

Patronage and Selection in Public Sector Organizations

**Emanuele Colonnelli
Mounu Prem
Edoardo Teso**

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EMANUELE COLONNELLI*, MOUNU PREM‡, AND EDOARDO TESO†

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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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*University of Chicago, Booth School of Business. emanuele.colonnelli@chicagobooth.edu.

‡Universidad del Rosario, Department of Economics. francisco.munoz@urosario.edu.

†Northwestern University, Kellogg School of Management. edoardo.teso@kellogg.northwestern.edu.

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 extremely 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 use temporary contracts and other exempt job categories to exert significant influence in the selection of public sector workers (Grindle, 2012). In this sense, Brazil is a paradigmatic example of the way in which political elites manage to retain discretion in the allocation of public jobs after the introduction of a civil service system, potentially leaving the door open to patronage practices.

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

¹We 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).

²Patronage 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).

combine data from two sources. First, we use a matched employer-employee dataset covering the entire public sector for the 1997–2014 period. Second, we use administrative data on about 2,000,000 political supporters of local parties. These supporters are either political candidates in local elections, or campaign donors to a local party. Based on a candidate’s party affiliation or on the recipient of a donor’s contribution, we can clearly link these individuals to the local party they support. 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.³ 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, and amount of support provided to a party, as well as 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 exploit quasi-experimental variation in connection to the party in power. Our strategy compares supporters of the winning party in a municipal election (i.e., the party of the elected mayor) to supporters of the losing party in the same election (i.e., the party of the runner-up mayoral candidate). Since there may be unobservable factors influencing both an individual’s public sector career and the electoral strength of her party, we focus on elections where the margin of victory of the winning party over the runner-up is small, in a regression discontinuity design.⁴ For this specific subset of competitive electoral races, whether a party wins or loses the election — and therefore the set of individuals who become politically connected to the party in power — can be considered “as good as” random. To support this assumption, we show that supporters of the two sides in these elections are not different across a large set of pretreatment characteristics. 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

³We are able to perfectly match individuals across datasets using a tax identifier that is available in both datasets.

⁴In our baseline specification, we focus on elections where the winning party and the runner-up are within a 5 percentage points difference, but we show robustness of our estimates to restricting this bandwidth to 3 or 1 percentage points.

22.5% employment probability in the control group, this represents a striking 47% increase.⁵ This effect is large and statistically significant for both groups of political supporters we analyze, implying that both connections established through electoral support and through financial contributions to a party matter.

In the second step of the analysis, we conduct several empirical 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 (both in managerial positions and at lower levels of the hierarchy) and as frontline providers (both for jobs requiring high and low skills). Additionally, in line with the quid pro quo nature of patronage relationships, the extent of preferential access to public jobs enjoyed by a supporter, and the associated monetary returns, are monotonically increasing in the amount of support provided.⁶

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 public workforce ideological alignment to its mission, and, on the other, supporters may derive utility from working under a party that shares their views.

We provide three 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 analyze the public employment outcomes of supporters in neighboring municipalities. That is, assume that party p wins the election in municipality m . We show that individuals who supported the campaign of party p , but in an election in a municipality that neighbors m (i.e., did not directly support the mayor elected in municipality m), do not enjoy significant preferential access to public jobs in municipality m . To the extent that ideology is shared within a party, and that geographical proximity allows individual to easily access jobs in a neighboring municipality, we would expect — counter to what we find — that these individuals would also enjoy preferential access to public jobs if an ideology mechanism was at play. In other words, we find that ideological alignment does not matter per se, but only when coupled with the provision of political support in an election. Third, we show that our results are similar when we compare the outcomes of politically connected individuals to those of a

⁵Our 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%.

⁶As measures of the intensity of support we use the number of votes contributed to the party for political candidates, and the amount of money donated to the campaign of the party for donors.

control group of local workers who do not support any party, using a difference-in-differences design. This casts doubts on the possibility that our regression discontinuity estimates may be picking up a lower willingness to work in the public sector by supporters of the losing party.

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 the careers of supporters of the winning party to be 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 if the pool of competent political supporters is not large enough. We measure competence using three measures based on administrative data. First, for all the 2,511 occupation categories in Brazil, we manually collect information on the educational requirements to adequately perform each one of them. 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. Importantly, we validate these measures by showing that they are positively correlated with several measures of public service delivery. 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., 2014](#); [Ashraf et al., 2016](#); [Fisman and Wang, 2017](#); [De-serranno, 2017](#); [Khan et al., 2016](#); [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 is [Akhtari et al. \(2017\)](#), which, in the context of Brazil, shows that political discretion on public employment decisions can negatively affect public education provision, as political turnover leads to disruption in school personnel. In a recent paper, [Xu \(2018\)](#) studies how patronage affects bureaucrats' incentives in the historical context of the British Empire, showing that socially connected governors perform worse during periods characterized by political discretion in the appointment of governors.⁷ Related to our paper is also [Weaver \(2017\)](#), which shows how bribery in the hiring process of rural community health workers can lead to the selection of higher quality workers when competence and willingness to bribe are positively correlated. Our paper contributes to this literature by using detailed micro-data across the entire public sector hierarchy, to provide the first empirical 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.⁸

More broadly, by showing that political incentives affect government hiring and the competence of bureaucrats, we speak to the literature on the role of social incentives in organizations ([Ashraf and Bandiera, 2017](#)). Finally, we contribute to a long literature on the role of political connections for firms ([Fisman, 2001](#); [Khwaja and Mian, 2005](#); [Faccio, 2006](#); [Faccio et al., 2006](#); [Cingano and Pinotti, 2013](#); [Schoenherr, 2017](#)) and individuals ([Markussen and Tarp, 2014](#); [Gagliarducci and Manacorda, 2017](#); [Folke et al., 2017](#); [Labonne and Fafchamps \(2017\)](#)).

⁷Other studies of patronage include [Folke et al. \(2011\)](#) and [Ujhelyi \(2014\)](#), which exploit the different timing of the introduction of civil service systems across U.S. states to study its impact on incumbents' re-election probability and allocation of government spending, respectively. The theoretical literature on patronage has emphasized how redistribution through public sector jobs emerges as a credible way of rewarding clients since it solves the political-commitment problem between the client and the patron ([Robinson and Verdier, 2013](#)). [Acemoglu et al. \(2011\)](#) argue that inefficient states based on patronage can emerge and persist as the result of a winning coalition between the elites, who are interested in limiting redistribution, and the bureaucrats, who are interested in maintaining their rents. [Drugov \(2015\)](#) underlines how patronage can lead workers to increase effort due to the prospects of promotion.

⁸In a recent paper, [Brollo et al. \(2017\)](#) conducted an analysis similar to ours, using aggregate data and a different set of individuals (registered party members in Brazil), which are matched to the employer-employee data we use by name, rather than tax identifiers. They find results similar to ours, but with a more limited analysis of the mechanisms behind the results.

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 government hiring. 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. 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.⁹ 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 (Ferraz and Finan, 2011), elected candidates are not

⁹Therefore, 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 (respectively, coalition) can present a maximum of $1.5S$ (respectively, $2S$) candidates, where S is the total number of council seats in the municipality.

required to give up their outside jobs upon election, as being a legislator is a part-time activity.¹⁰

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.¹¹ 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 (Afonso and Araújo, 2000; 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 Público*), 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.

Nevertheless, public sector workers can also be hired without a civil service examination, under three special exempt categories: commissioned posts (*cargos comissionados*), 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.¹² 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.¹³

Further political discretion in public hiring is given for jobs that “meet a temporary need of exceptional public interest” (Article 37 IX of the Brazilian Constitution). In these cases,

¹⁰As described in Ferraz and Finan (2011), 98% of legislators elected in the 2004 election reported having another professional activity outside of politics. In our data, we indeed find no evidence that candidates elected to the council give up their external jobs.

¹¹Up 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.

¹²The difference between positions of trust and commissioned posts is that the former requires that the individual is already employed as a civil servant.

¹³For example, in 2012, the mayor of Jundiaí 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 http://www.mpsp.mp.br/portal/page/portal/noticias/noticia?id_noticia=14608320&id_grupo=118, accessed September 2018.

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.¹⁴

Finally, anecdotal evidence indicates widespread fraud 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.¹⁵

3. DATA

We assemble an individual-level longitudinal dataset combining information from two main sources. Data on the universe of Brazilian public sector employees 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 Brazilian Electoral Commission (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 (Ministério do Trabalho e Emprego), which provides information on the universe of workers in both the public and private sector.¹⁶ Unique workers' and employers' 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*

¹⁴For instance, in 2015, the public prosecutor of Pernambuco accused the mayor of Belo Jardim of illegally hiring 574 teachers through temporary contracts. See <http://www.mppe.mp.br/mppe/index.php/comunicacao/noticias/ultimas-noticias-noticias/5162-mppe-denuncia-ex-prefeito-de-belo-jardim-por-contratacoes-ilicitas-de-professores>, accessed September 2018.

¹⁵See <http://g1.globo.com/fantastico/noticia/2012/06/golpe-transforma-concursos-publicos-em-cabides-de-e.html>, accessed September 2018.

¹⁶Two 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. Importantly, throughout the analysis, when we talk about labor market outcomes in the public sector we are excluding the jobs of elected candidates as local legislators.

Brasileira de Ocupações 2002 – CBO).¹⁷ 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).¹⁸

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 the Superior Electoral Court (*Tribunal Superior Eleitoral* – TSE). The TSE provides information on election results, both for mayoral candidates and for candidates to the local council.¹⁹ 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 identification number (*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.

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.²⁰

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

¹⁷Before 2002, a different occupational classification was used by the Brazilian Ministry of Labor. In order to maintain a unique classification throughout our analysis, we focus on the period 2003–2014 for all results that rely on information on a worker’s occupation. In unreported analysis, we find results to be quantitatively and qualitatively unchanged when using a bridge between the classification systems.

¹⁸Categorization 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 Frontline provider - Low Skills.

¹⁹For 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.

²⁰Appendix Tables A1 and A2 provide further summary statistics on the candidates and donors in our sample.

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.²¹

3.3. Matching and Final Dataset. We are able to perfectly match our datasets of candidates and donors to *RAIS* using the tax identifier *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), with the remaining supporters therefore being either unemployed, informal workers, self-employed, or elected politicians.

We construct a panel dataset at the supporter-year-sector level (as individuals can be employed both in the private and public sector at the same time), with information on employment status, annual earnings, and job characteristics.²²

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 lower than earnings in the population (median wages are similar), 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

In this section, we estimate the causal impact of being politically connected to the winning party on an individual’s career in the public sector. Figure 1 provides a stylized fact based on the raw data that motivates our main empirical analysis below. It plots political

²¹Results are largely unaffected when using the party instead of the coalition as unit of analysis. For some of the results presented in the paper, the party (not the coalition), is the most appropriate unit of analysis. When we focus only on supporters of a mayoral candidate’s party (rather than on supporters of any party in that coalition) we explicitly note this in the text.

²²All earnings measures are expressed in 2000 Brazilian Reals, and are winsorized at the 1% level. 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 Menezes-Filho et al. (2008) and Colonnelli and Prem (2017).

supporters’ average public employment probabilities around municipal election years, distinguishing candidates and donors on the basis of the party they support in a given election. Supporters of the winning party experience a sharp increase in public sector employment probability in the election year; this probability remains higher during the electoral term, and partly dissipates afterwards. Of course, these patterns are purely descriptive, since they could reflect underlying differences between individuals who decide to become supporters of winning or losing parties. For instance, individuals who are unemployed and therefore more likely to seek a public job may decide to support the party more likely to win the election, in the hope of obtaining a job. Hence, in the paper we rely on a regression discontinuity design (RDD) in close electoral races to causally establish the importance of political connections in the selection of public workers.

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.

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.²³

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.²⁴ 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:

$$(4.1) \quad y_{ikpmt} = \beta \text{Mayor}_{pmt} + \theta_k \text{MV}_{pmt} + \gamma_{kmt} + \epsilon_{ikpmt}$$

where y_{ikpmt} is the labor market outcome of supporter i , 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. The main dependent variables are total public sector earnings

²³This approach is standard in the literature (Lee and Lemieux, 2010). See, among others, Fisman et al. (2014).

²⁴This corresponds to an election where the winning party receives at most 52.5% of the votes and the runner-up receives at least 47.5% of the votes, if there were only two parties competing in the mayoral election (this is the case for 47% of the elections in the 2000–2012 period). We also computed the optimal bandwidth following the procedure in Calonico et al. (2014), which delivers bandwidths larger than 5 percentage points. Since this optimal bandwidth is outcome-specific, in order to maintain a fixed sample throughout our results we chose to use the more conservative 5 percentage points bandwidth in all specifications. As we show in the Appendix, our estimates are robust to even more conservative bandwidths of 3 and 1 percentage points.

and an indicator variable for working in the public sector. 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 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, namely the average difference in public sector employment probability and earnings, over the four years following the election, between the supporters of the winning party and the supporters of the runner-up party in the same 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:

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

The coefficients β_s captures the effect of supporting the winning party on public sector employment probability and earnings s years before/after the election year.

The identification assumption implies that potential outcomes are continuous around the zero margin of victory cutoff. While the validity of this assumption is ultimately untestable, Appendix Tables A3 and A4 show that supporters of the two sides are not different before the election across a wide array of labor market, political, and demographic characteristics.²⁵

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). Figure 2 reports the point estimates obtained from the estimation of the more flexible equation (4.2).²⁶

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 public sector earnings in the four years following the election. 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

²⁵Only 1 out of 39 covariates is significantly different between candidates of the two sides, while no covariate is statistically different in the sample of donors; importantly, all magnitudes are small.

²⁶Appendix Figure A1 reports a non-parametric representation of the results where we show the raw data dynamics for elections decided by a margin of 5 percentage points or less.

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). As shown in Figure 2, and consistent with the dynamics in the raw data in Appendix Figure A1, the effect fully materializes at the time of the election and persists for the whole post-election period. These higher employment probabilities translate into significant relative increases in public sector earnings (53% and 29% for candidates and donors, respectively).

Figure 3 provides 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 (Panel A) and donors (Panel B). Interestingly, the effect looks largely independent of the distance from the zero margin of victory cutoff, thus suggesting that our findings may likely generalize to all municipal elections.

