	(0.019)	(286.876)	(194.306)	(454.269)
Observations	274,248	171,602	96,458	274,248	171,602	96,458
Mean D.V. Runner-up	0.223	0.240	0.197	4,260	3,751	5,249
Supporters	81,798	49,089	31,063	81,798	49,089	31,063
Elections	1,092	1,091	622	1,092	1,091	622

Notes: The table presents the estimated β from equation (4.1), and the dependent variable is an indicator for employment in the public sector (columns 1-3) or total earnings (columns 4-6). Results in columns (1) and (4) are estimated on the sample of all supporters. Results in columns (2) and (5) are estimated on the sample of candidates to the local council, and results in columns (3) and (6) are estimated on the sample of donors. In Panel A, the sample is restricted to supporters of the winning party or of the runner-up in a close election, using an outcome- and sample-specific margin of victory to define close races, calculated using the optimal bandwidth selection procedure following Calonico et al. (2014). In Panel B, the sample is restricted to supporters of the winning party or of the runner-up in a close election, using a 1 percentage points margin of victory to define an election as close. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Standard errors are shown in parentheses and are double clustered at the supporter and election level.

TABLE A8. **Effect of Supporting the Winning Party – By Connection Type**

Group of Supporters	(1)	(2)	(3)	(4)	(5)
	Candidates		Donors		
Connection to:	Party	Coalition	Mayor	Party	Coalition
Panel A: Dep. Var. is Employment Probability:					
Mayor	0.136	0.117	0.114	0.071	0.033
	(0.007)	(0.006)	(0.014)	(0.016)	(0.012)
Mean D.V. Runner-up	0.243	0.242	0.211	0.193	0.187
Panel B: Dep. Var. is Total Earnings:					
Mayor	1,452.576	1,150.620	1,230.035	1,039.502	-138.243
	(123.499)	(105.860)	(433.514)	(432.049)	(401.280)
Mean D.V. Runner-up	3,731	3,805	5,586	5,400	4,968
Observations	335,568	498,690	204,450	103,746	164,338
Supporters	90,367	141,524	66,211	33,390	55,359
Elections	5,327	4,586	2,151	1,641	1,738

Notes: The table presents the estimated β from equation (4.1), and the dependent variable is an indicator for employment in the public sector (Panel A) or total earnings (Panel B). Results in column 1 consider candidates running in the mayoral candidate's party. Results in column 2 consider candidates running in other parties in the mayoral candidate's coalition. Results in column 3 consider donors to a mayoral candidate. Results in column 4 consider donors to the party of the mayoral candidate (but not to the mayoral candidate directly). Results in column 5 consider donors to other parties in the mayoral candidate's coalition. The sample is restricted to supporters of the winning party or of the runner-up in a close election, using a 5 percentage points margin of victory to define an election as close. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Standard errors are shown in parentheses and are double clustered at the supporter and election level.

TABLE A9. **Effect of Supporting the Winning Party for Different Types of Public Sector Occupations – Candidates and Donors**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Var. is Employment as:	Bureaucrat Manager		Bureaucrat Lower Level		Frontline High Skills		Frontline Low Skills	
	Candidates	Donors	Candidates	Donors	Candidates	Donors	Candidates	Donors
Panel A: Type of occupation								
Mayor	0.069	0.031	0.040	0.020	0.015	0.006	0.016	0.010
	(0.004)	(0.004)	(0.003)	(0.004)	(0.003)	(0.005)	(0.003)	(0.002)
Observations	609,018	548,694	609,018	548,694	609,018	548,694	609,018	548,694
Mean D.V. Runner-up	0.027	0.030	0.054	0.047	0.099	0.089	0.066	0.031
Supporters	177,659	177,011	177,659	177,011	177,659	177,011	177,659	177,011
Elections	4,153	3,159	4,153	3,159	4,153	3,159	4,153	3,159
Panel B: Contract Type								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Var. is Employment as:	Concurso		Discretionary		Municipal		State/Federal	
	Candidates	Donors	Candidates	Donors	Candidates	Donors	Candidates	Donors
Mayor	0.040	0.019	0.084	0.048	0.134	0.075	-0.010	-0.008
	(0.004)	(0.006)	(0.004)	(0.006)	(0.005)	(0.007)	(0.002)	(0.004)
Observations	867,888	550,832	867,888	550,832	867,888	550,832	867,888	550,832
Mean D.V. Runner-up	0.174	0.131	0.067	0.068	0.152	0.116	0.088	0.082
Supporters	233,238	177,590	233,238	177,590	233,238	177,590	233,238	177,590
Elections	5,413	3,162	5,413	3,162	5,413	3,162	5,413	3,162

Notes: The table presents the estimated β from equation (4.1), and the dependent variables are indicators for employment in the occupational category of the public sector indicated in the title of the column. Panel A focuses on the type of occupation. Panel B focuses on the type of contract. Odd columns show results for candidates, while even columns show results for donors. The sample is restricted to supporters of the winning party or of the runner-up in a close election, using a 5 percentage points margin of victory to define an election as close. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Standard errors are shown in parentheses and are double clustered at the supporter and election level.