4.3. Robustness of the findings and additional results. The Appendix provides a plethora of robustness tests, as well as additional results. Appendix Figure A2 shows the distribution of the estimates across the 7,696 elections over the 2004–2012 period that are decided by a margin of victory of 10% or less. We find that political connections are important across the vast majority of elections, thus suggesting that our results are not driven by specific outliers and are representative of a nationwide phenomenon.²⁷

Appendix Tables A5 and A8 present results where we rely on the optimal bandwidth selection procedure by Calonico et al. (2014). In Appendix Tables A6, A7, A9 and A10 we restrict the bandwidth to a 3 percentage points and 1 percentage point margin of victory, respectively. Appendix Table A11 shows that our findings are not driven by any specific electoral cycle. Appendix Table A12 shows that our findings are robust to defining as “connected” only supporters of the specific party (instead of coalition) of the winning mayoral candidate. Appendix Figure A5 and Appendix Table A13 show that there is a symmetric effect of winning versus losing a connection to the party in power.²⁸

Appendix Table A14 reports our findings split by the type of public body allocating the public job. We find that the whole effect is driven by jobs allocated by the municipal government in the supporter’s municipality, namely the jobs for which the mayor has direct discretion.

We find additional corroborating evidence for the importance of discretion for the selection of politically connected individuals in Appendix Table A15, where we find that the effects are

²⁷Each election-specific estimate is constructed by calculating, for each of these elections, the average difference in public sector employment probability over the four years following the election between the supporters of the winning party and the supporters of the runner-up party in the same election.

²⁸Appendix A.2 discusses how, in order to estimate these effects, we combine the RDD design with a difference-in-differences model.

especially concentrated among temporary jobs where the law gives leeway to the politicians to circumvent public examination requirements (as discussed in Section 2.2).²⁹

Appendix Table A16 restricts attention to candidates and shows that political connections lead to better public sector outcomes for both those winning a seat in the local council and those who do not, even though the effects are mostly driven by the latter larger category.³⁰

Appendix Table A17 takes into account private sector outcomes and finds that the positive effects on public sector outcomes is only partly offset by a decrease in private sector earnings. Indeed, as shown in Panel B, supporters of the winning party are more likely to be employed in the formal economy and earn higher wages even when we combine both private and public sector outcomes together.

In sum, the results of this section show that political connections significantly affect an individual's career in the public sector. In the next sections, we first discuss how several patterns in the data are consistent with patronage being an important driver of these estimates. We then investigate the impact of patronage on selection by identifying the types of individuals for whom political connections represent an especially important driver of public sector employment.

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 selection and 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. 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.

²⁹We rely on *RAIS* data on contract type to identify such cases. Since the contract classification in *RAIS* is not detailed enough to single out specific commissioned posts and positions of trust, our measurement is imperfect and, in particular, it is conservative in that it identifies as discretionary only a subset of the full set of such jobs.

³⁰These results can suggest the presence of an informal within-coalition insurance. Candidates may spend considerable financial resources as well as time in the race, and can therefore be attracted to politics by the promise of a public sector job in the negative state of the world in which they do not win a council seat, while they are automatically rewarded with a high wage as elected official and other perks from office if they are elected.

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 mechanisms are at all operational, 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. Leveraging information on the specific occupation of each political supporter, we can investigate these patterns in the data.

Table 3 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).³¹ These patterns are qualitatively similar for both candidates and donors.

Figure 4 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.³² 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. 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. We can measure the amount of political support

³¹See Figure A3 for a graphical representation of these results.

³²Each 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.

using data on electoral performance (for candidates) and on the amount of donations to the campaign (for donors).

Starting with candidates,³³ we rank them into quintiles based on their vote share distribution within the coalition they support.³⁴ 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 estimate a similar version of this specification for donors, where the quintiles are computed using the amount of money donated to the political campaign.

Figure 5 gives a graphical representation of the results, using employment probability (top panels) and earnings in the public sector (bottom panel) as dependent variables, while Appendix Table A18 presents the results in table format. We observe a strictly monotonic relationship between the extent of preferential treatment and the amount of political support provided, as predicted by a patronage quid pro quo mechanism. For instance, the treatment effect on public sector earnings is 78% higher for candidates in the third quintile of the vote share distribution relative to candidates in the bottom quintile, and the treatment effect for candidates in the top quintile is two times higher relative to candidates in the third quintile. The patterns are similar if we look at a donor's amount of financial support: moving from the bottom to the third quintile of the distribution increases the treatment effect by 123%, and the treatment effect for donors in the top quintile is two times higher relative to donors in the third quintile.

5.3. 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 an ideological mechanism. 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 partly 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. Yet, in principle ideological alignment could indeed be beneficial for all types of occupations, as workers who are ideologically aligned with the mayor's party may be motivated to increase effort since they care about the mission of

³³Candidates obtaining a large number of personal votes are valuable to the mayor's coalition for two reasons. First, since council seats are awarded to a coalition in proportion to the total number of votes received by its candidates, more successful candidates increase the overall number of seats awarded to the coalition. Second, 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 brought to the mayor.

³⁴We focus on the political candidates who fail to obtain a seat in the local council, which, as discussed in section 4.2, are the individuals driving the vast majority of the effect.

their organization.³⁵ Moreover, there may be a labor supply response by supporters of the winning party, who may be more likely to seek a public job because they derive utility from working for a party that shares their views. 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.

We can provide several 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 the supporters who have run or donated in the previous election as well, and we then 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 previous election.³⁶ The rationale for this test is that if ideology matters, and loyalty to the party is a good proxy for it, then party loyals should benefit more when their party is in power. However, contrary to this prediction, Panel A of Table 4 shows no significant differences in the estimated effects in these different subsamples. If anything, we find that “loyals” are rewarded less than “switchers” among donors (even if this difference is not statistically significant).

As a second test to gauge the extent to which ideology is a main driver of our results, we investigate whether preferential access to public jobs extends to supporters of the mayor’s party located in a different, but neighboring municipality.³⁷ 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 enjoy preferential access to public jobs if an ideology mechanism was at play. Panel B of Table 4 shows that this is not the case. While the mayor’s direct supporters enjoy a 15.6 percentage points increase in public employment probability, the effect, while statistically significant in one specification, becomes essentially zero for candidates and donors of that party from neighboring municipalities.³⁸

Finally, as mentioned earlier, ideological matching may also induce a labor supply response by supporters of the losing party: because of an ideological aversion to the party in power, they may be less willing than supporters of the winning party to work in the public sector.

³⁵See, for example, Ashraf et al. (2014), Tonin and Vlassopoulos (2010), DellaVigna and Pope (2018).

³⁶As electoral coalitions can change across election cycles, in this test we consider the party, not the coalition, as the unit of analysis.

³⁷Specifically, 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. We further restrict the sample to neighboring municipalities where these parties did not win, so as to ensure that these supporters do not enjoy preferential access to jobs in their own municipality. As electoral coalitions change across municipalities, this test considers the party, not the coalition, as the unit of analysis.

³⁸We find similar results if we further restrict the sample by considering as neighboring only those municipalities whose geographic centroids are distant less than 20 kilometers. This effectively drops municipalities comprising a large area, as for these cases individuals may incur high commuting costs to access jobs in a neighboring municipality.

Appendix Table A20 casts doubts on this interpretation, as it documents the presence of a significant public sector wage premium across all occupational categories, which makes it unlikely that ideological aversion per se is able to offset such lucrative opportunities.³⁹ We provide additional evidence against this channel by comparing political supporters of the winning party to a control group of local workers who do not support any party, in a difference-in-differences framework discussed in Appendix A.3. Estimating the impact of being connected to the winning party relative to this counterfactual aims to purge ideology aversion from our estimate. As shown in Appendix Figure A6 and Appendix Table A19, the magnitude of these estimates are similar to those of our regression discontinuity design, thus alleviating the concern that our estimates are picking up purely a negative labor supply response by the supporters of the losing party.

Overall, while these tests cannot completely rule out that shared ideology between mayors and supporters explains part of the estimated preferential treatment, they do suggest that it is unlikely for this explanation to be a significant driver of the effects that we observe.

5.4. 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 affected by subsequent changes of parties in power. On the other hand, if patronage is at play, we would expect the career of public sector workers to be linked to the fortunes of the party they support.

We examine these predictions in the data 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 4.⁴⁰ We then estimate the following equation:

$$(5.1) \quad y_{ikmpt} = \sum_{s=-3}^{+4} \beta_s^{Both} MayorBoth_{pmt} \mathbb{1}(s = k) + \sum_{s=-3}^{+4} \beta_s^{One} MayorOne_{pmt} \mathbb{1}(s = k) + \theta_k MV_{pmt} + \gamma_{kpt} + \epsilon_{ikmpt}$$

³⁹We estimate this premium after conditioning on job and worker characteristics, and considering both total and hourly wages.

⁴⁰In 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 over election cycles.

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 $k = 4$. The excluded category is comprised of supporters of parties losing elections 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 6 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 4.⁴¹

These patterns show that public sector jobs allocated to supporters are deeply linked to the fortunes of their party, which is consistent with patronage relationships being an important driver of the preferential treatment that we observe.

6. POLITICAL CONNECTIONS AND SELECTION EFFECTS IN THE PUBLIC SECTOR

The evidence so far highlights the striking importance of political connections in government hiring and seems consistent with a clientelistic interpretation where parties engage in patronage practices in exchange for electoral support. In this section, we ask whether and how 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, a direct prediction of a patronage mechanism is that the role of political connections in granting preferential access to public jobs should be especially pronounced at the bottom of the competence distribution, i.e., for individuals whose competence level makes it harder to obtain a public job through meritocratic procedures.

We test this prediction by constructing three measures of individual competence, which we validate by showing that they predict the quality of local public service delivery. We then show that the preferential access enjoyed by politically connected individuals is especially concentrated among those who score lower along these competence measures.

⁴¹While we restrict the sample to supporters of parties involved in a close race in the first election, one may be concerned that supporters of a party that loses power in the subsequent election are different than supporters whose party maintains power. In Figure A4 we show that the patterns discussed above hold true even when we focus only on the subset of parties involved in a close mayoral race in both the election taking place in period 0 and in the election taking place in period 4.

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

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, collected from the *Classificação Brasileira de Ocupações 2002* and as described in Section 3.1. Each public sector occupation is categorized as requiring a middle school degree, a high school degree, or a college degree. With this measure at hand, we can test whether the extent of preferential treatment is more or less sizable among supporters who have an educational level that qualifies them for a specific public job.

Second, we consider another common measure: private sector earnings. As in Dal Bó et al. (2013), we consider a supporter's private sector 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 regress their private sector earnings on year times municipality fixed effects, to account for temporal and regional variation in private sector opportunities; we then use the residuals of this regression as our measure of competence.⁴² We then divide supporters in terciles based on the residualized earnings distribution among all supporters in their same coalition. We use this measure to test whether the role of political connections in granting preferential access to public jobs is more concentrated at the bottom, at the middle, or at the top of the distribution.

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 worker- and job-specific characteristics. This is a more nuanced version of our second measure above, where the intuition is simple: private sector workers who earn more relative to workers in the same sector and with the same demographic characteristics are likely to be of higher ability. The residuals from the Mincer earnings regression can therefore be used as a proxy for unobserved worker ability. We estimate one Mincer regression for each year between 1995 and 2014 using information on all private sector employees, and separately for men and women, in order to account for gender-specific differences in labor-market outcomes. Following Dal Bó et al. (2017), we control 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. Our residual ability score is the average of each individual's residuals across all years in which she is employed in the private sector. Additional details

⁴²For individuals who are employed in the formal private sector in both years preceding the election, we assign them the average of the residuals.

on the Mincer approach are presented in Appendix A.4. Again, we divide supporters in terciles based on the distribution of residual ability scores among all supporters in their same coalition, which allows us to test whether the extent of preferential treatment is more or less sizable among supporters who have higher ability along dimensions that are harder to observe than education and private sector earnings.

In Appendix Table A22 we report a matrix of pairwise correlations for the three measures we construct.⁴³ The table shows that our competence measures are not highly correlated, thus suggesting that each measure may be capturing a different dimension of individual competence. Indeed, we find that education has a correlation of 0.1837 and -0.1532 with private sector earnings and residual ability, respectively, while there is a correlation of 0.4274 between private sector earnings and residual ability.

6.2. Validating the Competence Measures. Given that the above measures are ultimately just proxies for individual competence, it is crucial to establish that they do matter for welfare. Hence, we analyze whether a municipality whose public sector workforce is more competent, based on these measures, is more likely to be characterized by a better provision of public goods. We first calculate, for each municipality and year, averages of these measures across all public sector workers. We then relate these measures to the quality of service provision in two important areas where municipal-level public sector workers play a key role: primary education and healthcare.

As indicators for the quality of education, we use test scores from *Prova Brasil*, a standardized exam administered to public school students in the fourth and eighth grade. We average each student's test scores in math and Portuguese and then take the average in the municipality.⁴⁴

As for healthcare, we construct quality indicators using data from the National System of Information on Live Births, which provides a near universal coverage of birth records. Following Fujiwara (2015), we consider the share of mothers who received seven or more prenatal visits as a first measure of quality of services provided by healthcare professionals. As an additional standard measure, we use the municipality-level infant mortality rate. The data are available for the 1999–2014 period.

Appendix Table A21 reports results from a series of regressions of the above public service delivery measures on our measures of public workforce competence.⁴⁵ We use measures of competence calculated both for the entire municipality public workforce and separately for

⁴³Since our first measure of educational mismatch is job-specific, we report the correlations using years of education instead.

⁴⁴The exam is administered every two years. We use publicly available data for 2007, 2009, 2011, and 2013. Schools with less than 20 students enrolled in the fourth and eighth grade do not participate in the *Prova Brasil* exam, slightly reducing the available sample size.

⁴⁵All regressions include a set of time-varying municipality controls as well as state and year fixed effects. In particular, we always include the respective competence measure calculated among the municipality private

public workers in the education and health sectors. We find that all our measures are positively correlated with quality of public services (although the coefficients on infant mortality rate are not statistically significant across all measures). The magnitude of the correlations is often large.⁴⁶ For instance, two municipalities that are one standard deviation apart in the share of qualified public workers in the education sector are characterized by a 0.04 standard deviation difference in fourth graders' test scores, and by a 0.056 standard deviation difference in eight graders' test scores. Similarly, a one standard deviation increase in the residual ability score among municipal health workers is correlated with a 0.021 standard deviation increase in the share of mothers receiving seven or more prenatal visits.

In sum, these findings show that our measures of individual competence are positively associated with efficiency in public service delivery.

6.3. Estimating Selection Effects. We aim to test whether and how the importance of political connections depends on political supporters' competence level. To do so, we estimate various specifications of the following form:

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

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 whether and how the extent of preferential treatment varies as a function of a supporter's competence level.

Table 5 presents the results when we use educational qualifications as a measure of competence.⁴⁷ 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 in period k supporter i 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

sector workforce, to control for the overall quality of a municipality's workforce. Standard errors are clustered at the municipality level.

⁴⁶The last row of each panel reports the standardized effects, i.e., the coefficient multiplied by the standard deviation of the quality measure and divided by the standard deviation of the dependent variable.

⁴⁷Since 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. We have information on donors' education only for those that we match to *RAIS*, but conducting the analysis only on this selected subsample would result in biased estimates since the treatment (i.e., being connected to the mayor) affects the probability of having a public sector job and thus of being matched to *RAIS*. On the other hand, since we have data on candidates' education also from *TSE*, we have this information for all candidates independently on whether they are matched to *RAIS*.

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 5.5 percentage points for qualified supporters and of 7 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. For this specification, 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 the supporter being in the top tercile (Q_i^H). Low competence supporters in the bottom tercile represent the excluded category. Panel A of Table 6 illustrate these findings. We find that the effect is disproportionately 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). Patronage practices in public employment are especially relevant for the selection of less competent supporters, as measured by skills that are valued by the private sector.⁴⁸

Finally, we rely on the residual ability scores. With this analysis we aim to investigate whether the extent of preferential treatment is more or less sizable among supporters who are of lower competence along dimensions that are harder to observe. We report these results in Panel B of Table 6, which is analogous to Panel A, 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.

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

⁴⁸For brevity, in the tables we do not report the coefficients on the un-interacted tercile indicator variables. Both these coefficients are negative, consistent with supporters with a high opportunity cost being on average less likely to select into the public sector.

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 the first systematic account of patronage in the selection of public sector 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 on their career in the public sector. Then, we exploit variation in connection to the party in power using the outcome of extremely competitive electoral races, which allows us to closely match the ideal experiment where we “randomly” allocate political connections to individuals.

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.⁴⁹

Of course, our investigation is limited by the nature of our quasi-experiment, as we cannot speak to several related questions of interest. For example, we cannot causally identify the impact of patronage on public sector delivery, even though our results on selection, as well as recent work on the negative impact of patronage on bureaucrats’ incentives (Xu, 2018), strongly suggest that patronage has substantial negative effects. Furthermore, the use of public jobs in exchange for political support naturally increases the tendency of political turnover to generate turnover in public personnel, which recent work in the same context shows to lead to worse public goods provision (Akhtari et al., 2017). 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 would also be of great policy interest to understand whether patronage leads to an excessively large bureaucracy. Future empirical work could shed light on these issues by focusing on historical or contemporary contexts that, compared to ours, provide more suitable study grounds to answer these questions.

⁴⁹Brazil scores the highest among all countries in a recent analysis of the meritocracy in public employment decisions across Latin America (Iacoviello, 2006).

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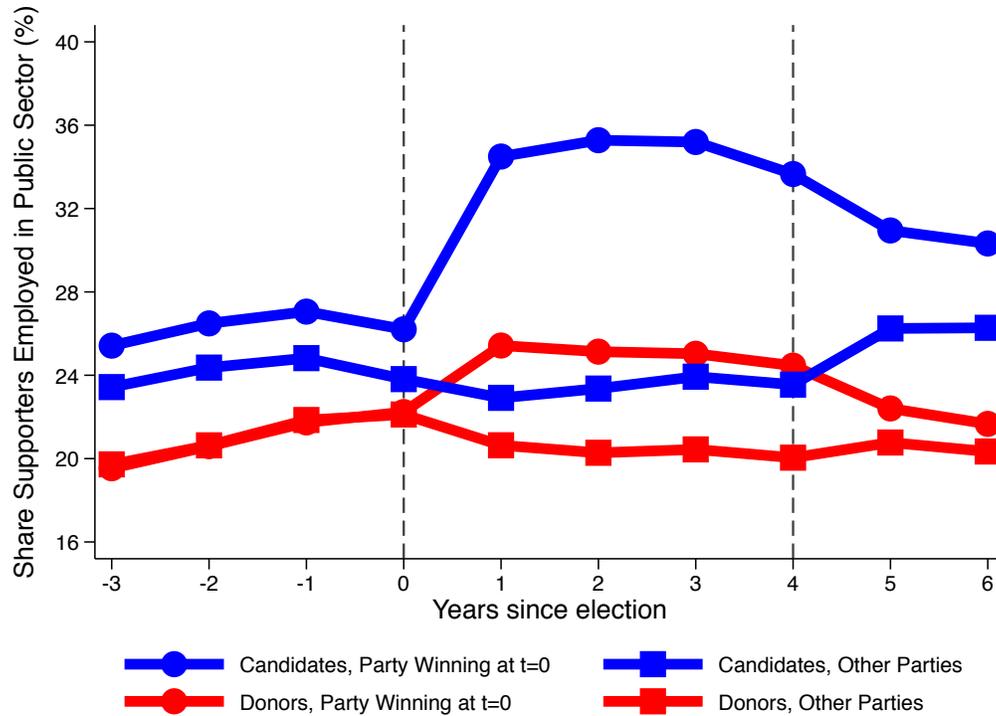
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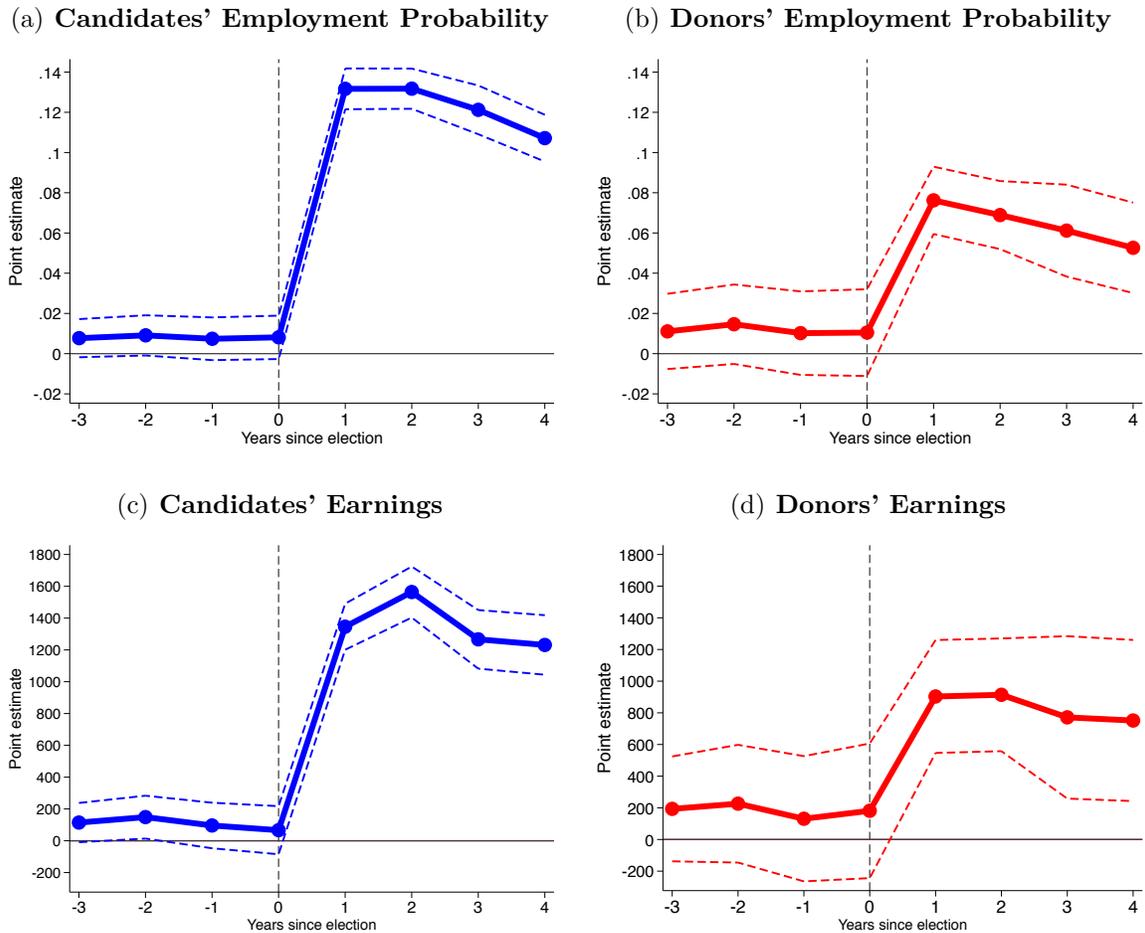
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FIGURE 1. Political Supporters Are More Likely to Be Public Employees When the Party They Support is in Power



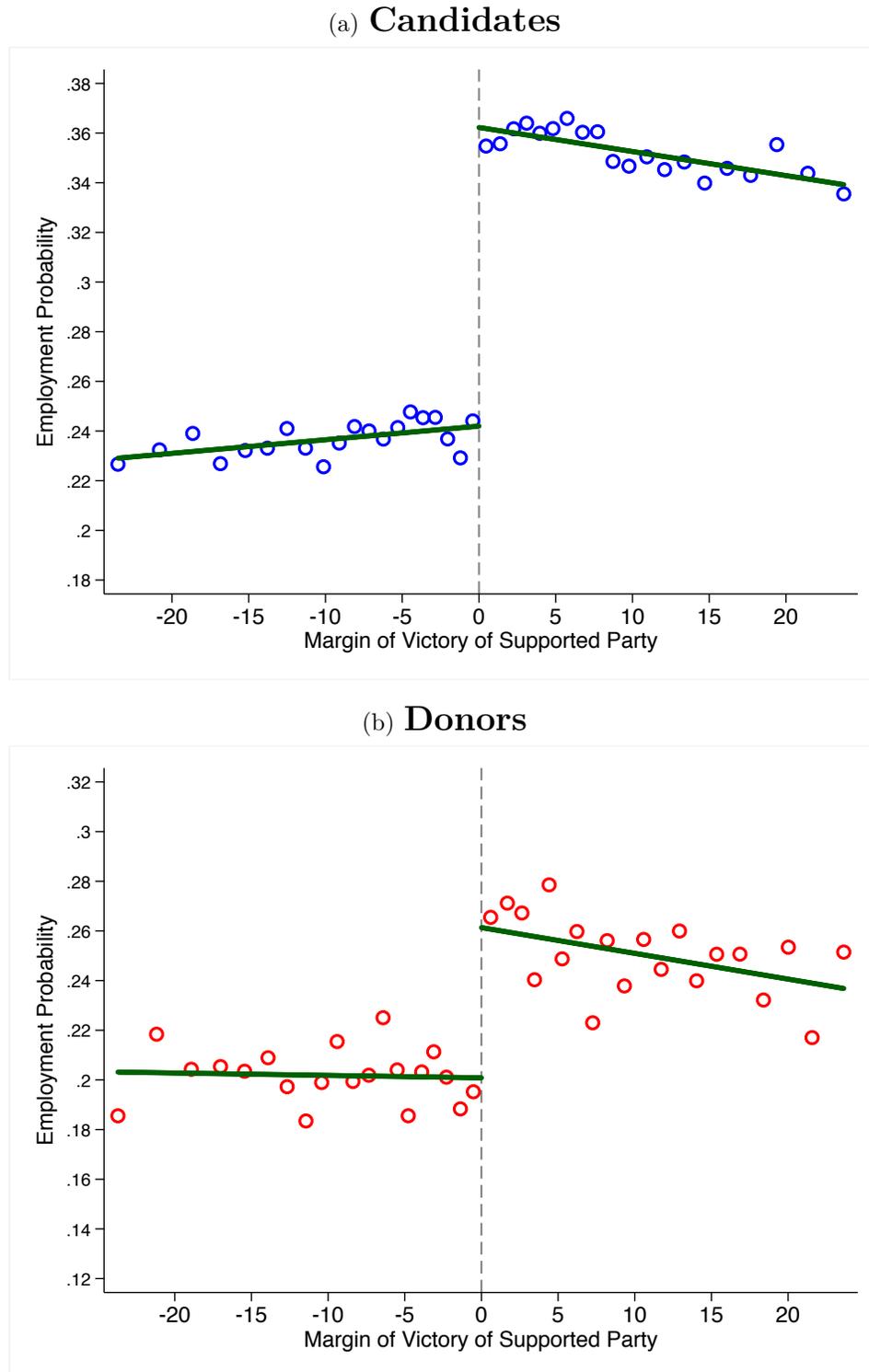
Notes: The figure plots the share of political supporters employed in the public sector, from three years before to six years after the municipal election taking place at $t = 0$. The sample of supporters is split between candidates who run for a seat in the local council (in blue) and donors (in red), and between supporters of the party winning at $t = 0$ and those of other parties. The sample of elections is 2000, 2004, 2008, 2012 for candidates and 2004, 2008, 2012 for donors. The dashed vertical lines indicate the length of the electoral term. The sample is composed of 508,218 candidates supporting the winning party, 682,206 candidates supporting other parties, 522,708 donors supporting the winning party, and 571,595 donors supporting other parties.