Table A10. **Public Sector Wage Premium**

Type of Job	(1) All Jobs	(2) Managerial Occupations	(3) Professional Occupations	(4) White Collar Lower Lev	(5) Blue Collar Workers
Panel A: Dep. Var. is Log Wage:					
Public	0.072	0.074	0.219	0.066	0.037
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R-squared	0.453	0.304	0.451	0.335	0.359
Panel B: Dep. Var. is Log Hourly Wage:					
Public	0.160	0.222	0.227	0.183	0.136
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R-squared	0.478	0.297	0.424	0.345	0.353
Observations	529,460,038	23,076,149	93,673,711	101,602,667	311,107,509

Notes: The table presents the public sector wage premium across four occupational categories. The dependent variable is the log of wage in Panel A and the log of hourly wage in Panel B, and the variables are winsorized at the 1% level. All regressions include controls for the worker's job tenure, the worker's age, municipality fixed effects, year fixed effects, and 43 fixed effects for the occupational group. The sample includes all worker-job pairs in the Brazilian public and private sector over the 2003-2014 period. Standard errors are shown in parentheses.

Table A11. **Patronage and Selection – Bureaucrats vs Frontline Providers**

Panel A: Educational qualifications						
Type of Job	Bureaucrats			Frontline		
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var. is Employment in Public Job Requiring:	Middle School Degree	High School Degree	University Degree	Middle School Degree	High School Degree	University Degree
Mayor X Qualified	0.000	-0.002	0.011	-0.010	-0.001	-0.026
	(0.000)	(0.002)	(0.003)	(0.002)	(0.002)	(0.006)
Mayor	0.000	0.041	0.058	0.017	0.006	0.012
	(0.000)	(0.003)	(0.004)	(0.002)	(0.002)	(0.002)
Qualified	0.001	0.048	0.023	0.011	0.033	0.329
	(0.000)	(0.002)	(0.002)	(0.001)	(0.001)	(0.005)
Observations	601,354	601,354	601,354	601,354	601,354	601,354
Mean D.V. Runner-up	0.000	0.026	0.021	0.027	0.015	0.024
Supporters	175,845	175,845	175,845	175,845	175,845	175,845
Elections	4,152	4,152	4,152	4,152	4,152	4,152
Panel B: Previous Private Earnings						
Type of Job	Bureaucrats			Frontline		
	(1)	(2)	(3)	(4)	(5)	(6)
Group of Supporters:	All Supporters	Candidates	Donors	All Supporters	Candidates	Donors
Mayor x Tercile 3	-0.020	-0.041	-0.004	-0.019	-0.026	-0.008
	(0.005)	(0.008)	(0.006)	(0.004)	(0.008)	(0.005)
Mayor x Tercile 2	-0.005	-0.007	-0.002	-0.008	-0.009	-0.009
	(0.005)	(0.008)	(0.006)	(0.004)	(0.008)	(0.005)
Mayor	0.086	0.146	0.034	0.030	0.035	0.028
	(0.007)	(0.010)	(0.008)	(0.006)	(0.009)	(0.007)
Tercile 3	-0.006	-0.011	-0.005	-0.006	-0.010	-0.006
	(0.002)	(0.004)	(0.003)	(0.003)	(0.005)	(0.004)
Tercile 2	-0.005	-0.005	-0.002	-0.001	-0.006	0.001
	(0.002)	(0.004)	(0.003)	(0.003)	(0.005)	(0.004)
Observations	201,382	82,022	117,048	201,382	82,022	117,048
Mean D.V. Runner-up	0.041	0.046	0.038	0.056	0.065	0.050
Supporters	66,140	26,108	39,402	66,140	26,108	39,402
Elections	3,343	2,998	2,499	3,343	2,998	2,499
Panel C: Residual Ability Score						
Type of Job	Bureaucrats			Frontline		
	(1)	(2)	(3)	(4)	(5)	(6)
Group of Supporters:	All Supporters	Candidates	Donors	All Supporters	Candidates	Donors
Mayor x Tercile 3	-0.027	-0.020	-0.021	-0.004	0.001	-0.008
	(0.004)	(0.007)	(0.006)	(0.005)	(0.008)	(0.006)
Mayor x Tercile 2	-0.017	-0.008	-0.022	0.002	0.004	-0.006
	(0.005)	(0.007)	(0.006)	(0.005)	(0.008)	(0.006)
Mayor	0.117	0.153	0.073	0.034	0.039	0.028
	(0.007)	(0.009)	(0.010)	(0.006)	(0.009)	(0.008)
Tercile 3	-0.037	-0.032	-0.039	-0.081	-0.080	-0.067
	(0.003)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
Tercile 2	-0.040	-0.033	-0.039	-0.079	-0.076	-0.068
	(0.003)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
Observations	376,784	170,796	204,396	376,784	170,796	204,396
Mean D.V. Runner-up	0.102	0.098	0.102	0.176	0.199	0.146
Supporters	122,806	53,731	68,683	122,806	53,731	68,683
Elections	3,945	3,865	3,084	3,945	3,865	3,084