FIGURE 2. Effect of Supporting the Winning Party on Public Sector Outcomes – Dynamics



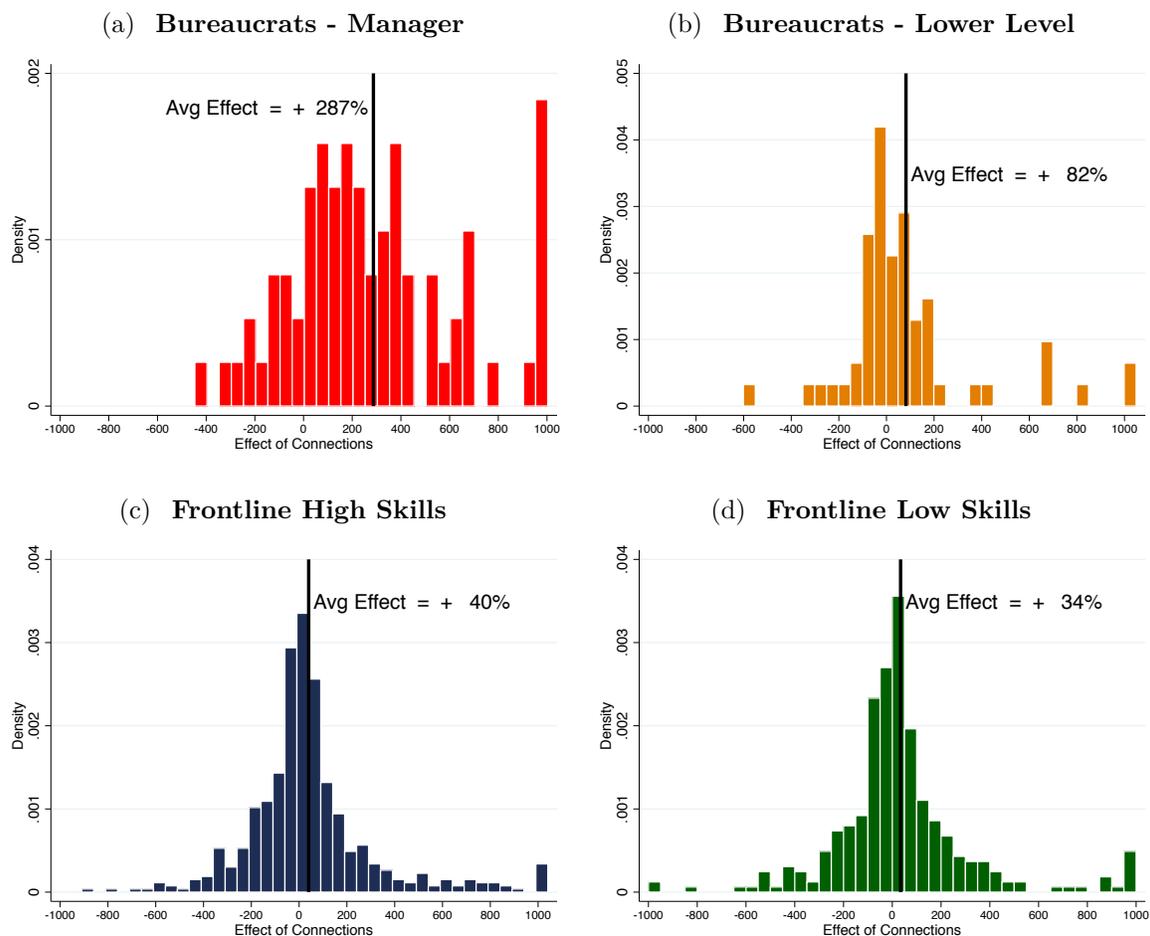
Notes: The figure shows the estimated effect of supporting the winning party on probability of employment in the public sector (top panels) and annual public sector earnings (bottom panels), from three years before to four years after the election. We plot the estimated β_k coefficients from equation (4.2). Panels (a) and (c) focus on the sample of candidates (233,238 supporters across 5,413 elections in the 2000-2012 period), while panels (b) and (d) focus on the sample of donors (177,590 supporters across 3,162 elections in the 2004-2012 period). 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 dotted lines show 95% confidence intervals and are based on standard errors double clustered at the supporter and election level.

FIGURE 3. Post-Election Public Sector Employment Probability Around the Discontinuity Cutoff



Notes: The figure shows the average public sector employment probability in the 4 years after the election, by bins of the margin of victory of the party supported. Supporters whose supported party was the runner-up in the election have a negative margin of victory, while supporters of the winning party have a positive margin of victory. Panel A focuses on the sample of candidates, and Panel B focuses on the sample of donors. The best-fit lines on both sides of the discontinuity are computed on the underlying data. The sample of elections is 2000, 2004, 2008, 2012 for the sample of candidates and 2004, 2008, 2012 for the sample of donors.

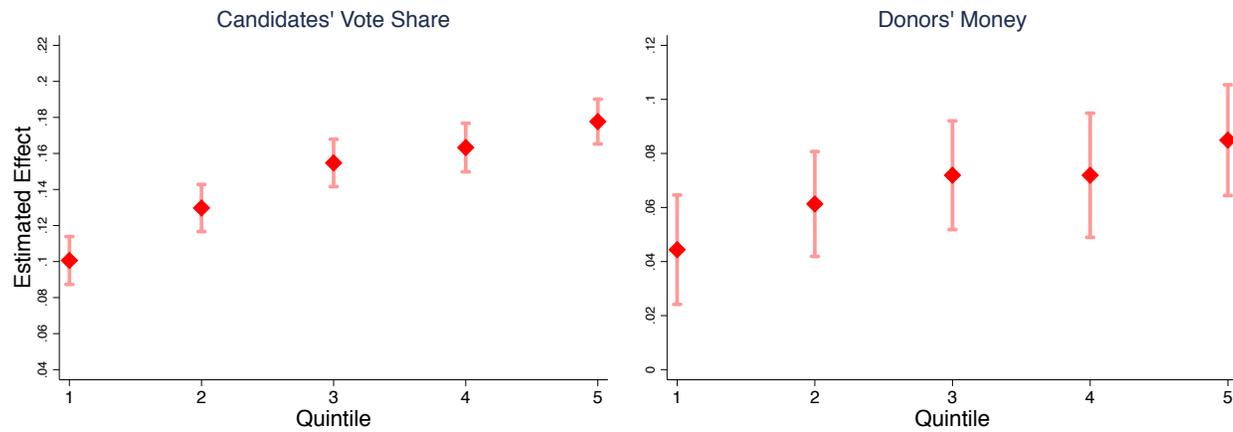
FIGURE 4. Distributions of the Effects of Supporting the Winning Party Across Public Sector Occupations



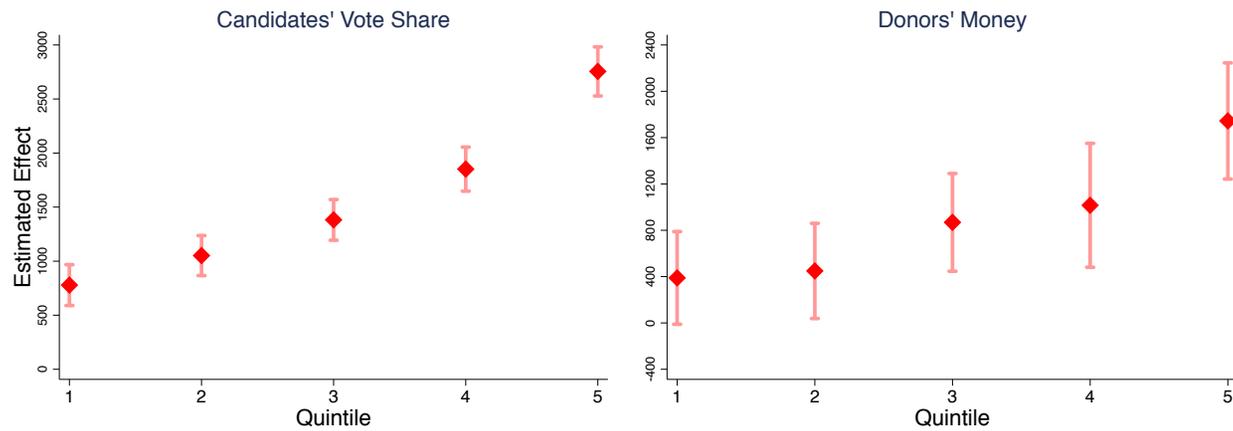
Notes: The figure shows the distribution of occupation-specific estimates of β from equation (4.1), normalized by the share of supporters in the control group employed in that occupation. In each regression, the dependent variable is an indicator equal to one if the supporter is employed in the specific 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 5. Public Sector Returns Are Increasing in Amount of Support Provided

(a) Effects on Employment Probability

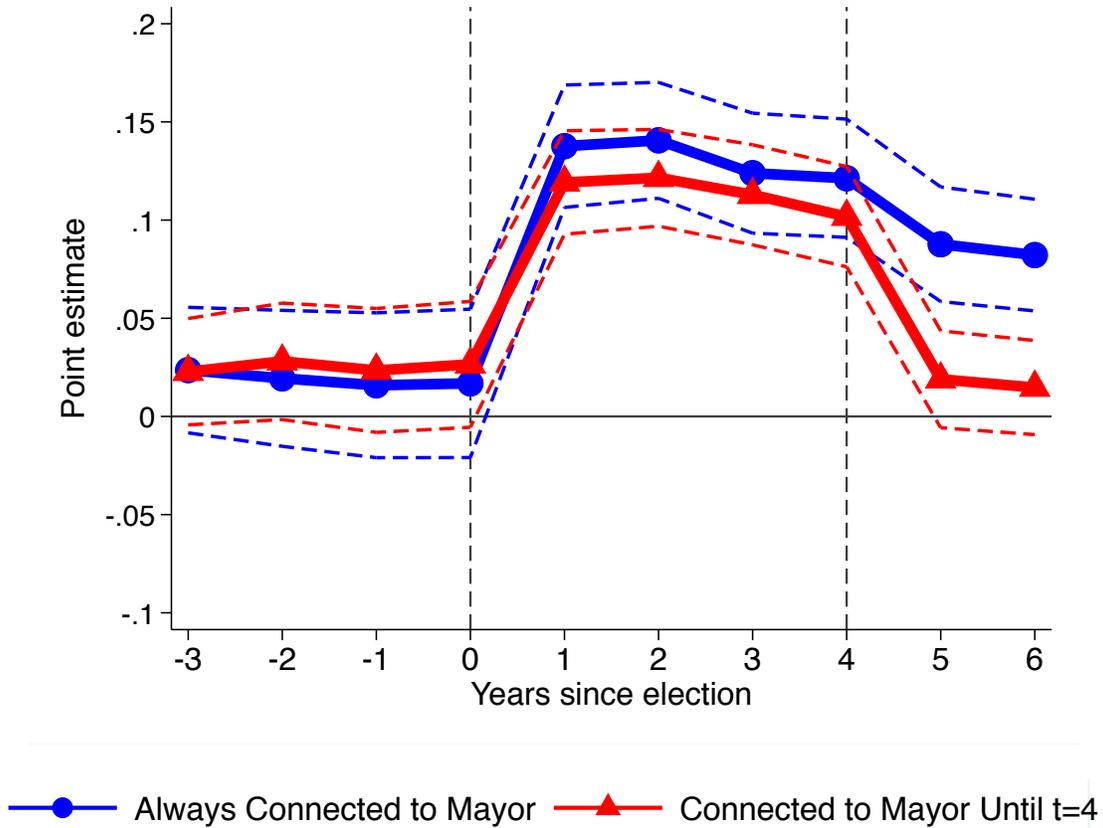


(b) Effects on Earnings



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. 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 6. 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.

TABLE 1. Descriptive Statistics on Labor Market Outcomes of Supporters versus Other Brazilian Workers

	Candidates (694,273 obs.)			Donors (701,954 obs.)			Universe of Workers (87,528,336 obs.)		
Panel A: Employment conditional on being in RAIS									
<i>Ever employed in:</i>	<i>Share</i>			<i>Share</i>			<i>Share</i>		
Public Sector	68.6%			51.9%			18.6%		
Private Sector	62.1%			75.5%			91.5%		
Panel B: Earnings conditional on employment									
<i>Annual Earnings:</i>	<i>Mean</i>	<i>Median</i>	<i>SD</i>	<i>Mean</i>	<i>Median</i>	<i>SD</i>	<i>Mean</i>	<i>Median</i>	<i>SD</i>
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									
<i>Employed as:</i>	<i>Share</i>			<i>Share</i>			<i>Share</i>		
Bureaucrat – Manager	15.8%			17.8%			8.2%		
Bureaucrat – Lower Level	24.0%			26.8%			21.6%		
Front-Service – High Skills	37.0%			40.9%			43.9%		
Front-Service – Low Skills	23.1%			14.5%			26.3%		

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 Sector Outcomes**

Dependent Variable:	(1) (2) (3) Employed Public			(4) (5) (6) Earnings Public		
	All	Candidates	Donors	All	Candidates	Donors
Mayor	0.105*** (0.005)	0.124*** (0.005)	0.067*** (0.009)	1,224.376*** (94.321)	1,369.761*** (74.758)	858.287*** (188.512)
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	2702	2565	2935
Supporters	418146	233238	177590	418146	233238	177590
Elections	5419	5413	3162	5419	5413	3162

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 public sector 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. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE 3. **Effect of Supporting the Winning Party for Different Types of Public Sector Occupations**

Dep. Var. is Employment as:	(1) Bureaucrat Manager	(2) Bureaucrat Lower Level	(3) Frontline High Skills	(4) Frontline Low Skills
<i>Panel A: All Supporters</i>				
Mayor	0.053*** (0.003)	0.031*** (0.003)	0.012*** (0.003)	0.013*** (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	361979	361979	361979	361979
Elections	4160	4160	4160	4160
<i>Panel B: Candidates</i>				
Mayor	0.069*** (0.004)	0.040*** (0.003)	0.015*** (0.003)	0.016*** (0.003)
Observations	609,018	609,018	609,018	609,018
Mean D.V. Runner-up	0.027	0.054	0.099	0.066
Supporters	177659	177659	177659	177659
Elections	4153	4153	4153	4153
<i>Panel C: Donors</i>				
Mayor	0.031*** (0.004)	0.020*** (0.004)	0.006 (0.005)	0.010*** (0.002)
Observations	548,694	548,694	548,694	548,694
Mean D.V. Runner-up	0.030	0.047	0.089	0.031
Supporters	177011	177011	177011	177011
Elections	3159	3159	3159	3159

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. Results in Panel A includes all supporters. Results in Panel B includes only candidates to the local council. Results in Panel C includes only 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. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

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

<i>Panel A: party loyals vs. party switchers</i>				
Type of Supporter:	(1) Loyal Candidates	(2) Switchers Candidates	(3) Loyal Donors	(4) Switchers Donors
Mayor	0.145*** (0.018)	0.143*** (0.022)	0.069 (0.062)	0.144** (0.065)
Observations	37,586	25,326	2,746	3,374
Mean D.V. Runner-up	0.251	0.266	0.335	0.313
Supporters	10702	7093	1162	1378
Elections	1949	1515	160	263
<i>Panel B: own supporters vs. supporters in neighboring municipalities</i>				
Type of Supporter:	(1) Own Supporters Candidates	(2) Neighboring Candidates	(3) Own Supporters Donors	(4) Neighboring Donors
Mayor	0.156*** (0.006)	0.001*** (0.000)	0.114*** (0.015)	0.001 (0.001)
Observations	299,188	701,276	129,150	522,408
Mean D.V. Runner-up	0.140	0.001	0.098	0.001
Supporters	81063	149768	41669	61901
Elections	4679	4679	893	1172

Notes: Both panels present the estimated β from equation (4.1), and the dependent variable is an indicator for employment in the public sector. Panel A presents the estimated effects for different subsample of candidates/donors who have run/donated in subsequent elections. See section 5.3 for a definition of “Switchers” and “Loyals”. Panel B presents the estimated effects in the samples of candidates and donors supporting the winning party or the runner-up party in the municipality (columns 1 and 3, respectively), and in the samples of candidates and donors supporting the same parties but in neighboring municipalities (columns 2 and 4, respectively). See section 5.3 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. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE 5. Patronage and Selection: Educational Qualifications

Dep. Var. is Employment in Public Job Requiring:	(1) Middle School Degree	(2) High School School Degree	(3) University Degree
Mayor \times Qualified	-0.010*** (0.002)	-0.003 (0.003)	-0.015** (0.006)
Mayor	0.017*** (0.002)	0.047*** (0.004)	0.070*** (0.004)
Qualified	0.011*** (0.001)	0.081*** (0.002)	0.352*** (0.005)
Observations	604,366	604,366	604,366
Mean D.V. Unq. Runner-up	0.0270	0.0420	0.0460
Supporters	176514	176514	176514
Elections	4153	4153	4153

Notes: The table presents the estimated coefficients from equation (6.1), and 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 only candidates to the local council, and 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. Unq. Runner-up” shows the average of the dependent variable in the post-election period for the supporters of the runner-up who are not qualified for the job. Standard errors are shown in parentheses and are double clustered at the supporter and election level. *** p<0.01, ** p<0.05, * p<0.1.

TABLE 6. Patronage and Selection: Private Earnings and Ability Score

<i>Panel A: Heterogeneity in Previous Private Earnings</i>			
	(1)	(2)	(3)
Group of Supporters:	All Supporters	Candidates	Donors
Mayor × Tercile 3	-0.038*** (0.006)	-0.059*** (0.010)	-0.013* (0.008)
Mayor × Tercile 2	-0.013** (0.006)	-0.015 (0.010)	-0.010 (0.008)
Mayor	0.112*** (0.008)	0.154*** (0.012)	0.065*** (0.011)
Observations	224,132	104,630	117,202
Supporters	71515	31438	39452
Elections	4010	3679	2500

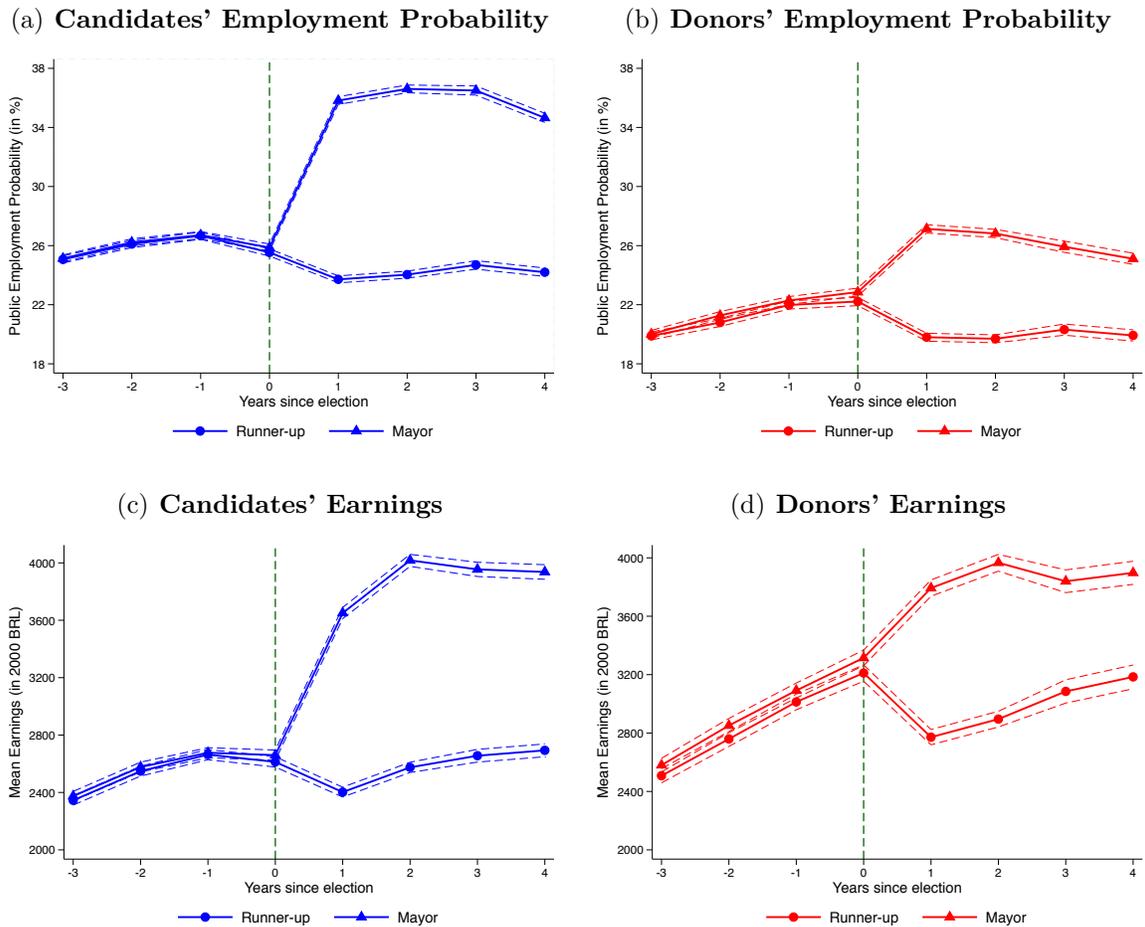
<i>Panel B: Heterogeneity in Residual Ability Score</i>			
	(1)	(2)	(3)
Group of Supporters:	All Supporters	Candidates	Donors
Mayor × Tercile 3	-0.032*** (0.006)	-0.023*** (0.087)	-0.030*** (0.009)
Mayor × Tercile 2	-0.016*** (0.006)	-0.007 (0.008)	-0.027*** (0.009)
Mayor	0.147*** (0.008)	0.175*** (0.010)	0.101*** (0.013)
Observations	418,012	211,612	204,864
Supporters	131928	62725	68826
Elections	4855	4794	3086

Notes: The table presents the estimated coefficients from equation (6.1), and the dependent variable in all columns is an indicator for employment in the public sector. In Panel A, *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 B, *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. Standard errors are shown in parentheses and are double clustered at the supporter and election level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

ONLINE APPENDIX

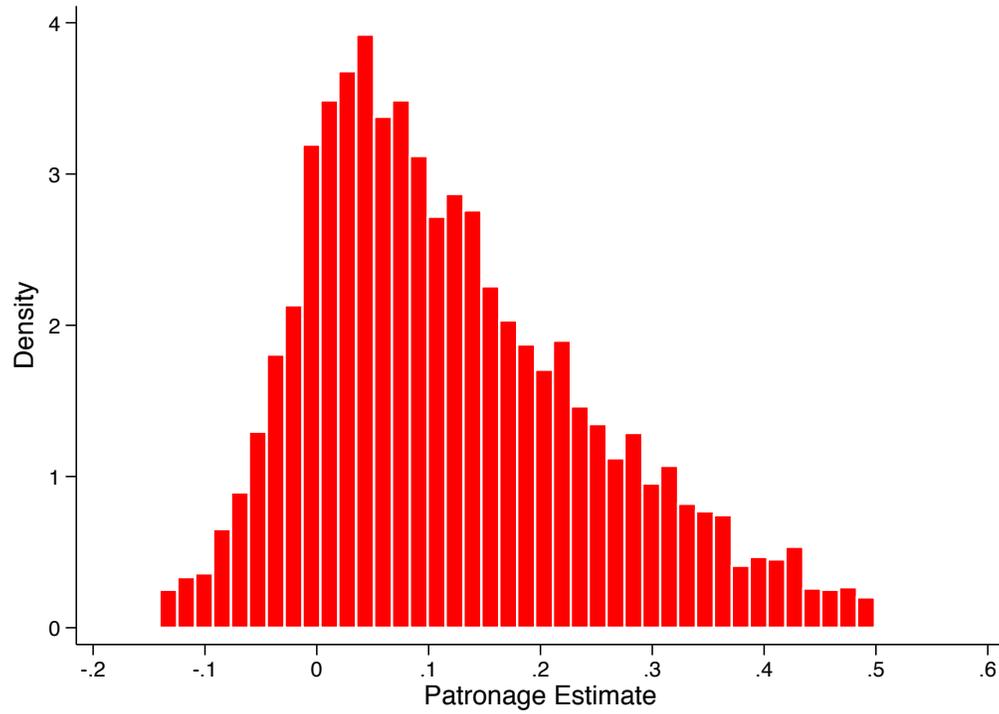
APPENDIX A.1. ADDITIONAL TABLES AND FIGURES

FIGURE A1. Political Supporters' Employment Probability Around the Election



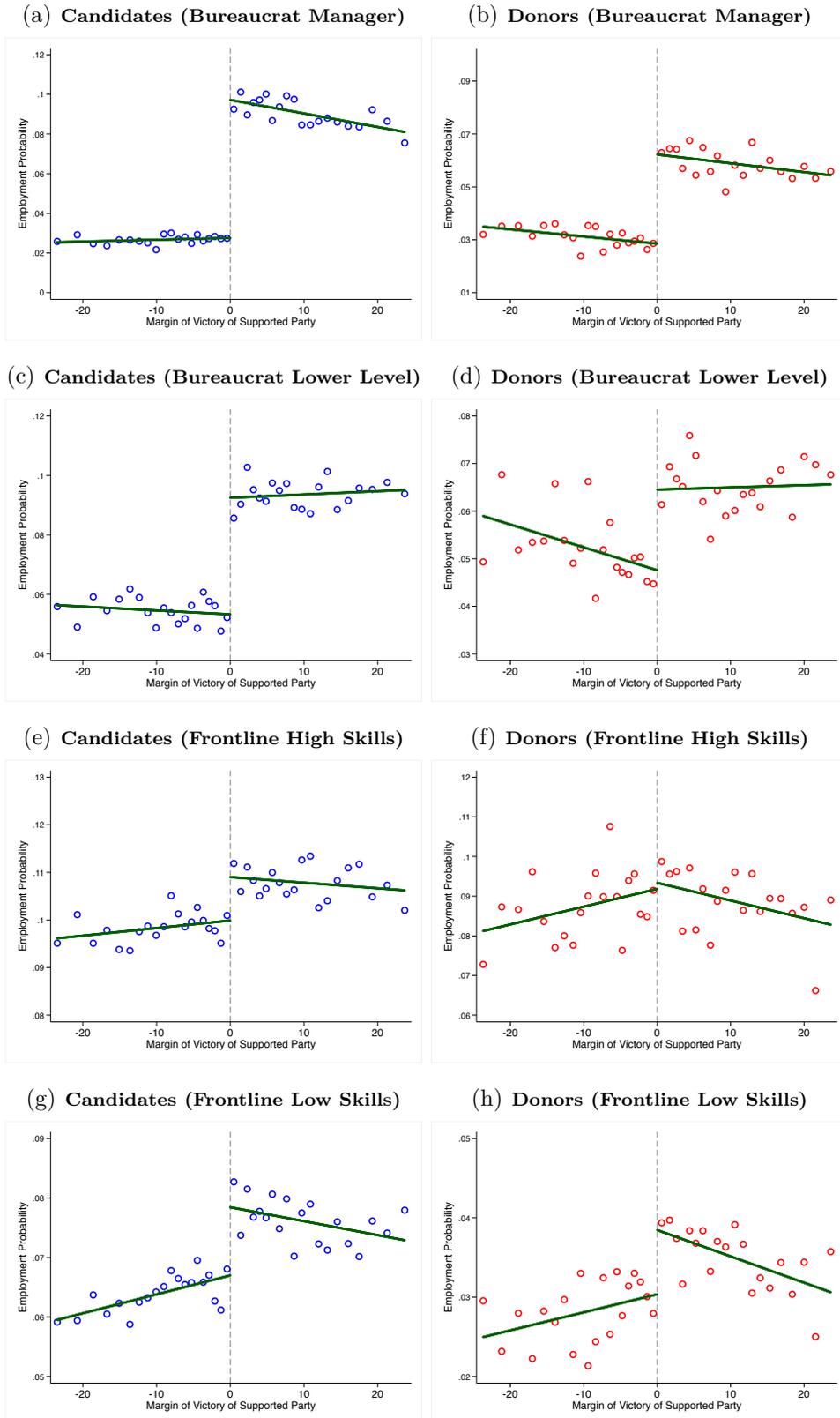
Notes: The figure shows the public sector employment probability (top panels) and public sector earnings (bottom panels) from three years before to four years after the election, for supporters of the winning party or of the runner-up in a close election, using a 5 percentage points margin of victory to define an election as close. Panels (a) and (c) focus on the sample of candidates (233,238 supporters across 5,413 elections in the 2000-2012 period), while panels (b) and (d) focus on the sample of donors (177,590 supporters across 3,162 elections in the 2004-2012 period). The dotted lines show 95% confidence intervals around the mean.