Notes: The table presents the estimated coefficients from equation (6.1). In Panel A, the dependent variables are indicators for employment in a public sector job that requires a middle school degree (columns 1 and 4), high school degree (columns 2 and 5) and university degree (columns 3 and 6). $Qualified$ is an indicator equal to one if the supporter has an educational level that qualifies her for the job. The sample includes candidates to the local council. In Panel B, *Tertile 2* and *Tertile 3* are indicators equal to one if supporters fall in the second or third tercile, respectively, of supporters' private sector earnings in the years before the election. In Panel C, *Tertile 2* and *Tertile 3* are indicators equal to one if supporters fall in the second or third tercile, respectively, of supporters' Residual Ability Scores, calculated as explained in Section 6.1. Columns 1-3 focus on jobs as bureaucrats, while columns 4-6 focus on jobs as frontline providers. The sample is restricted to supporters of the winning party or of the runner-up in a close election, using a 5 percentage points margin of victory to define an election as close. "Mean D.V. Runner-up" shows the average of the dependent variable in the post-election period for the supporters of the runner-up who are unqualified for the job (Panel A) or in the bottom tercile (Panels B and C). Standard errors are shown in parentheses and are double clustered at the supporter and election level.

Appendix A.2. Returns from Donations

In this section, we explain how we calculate the return on donors' investment, introduced in Section 5.3. Calculating returns from donations is not straightforward. Ideally, we would like to estimate the effect of being connected to the winning mayoral candidate on total earnings after the election, *conditional on the amount donated*, for the close races of our sample. This would allow us to construct, for each given donation amount, the return on investment. In practice, doing this would require a sufficiently high number of donors donating exactly the same amount who are involved in close races. We therefore approximate this computation as follows:

- We divide the donors on the two sides into BRL 50 bins, based on the amount donated. We keep the 37 such bins with at least 200 donors falling in the bin, in order to have enough power to estimate the return.
- For each bin k and year $t = \{1, 2, 3, 4\}$ after the election, we separately estimate the effect of supporting the winning mayoral candidate on total earnings, in each t ($\hat{\beta}_{kt}$) (focusing only on close elections).
- The return on investment for donor i contributing $c_i \in k$ is then:

$$Return_i = \frac{\frac{1}{2}\sum_{t=1}^{4} \frac{\hat{\beta}_{kt}}{(1+r)^t} - c_i}{c_i}$$

  where r is the discount rate in the election year corresponding to the given donation. This return is calculated summing the discounted total earnings caused by the donation, and multiplying this sum by the probability that the investment pays off (i.e., that the supported mayoral candidate wins), which is assumed to be 50% since these are close elections, and therefore a toss-up race.

Using this approach, we find that the median return on investment is of BRL 1.89 for BRL 1 donated. However, if we exclude donors who contributed less than BRL 50, this drops to a lower, albeit still sizable, BRL 1.18 for BRL 1 donated. This drop can be rationalized by the fact that, as documented in Figure 3 in the paper, we find a sizable treatment effect on employment probability even for donors making small contributions.

Two are the main limitations of this approach. First, we are not considering the precision of the estimates ($\hat{\beta}_{kt}$) in the computation of the expected return. Second, and as discussed in Section 5.3 of the paper, the amount of money donated by a supporter cannot be considered exogenous. Our estimates should be interpreted with these caveats in mind.

Appendix A.3. Mincer Regression Approach

As discussed in Section 6.1, in order to obtain a measure of supporters' individual ability that goes beyond easily observable individual characteristics, we follow the approach in Besley et al. (2017) and Dal Bó et al. (2017).

We estimate a series of Mincer earnings regressions for each year between 1995 and 2014 using information on all Brazilian private sector employees. We use observations for candidates and donors only in years before the first election in which they run/donate. Specifically, we take residuals from the following regression, which is estimated for each year and separately for men and women, in order to account for gender-specific differences in labor-market outcomes :

$$y_{i,m,t} = f(age_{i,t}, education_{i,t}, sector_{i,t}) + \alpha_m + \epsilon_{i,m,t} \tag{A1}$$

where $y_{i,m,t}$ are hourly private sector earnings of individual i working in municipality m in year t, $age_{i,t}$ are a set of age fixed effects (over 5-years intervals), $education_{i,t}$ are four fixed effects for individual educational level (less than middle school, middle school degree, high school degree, university degree), $sector_{i,t}$ are fixed effects for the sector of i's firm. We include a full-set of interactions between these variables, as well as municipality fixed effects (α_m) to account for location-specific differences in earnings. Our residual ability score is the average of each individual's residuals across all years in which she is employed in the private sector.