FIGURE A2. Distribution of Election-Specific Estimates



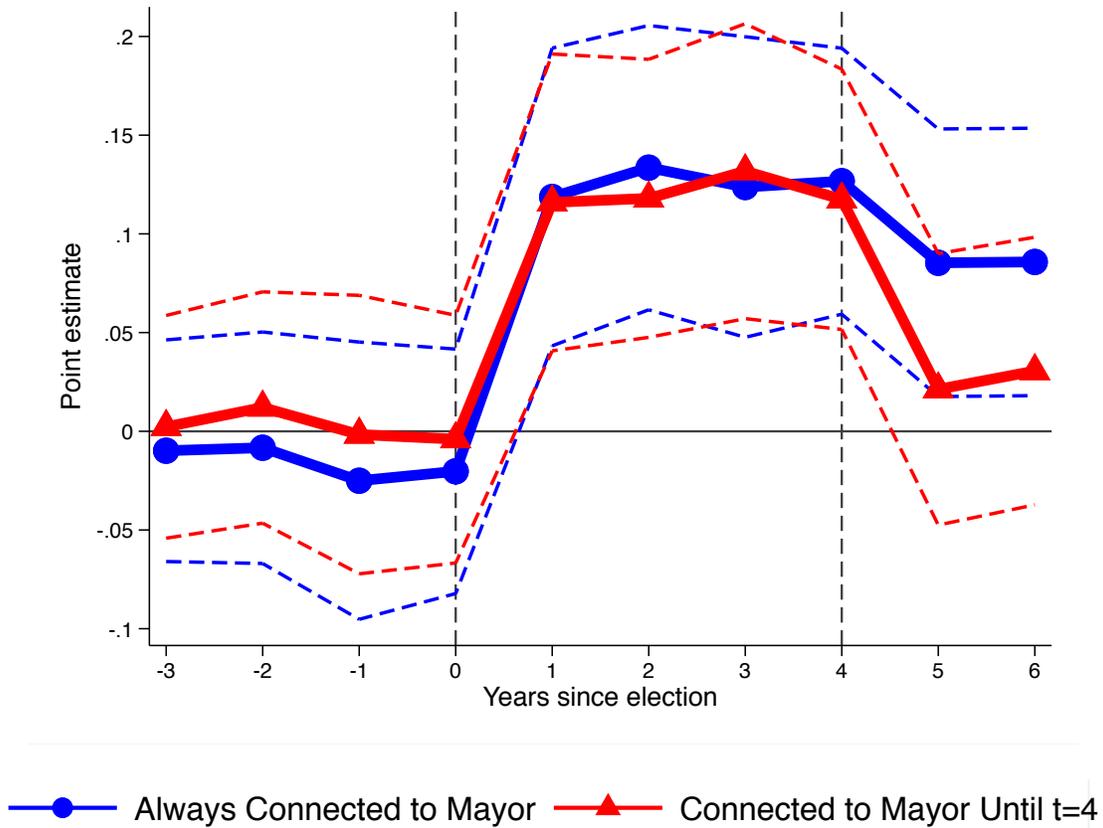
Notes: The figure shows the distribution of the election-specific estimates, from the estimation of equation (4.1) for each of the 7,696 elections over the 2004-2012 period decided by a margin of victory between the winning party and the runner-up of 10 percentage points or less.

FIGURE A3. Post-Election Public Sector Employment Probability Around the Discontinuity Cutoff for Different Types of Public Sector Occupations



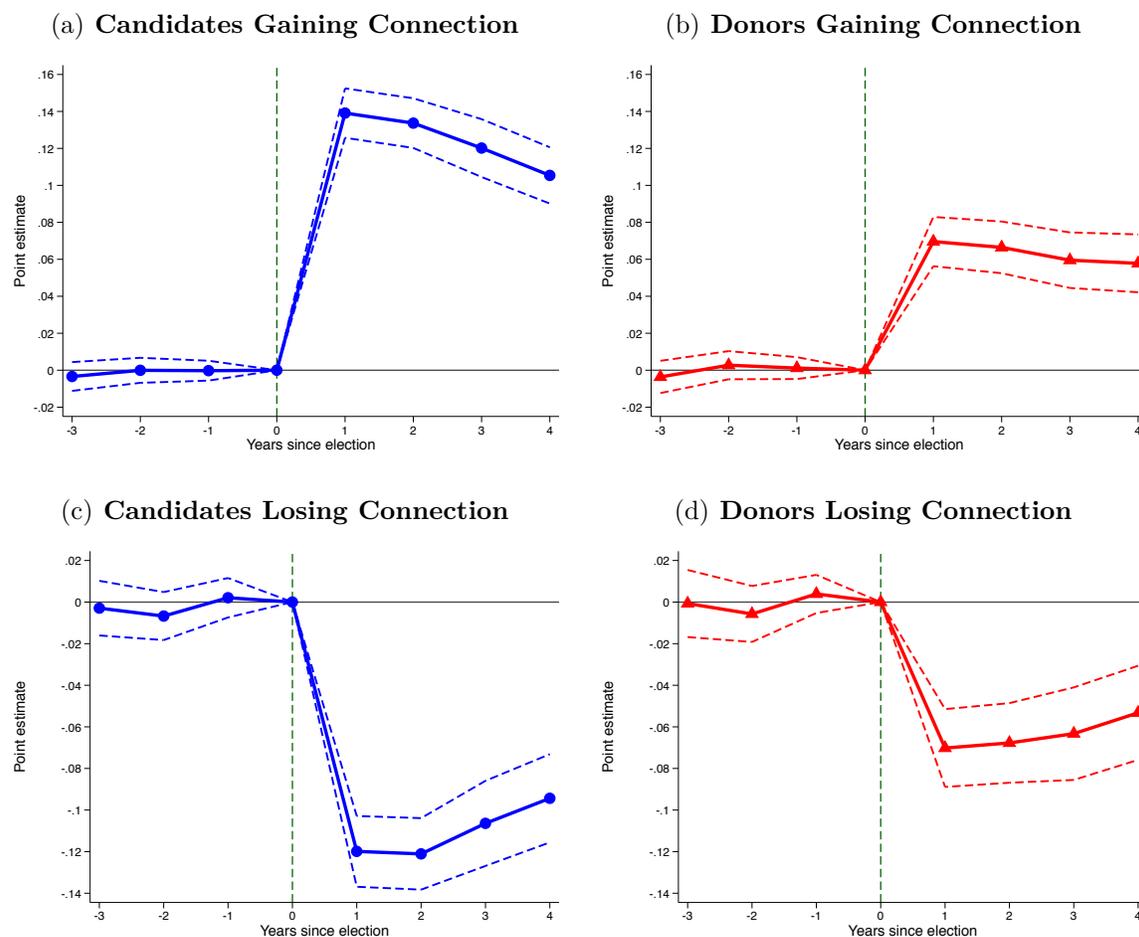
Notes: The figure shows the average public sector employment probability in specific categories of public jobs in the 4 years after the election, by bins of the margin of victory of the party supported. Left panels focus on the sample of candidates, while right panels focus on the sample of donors. The best-fit lines on both sides of the discontinuity are computed on the underlying data.

FIGURE A4. Supporters' Public Sector Employment Probability Depends on the Party Fortune in the Long Run: Double Close Races



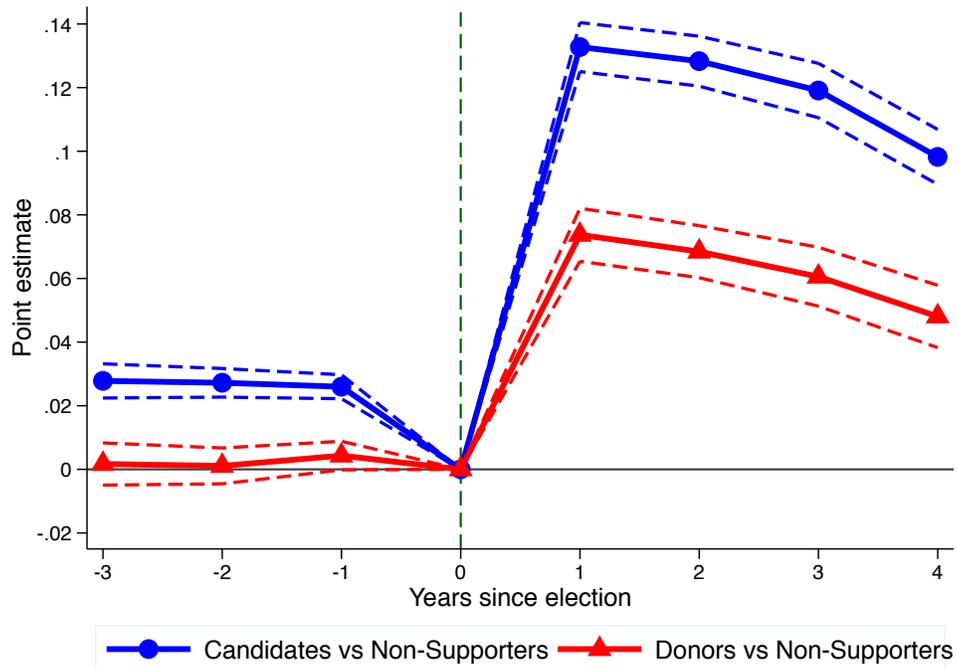
Notes: The figure presents the estimated β_k^{One} and β_k^{Both} coefficients from equation (5.1) using the probability of employment in the public sector as the outcome variable. We separately focus on three groups of supporters: those supporting a party winning two consecutive elections (in year 0 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 two consecutive close elections (in year 0 and in year 4). The dotted lines show 95% confidence intervals and are based on standard errors double clustered at the supporter and election level.

FIGURE A5. The Effect of Gaining versus Losing a Connection on Public Employment Probability



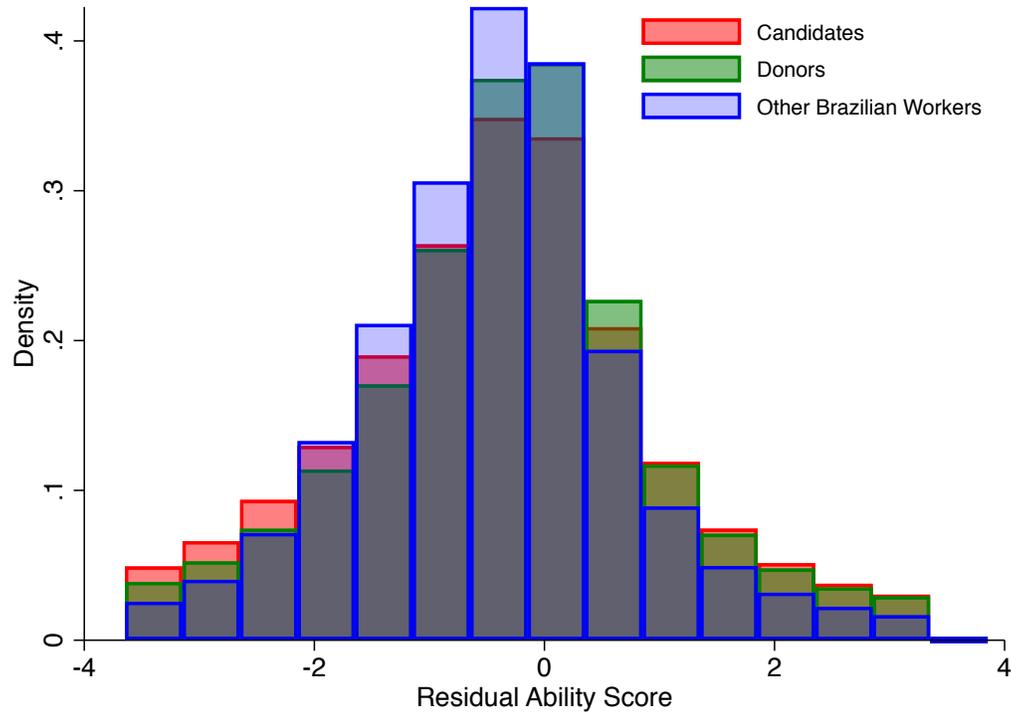
Notes: The figure presents the estimated effect of gaining a connection to the party in power (top panels) or losing a connection to the party in power (bottom panels) on a supporter's probability of employment in the public sector. The figure plots the estimated β_k coefficients from equation A1. In the top panels the treatment is gaining a connection to the party in power, *i.e.* the sample is restricted to supporters of a party that was not in the ruling coalition in the previous election cycle, and the variable *Shock* in equation A1 is an indicator taking value one if the supported mayoral candidate wins the election. In the bottom panels the treatment is losing a connection to the party in power, *i.e.* the sample is restricted to supporters of a party that was already in the ruling coalition in the previous election cycle, and the variable *Shock* in equation A1 is an indicator taking value one if the supported mayoral candidate loses the election. In all specifications we restrict the sample to elections decided by a margin of victory of 5 percentage points or less. Panels (a) and (c) focus on the sample of candidates (121,064 supporters across 4,147 elections in the 2004-2012 period), while panels (b) and (d) focus on the sample of donors (106,958 supporters across 3,660 elections in the 2004-2012 period). The dotted lines show 95% confidence intervals and are based on standard errors double clustered at the candidate and election level.

FIGURE A6. Non-Supporters as Control Group



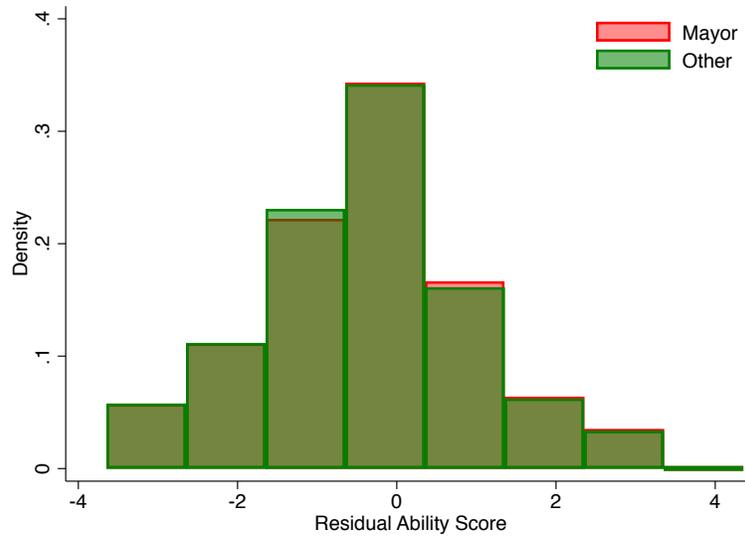
Notes: The figure shows the estimated β_k coefficients from equation A1, with an indicator equal to one for employment in the public sector as dependent variable. Estimates in blue focus on the sample of candidates, while estimates in red focus on the sample of donors. The sample of elections is 2004, 2008, 2012. The dotted lines show 95% confidence intervals and are based on standard errors double clustered at the individual and election level.

FIGURE A7. Distribution of Residual Ability Scores in the Population and Among Supporters



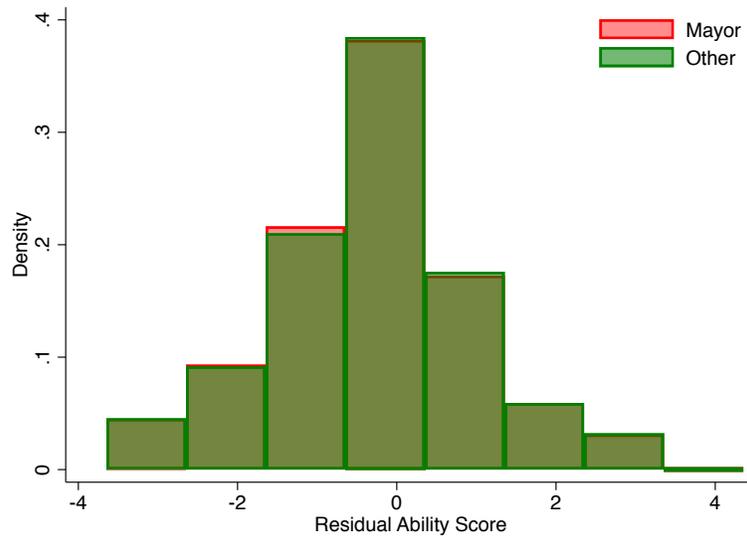
Notes: The figure shows the distribution of the residual ability scores among supporters (candidates in red, and donors in green) and among the other Brazilian workers entering the RAIS dataset (in blue).

FIGURE A8. **Distribution of Residual Ability Scores Among Candidates Supporting the Party of the Elected Mayor or a Different Party**



Notes: The figure shows the distribution of the residual ability scores among candidates supporting the party of the elected mayor (in red) or a different party (in green).

FIGURE A9. Distribution of Residual Ability Scores Among Donors Supporting the Party of the Elected Mayor or a Different Party



Notes: The figure shows the distribution of the residual ability scores among donors supporting the party of the elected mayor (in red) or a different party (in green).

TABLE A1. **Summary Statistics: Candidates to the Local Council**

(1) Variable	(2) Mean	(3) Std. Dev.	(4) Min	(5) Max	(6) Observations
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	13,426,717	1,079,734
Age	43.48	10.85	18	100	1,436,675
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

Notes: The table presents summary statistics on the electoral careers and demographic characteristics of the universe of candidates to a Brazilian municipal council in the 4 elections held over the 2000-2012 period. *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.

TABLE A2. **Summary Statistics: Campaign Donors**

(1) Variable	(2) Mean	(3) Std. Dev.	(4) Min	(5) Max	(6) Observations
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	5794.84	0	5,609,230	1,144,191
Donated to Winning Coalition	0.48	0.50	0	1	1,144,191

Notes: The table presents summary statistics on the universe of donors to Brazilian municipal elections in the 3 elections held over the 2004-2012 period. *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-election for variables *Amount Donated* and *Donated to Winning Coalition*, and it is an individual for variables *Number Elections* and *Number of Parties*.

TABLE A3. Balance of Covariates: Candidates

(1) Covariate	(2) Coefficient	(3) P-value	(4) Mean Cont. Group	(5) Observations	(6) Supporters	(7) Elections
Earnings Public t=0	66.332	0.389	2613	254,848	233238	5413
Earnings Private t=0	21.740	0.454	794.3	254,848	233238	5413
Earnings Total t=0	69.593	0.407	3697	254,848	233238	5413
Employed Private t=0	-0.004	0.179	0.113	254,848	233238	5413
Employed Public t=0	0.008	0.14	0.255	254,848	233238	5413
Employed Any t=0	0.002	0.696	0.379	254,848	233238	5413
Employed Qualified t=0	0.004	0.451	0.216	191,805	178993	4154
Employed Unqualified t=0	0.003	0.364	0.057	191,805	178993	4154
Employed Bureaucrat - Manager t=0	0.002	0.588	0.038	192,232	179338	4154
Employed Bureaucrat - Lower Level t=0	-0.001	0.862	0.063	192,232	179338	4154
Employed Frontline High Skills t=0	0.005	0.153	0.102	192,232	179338	4154
Employed Frontline Low Skills t=0	0.001	0.75	0.072	192,232	179338	4154
Earnings Public t=-1	95.992	0.188	2664	254,848	233238	5413
Earnings Private t=-1	34.461	0.234	816.5	254,848	233238	5413
Earnings Total t=-1	124.925	0.111	3778	254,848	233238	5413
Employed Private t=-1	-0.000	0.97	0.118	254,848	233238	5413
Employed Public t=-1	0.007	0.172	0.267	254,848	233238	5413
Employed Any t=-1	0.007	0.16	0.396	254,848	233238	5413
Employed Qualified t=-1	0.003	0.51	0.223	191,191	178466	4154
Employed Unqualified t=-1	0.003	0.318	0.062	191,191	178466	4154
Employed Bureaucrat - Manager t=-1	0.003	0.339	0.044	191,710	178881	4154
Employed Bureaucrat - Lower Level t=-1	-0.001	0.656	0.069	191,710	178881	4154
Employed Frontline High Skills t=-1	0.004	0.215	0.102	191,710	178881	4154
Employed Frontline Low Skills t=-1	0.001	0.724	0.071	191,710	178881	4154
Mincer Sample	0.004	0.242	0.264	254,848	233238	5413
Residual Ability Score	-0.065	0.478	-0.681	67,445	63423	5060
Secondary School	-0.002	0.7	0.216	252,805	231500	5413
High School	-0.002	0.639	0.347	252,805	231500	5413
University Degree	0.008**	0.015	0.147	252,805	231500	5413
Age	0.075	0.457	43.44	254,676	233092	5411
Male	0.000	0.929	0.762	254,824	233216	5413
Run Past Election	-0.000	0.993	0.343	254,848	233238	5413
Incumbent	-0.002	0.651	0.129	254,848	233238	5413
Party Already in Power	0.013	0.457	0.354	194,252	180895	4154
Governor Party	0.005	0.819	0.220	254,848	233238	5413
Fed. Government Party	0.014	0.321	0.483	254,848	233238	5413
President Party	0.012	0.472	0.109	254,848	233238	5413
Contributions Received	98.115	0.395	2111	194,252	180895	4154
Contributions Spent	94.133	0.413	2105	194,252	180895	4154

Notes: The table shows balance tests for candidates' covariates in the pre-election period. The coefficients and p-values in columns 2 and 3 are from regressions of the covariate in column 1 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 4 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). *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.4. *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. *** p<0.01, ** p<0.05, * p<0.1.

TABLE A4. Balance of Covariates: Donors

(1) Covariate	(2) Coefficient	(3) P-value	(4) Mean Cont. Group	(5) Observations	(6) Supporters	(7) Elections
Earnings Public t=0	181.207	0.404	3211	180,886	177590	3162
Earnings Private t=0	-42.408	0.594	1481	180,886	177590	3162
Earnings Total t=0	-2.222	0.993	5344	180,886	177590	3162
Employed Private t=0	-0.001	0.857	0.192	180,886	177590	3162
Employed Public t=0	0.010	0.342	0.222	180,886	177590	3162
Employed Any t=0	0.009	0.359	0.423	180,886	177590	3162
Employed Qualified t=0	0.007	0.496	0.183	180,040	176783	3162
Employed Unqualified t=0	0.003	0.342	0.035	180,040	176783	3162
Employed Bureaucrat - Manager t=0	0.006	0.287	0.044	180,463	177178	3162
Employed Bureaucrat - Lower Level t=0	0.001	0.758	0.056	180,463	177178	3162
Employed Frontline High Skills t=0	0.001	0.842	0.088	180,463	177178	3162
Employed Frontline Low Skills t=0	0.002	0.473	0.032	180,463	177178	3162
Earnings Public t=-1	130.829	0.517	3013	180,886	177590	3162
Earnings Private t=-1	-117.652	0.126	1487	180,886	177590	3162
Earnings Total t=-1	-151.033	0.539	5116	180,886	177590	3162
Employed Private t=-1	-0.002	0.802	0.198	180,886	177590	3162
Employed Public t=-1	0.010	0.336	0.220	180,886	177590	3162
Employed Any t=-1	0.006	0.496	0.427	180,886	177590	3162
Employed Qualified t=-1	0.008	0.372	0.181	180,052	176800	3162
Employed Unqualified t=-1	0.001	0.63	0.036	180,052	176800	3162
Employed Bureaucrat - Manager t=-1	0.006	0.31	0.045	180,497	177210	3162
Employed Bureaucrat - Lower Level t=-1	0.000	0.917	0.055	180,497	177210	3162
Employed Frontline High Skills t=-1	0.001	0.762	0.087	180,497	177210	3162
Employed Frontline Low Skills t=-1	0.002	0.348	0.031	180,497	177210	3162
Mincer Sample	0.002	0.745	0.384	180,886	177590	3162
Residual Ability Score	-0.481	0.107	0.320	68,134	67243	2828
Party Already in Power	0.039	0.367	0.435	180,886	177590	3162
Governor Party	0.005	0.909	0.208	180,886	177590	3162
Fed. Government Party	0.039	0.457	0.546	180,886	177590	3162
President Party	0.030	0.475	0.119	180,886	177590	3162
Amount of Contributions	-17.667	0.842	1387	180,886	177590	3162

Notes: The table shows balance tests for donors' covariates in the pre-election period. The coefficients and p-values in columns 2 and 3 are from regressions of the covariate in column 1 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 4 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 A3 for a description of the other covariates listed in column 1. P-values are based on standard errors clustered at the election level. *** p<0.01, ** p<0.05, * p<0.1.

TABLE A5. Effect of Supporting the Winning Party – Optimal Bandwidth

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:	Employed Public			Earnings Public		
Group of Supporters:	All	Candidates	Donors	All	Candidates	Donors
Mayor	0.106*** (0.004)	0.125*** (0.003)	0.068*** (0.008)	1,250.218*** (74.431)	1,379.913*** (53.558)	969.554*** (175.471)
Observations	2,450,602	1,807,660	1,088,654	2,648,088	1,614,180	930,998
Optimal Bandwidth	8.753	11.514	10.108	9.617	9.943	8.468
Mean D.V. Runner-up	0.225	0.239	0.203	2774	2569	3068
Supporters	687979	448594	347556	740234	407161	298806
Elections	8960	11194	5921	9706	9986	5128

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 public sector 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 an outcome- and sample-specific margin of victory to define close races, calculated using the optimal bandwidth selection procedure following Calonico et al. (2014). “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. *** p<0.01, ** p<0.05, * p<0.1.

TABLE A6. Effect of Supporting the Winning Party on Public Sector Outcomes – 3 Percentage Points Margin of Victory Bandwidth

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:	Employed Public			Earnings Public		
Group of Supporters:	All	Candidates	Donors	All	Candidates	Donors
Mayor	0.105*** (0.006)	0.122*** (0.006)	0.069*** (0.011)	1,253.877*** (118.921)	1,356.619*** (97.073)	884.004*** (200.829)
Observations	844,858	516,330	311,852	844,858	516,330	311,852
Mean D.V. Runner-up	0.223	0.238	0.197	2626	2504	2835
Supporters	249928	143897	101685	249928	143897	101685
Elections	3288	3283	1906	3288	3283	1906

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 public sector 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 3 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. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE A7. Effect of Supporting the Winning Party on Public Sector Outcomes – 1 Percentage Point Margin of Victory Bandwidth

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:	Employed Public			Earnings Public		
Group of Supporters:	All	Candidates	Donors	All	Candidates	Donors
Mayor	0.103*** (0.011)	0.112*** (0.012)	0.082*** (0.019)	1,289.482*** (241.140)	1,240.820*** (187.805)	984.832*** (346.646)
Observations	274,248	171,602	96,458	274,248	171,602	96,458
Mean D.V. Runner-up	0.223	0.240	0.197	2661	2524	2963
Supporters	81798	49089	31063	81798	49089	31063
Elections	1092	1091	622	1092	1091	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 public sector 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 1 percentage point 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. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE A8. Effect of Supporting the Winning Party for Different Types of Public Sector Occupations – Optimal Bandwidth

Dep. Var. is Employment as:	(1) Bureaucrat Manager	(2) Bureaucrat Lower Level	(3) Frontline High Skills	(4) Frontline Low Skills
Panel A: All Supporters				
Mayor	0.055*** (0.002)	0.032*** (0.002)	0.010*** (0.002)	0.010*** (0.001)
Observations	3,019,198	2,028,626	2,291,418	3,163,084
Optimal Bandwidth	14.275	8.773	10.114	15.294
Mean D.V. Runner-up	0.029	0.051	0.096	0.047
Supporters	877983	605405	679500	918716
Elections	9972	6892	7760	10435
Panel B: Candidates				
Mayor	0.071*** (0.002)	0.042*** (0.002)	0.009*** (0.002)	0.014*** (0.002)
Observations	1,268,788	1,189,734	1,564,984	1,436,558
Optimal Bandwidth	11.362	10.54	15.077	13.358
Mean D.V. Runner-up	0.027	0.053	0.099	0.065
Supporters	348299	328807	419710	388531
Elections	8487	7988	10324	9527
Panel C: Donors				
Mayor	0.034*** (0.003)	0.023*** (0.003)	0.003 (0.003)	0.007*** (0.001)
Observations	1,250,480	976,924	1,203,738	1,502,884
Optimal Bandwidth	11.947	8.973	11.392	15.143
Mean D.V. Runner-up	0.030	0.048	0.089	0.029
Supporters	398797	313500	383468	475082
Elections	6716	5362	6476	7879

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. Results in Panel A includes all supporters. Results in Panel B includes only candidates to the local council. Results in Panel C includes only donors. 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). “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. *** p<0.01, ** p<0.05, * p<0.1.

TABLE A9. Effect of Supporting the Winning Party for Different Types of Public Sector Occupations – 3 Percentage Points Margin of Victory Bandwidth

Dep. Var. is Employment as:	(1) Bureaucrat Manager	(2) Bureaucrat Lower Level	(3) Frontline High Skills	(4) Frontline Low Skills
<i>Panel A: All Supporters</i>				
Mayor	0.056*** (0.005)	0.029*** (0.003)	0.011*** (0.004)	0.012*** (0.003)
Observations	685,538	685,538	685,538	685,538
Mean D.V. Runner-up	0.028	0.050	0.094	0.049
Supporters	213547	213547	213547	213547
Elections	2514	2514	2514	2514
<i>Panel B: Candidates</i>				
Mayor	0.072*** (0.005)	0.037*** (0.004)	0.013*** (0.004)	0.015*** (0.004)
Observations	358,218	358,218	358,218	358,218
Mean D.V. Runner-up	0.027	0.053	0.098	0.065
Supporters	107852	107852	107852	107852
Elections	2508	2508	2508	2508
<i>Panel C: Donors</i>				
Mayor	0.033*** (0.006)	0.020*** (0.004)	0.006 (0.006)	0.010*** (0.003)
Observations	310,652	310,652	310,652	310,652
Mean D.V. Runner-up	0.028	0.047	0.089	0.030
Supporters	101351	101351	101351	101351
Elections	1904	1904	1904	1904

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. Results in Panel A includes all supporters. Results in Panel B includes only candidates to the local council. Results in Panel C includes only donors. The sample is restricted to supporters of the winning party or of the runner-up in a close election, using a 3 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. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE A10. Effect of Supporting the Winning Party for Different Types of Public Sector Occupations – 1 Percentage Point Margin of Victory Bandwidth

Dep. Var. is Employment as:	(1) Bureaucrat Manager	(2) Bureaucrat Lower Level	(3) Frontline High Skills	(4) Frontline Low Skills
<i>Panel A: All Supporters</i>				
Mayor	0.059*** (0.009)	0.025*** (0.006)	0.014** (0.007)	0.017*** (0.005)
Observations	219,092	219,092	219,092	219,092
Mean D.V. Runner-up	0.028	0.048	0.096	0.049
Supporters	68445	68445	68445	68445
Elections	828	828	828	828
<i>Panel B: Candidates</i>				
Mayor	0.067*** (0.009)	0.032*** (0.008)	0.014* (0.008)	0.022*** (0.008)
Observations	116,880	116,880	116,880	116,880
Mean D.V. Runner-up	0.027	0.050	0.101	0.066
Supporters	35858	35858	35858	35858
Elections	827	827	827	827
<i>Panel C: Donors</i>				
Mayor	0.039*** (0.012)	0.017** (0.007)	0.012 (0.011)	0.014*** (0.005)
Observations	96,040	96,040	96,040	96,040
Mean D.V. Runner-up	0.028	0.045	0.093	0.028
Supporters	30945	30945	30945	30945
Elections	621	621	621	621

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. Results in Panel A includes all supporters. Results in Panel B includes only candidates to the local council. Results in Panel C includes only donors. The sample is restricted to supporters of the winning party or of the runner-up in a close election, using a 1 percentage point 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. *** p<0.01, ** p<0.05, * p<0.1.

TABLE A11. **Effect of Supporting the Winning Party on Public Sector Outcomes – By Electoral Cycle**

Dependent Variable:	(1)	(2)	(3)	(4)
	Employed	Public	Earnings	Public
Group of Supporters:	Candidates	Donors	Candidates	Donors
Panel A: 2000 Election Cycle:				
Mayor	0.094*** (0.009)		1,026.259*** (132.944)	
Observations	242,384		242,384	
Mean D.V. Runner-up	0.204		2027	
Supporters	60596		60596	
Elections	1259		1259	
Panel B: 2004 Election Cycle:				
Mayor	0.128*** (0.010)	0.066*** (0.021)	1,343.418*** (146.942)	814.873* (456.498)
Observations	248,732	89,368	248,732	89,368
Mean D.V. Runner-up	0.248	0.244	2571	3947
Supporters	62183	22287	62183	22287
Elections	1431	769	1431	769
Panel C: 2008 Election Cycle:				
Mayor	0.147*** (0.010)	0.062*** (0.013)	1,522.456*** (156.320)	759.917** (300.431)
Observations	225,268	288,752	225,268	288,752
Mean D.V. Runner-up	0.261	0.185	2928	2703
Supporters	56317	71967	56317	71967
Elections	1328	1097	1328	1097
Panel D: 2012 Election Cycle:				
Mayor	0.139*** (0.010)	0.075*** (0.012)	1,778.027*** (160.962)	1,019.358*** (256.238)
Observations	151,504	172,712	151,504	172,712
Mean D.V. Runner-up	0.258	0.199	2866	2818
Supporters	75752	86018	75752	86018
Elections	1395	1296	1395	1296

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 public sector earnings (columns 4-6). The sample of elections is 2000 in Panel A, 2004 in Panel B, 2008 in Panel C, 2012 in Panel D. 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. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE A12. **Effect of Supporting the Winning Party on Public Sector Outcomes – 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*** (0.007)	0.117*** (0.006)	0.114*** (0.014)	0.071*** (0.016)	0.033*** (0.012)
Mean D.V. Runner-up	0.243	0.242	0.211	0.193	0.187
Panel B: Dep. Var. is Earnings:					
Mayor	1,553.211*** (108.166)	1,245.456*** (94.133)	1,713.739*** (342.821)	1,063.050*** (349.026)	144.292 (270.998)
Mean D.V. Runner-up	2575	2587	3338	2798	2633
Observations	335,568	498,690	204,450	103,746	164,338
Supporters	90367	141524	66211	33390	55359
Elections	5327	4586	2151	1641	1738

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 public sector 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. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE A13. **The Effect of Gaining versus Losing a Connection on Public Employment Probability**

<i>Panel A: Effect of Gaining a Connection</i>						
Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)
	Employed Public			Earnings Public		
Group of Supporters:	All	Candidates	Donors	All	Candidates	Donors
Mayor×Post	0.101*** (0.005)	0.129*** (0.006)	0.065*** (0.006)	1,088.626*** (68.251)	1,364.300*** (84.796)	743.153*** (91.401)
Observations	1,695,258	920,516	774,742	1,695,258	920,516	774,742
Mean D.V. Pre-election	0.222	0.255	0.183	2458	2457	2460
Supporters	228022	121064	106958	228022	121064	106958
Elections	4154	4147	3660	4154	4147	3660
<i>Panel B: Effect of Losing a Connection</i>						
Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)
	Employed Public			Earnings Public		
Group of Supporters:	All	Candidates	Donors	All	Candidates	Donors
Loser×Post	-0.087*** (0.006)	-0.112*** (0.008)	-0.065*** (0.008)	-1,085.737*** (108.090)	-1,395.449*** (114.296)	-828.333*** (154.034)
Observations	1,041,564	482,214	559,350	1,041,564	482,214	559,350
Mean D.V. Pre-election	0.294	0.338	0.257	3467	3425	3503
Supporters	145670	65997	79673	145670	65997	79673
Elections	3911	3895	3144	3911	3895	3144

Notes: The table presents the estimated effects of supporting the mayoral candidate who wins (Panel A) or loses (Panel B) from a more parsimonious version of equation A1, in which the indicator variable *Mayor* is interacted with the variable *Post*, an indicator taking value one for the post-election period, instead of an indicator variable for each period in the window $[-3, +4]$ around the election year. The dependent variable is an indicator for employment in the public sector (columns 1-3) and public sector 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. Pre-election” shows the average of the dependent variable in the four periods from $t = -3$ to $t = 0$. Standard errors are shown in parentheses and are double clustered at the supporter and election level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE A14. Effect of Supporting the Winning Party on Public Employment Probability – By Public Body

Dep. Var. is Employment in:	(1) Municipal (Same)		(2) Municipal (Other)		(3) State		(4) Federal	
	Candidates	Donors	Candidates	Donors	Candidates	Donors	Candidates	Donors
Mayor	0.137*** (0.005)	0.085*** (0.008)	-0.003*** (0.001)	-0.010*** (0.002)	-0.010*** (0.002)	-0.008** (0.004)	0.000 (0.001)	-0.000 (0.002)
Observations	867,888	550,832	867,888	550,832	867,888	550,832	867,888	550,832
Mean D.V. Runner-up Supporters	0.138	0.090	0.014	0.026	0.078	0.069	0.010	0.013
Elections	233238	177590	233238	177590	233238	177590	233238	177590
	5413	3162	5413	3162	5413	3162	5413	3162

Notes: The table presents the estimated β from equation (4.1), and the dependent variable is an indicator equal to one if the supporter is employed in the municipal public sector in the same municipality where she runs/donates (columns 1-2), in the municipal public sector in a municipality different from the one where she runs/donates (columns 3-4), in the state public sector (columns 5-6), and in the federal public sector (columns 7-8). Results in columns 1, 3, 5, 7 are estimated on the sample of candidates to the local council, and results in columns 2, 4, 6, 8 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. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE A15. **Effect of Supporting the Winning Party on Public Sector Outcomes – By Contract Type**

Group of Supporters:	(1)	(2)	(3)	(4)
	Candidates		Donors	
Contract:	Permanent	Temporary	Permanent	Temporary
Panel A: Dep. Var. is Employment Probability:				
Mayor	0.040*** (0.004)	0.084*** (0.004)	0.019*** (0.006)	0.048*** (0.006)
Mean D.V. Runner-up	0.174	0.067	0.131	0.068
Panel B: Dep. Var. is Earnings:				
Mayor	449.333*** (58.964)	920.429*** (56.424)	260.583** (125.127)	597.704*** (124.134)
Mean D.V. Runner-up	1925	640	2047	888
Observations	867,888	867,888	550,832	550,832
Supporters	233238	233238	177590	177590
Elections	5413	5413	3162	3162

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 public sector earnings (Panel B). Results in columns (1) and (3) consider positions with a permanent contract, while results in columns (2) and (4) consider temporary contracts. Results in columns (1) and (2) are estimated on the sample of candidates. Results in columns (3) and (4) 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. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE A16. **Effect of Supporting the Winning Party on Public Sector Outcomes – Winning versus Losing Candidates**

Dependent Variable:	(1)	(2)	(3)	(4)
	Employed Public		Earnings Public	
Type of Candidates:	Winners	Losers	Winners	Losers
Mayor	0.025*** (0.008)	0.148*** (0.006)	484.187*** (125.306)	1,585.560*** (84.017)
Observations	160,918	705,352	160,918	705,352
Mean D.V. Runner-up	0.259	0.237	3199	2420
Supporters	41841	196802	41841	196802
Elections	5322	5412	5322	5412

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 public sector 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. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE A17. **Effect of Supporting the Winning Party on Formal Sector Employment Outcomes**

<i>Panel A: Private Sector</i>						
Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)
	Employed Private Sector			Earnings Private Sector		
Group of Supporters:	All	Candidates	Donors	All	Candidates	Donors
Mayor	-0.023*** (0.003)	-0.026*** (0.003)	-0.016** (0.007)	-110.537*** (35.889)	-97.927*** (27.366)	-145.062* (84.661)
Mean D.V. Runner-up	0.155	0.125	0.204	1155	876.9	1606
<i>Panel B: Formal Sector</i>						
Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)
	Employed Any Job			Total Earnings		
Group of Supporters:	All	Candidates	Donors	All	Candidates	Donors
Mayor	0.075*** (0.004)	0.090*** (0.005)	0.046*** (0.008)	1,077.973*** (118.237)	1,281.960*** (82.704)	533.717** (252.499)
Mean D.V. Runner-up	0.389	0.376	0.413	4322	3749	5262
Observations	1,447,538	867,888	550,832	1,447,538	867,888	550,832
Supporters	418146	233238	177590	418146	233238	177590
Elections	5419	5413	3162	5419	5413	3162

Notes: The table presents the estimated β from equation (4.1), and the dependent variable is an indicator for employment in the private sector (Panel A, columns 1-3) and private sector earnings (Panel A, columns 4-6), an indicator for employment in the formal sector (Panel B, columns 1-3) and total earnings in the formal sector (Panel B, 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. *** p<0.01, ** p<0.05, * p<0.1.

TABLE A18. Public Sector Returns Are Increasing in Amount of Support

Sample / Heterogeneous effect in	(1)	(2)	(3)	(4)
	Candidates / Votes		Donors / Money	
Dependent Variable is:	Employed	Earnings	Employed	Earnings
Mayor×Quintile 5	0.085*** (0.006)	1,976.481*** (104.295)	0.041*** (0.011)	1,354.756*** (270.386)
Mayor×Quintile 4	0.063*** (0.006)	1,072.718*** (88.222)	0.028** (0.012)	626.614** (257.989)
Mayor×Quintile 3	0.054*** (0.006)	603.133*** (79.613)	0.028*** (0.010)	479.573** (203.145)
Mayor×Quintile 2	0.029*** (0.006)	272.940*** (73.999)	0.017* (0.009)	60.043 (161.647)
Mayor	0.101*** (0.007)	778.601*** (96.470)	0.044*** (0.010)	388.800* (204.127)
Observations	705,352	705,352	550,832	550,832
Mean D.V. Runner-up	0.237	2420	0.199	2935
Supporters	196802	196802	177590	177590
Elections	5412	5412	3162	3162

Notes: The table presents heterogeneous treatment effects at different quintiles of the vote share distribution (columns 1 and 2) or the distribution of amount of money contributed by donors (column 3 and 4). The dependent variable is an indicator variable equal to one if the supporter is employed in a public sector job in odd columns, and public sector earnings in even columns. The sample is composed of supporters of the winning mayoral candidate or the close loser, using a 5 percentage points margin of victory to define close races. The samples in columns 1 and 2 include candidates to the local council who were not elected. The samples in columns 3 and 4 include donors. “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. *** p<0.01, ** p<0.05, * p<0.1.

TABLE A19. Comparison of RDD and DiD Estimates

	(1)	(2)	(3)	(4)
Supporters:	Candidates		Donors	
Estimation:	RDD	DID	RDD	DID
Mayor (β/β^{DID})	0.129*** (0.006)	0.103*** (0.003)	0.065*** (0.006)	0.064*** (0.003)
Observations (millions)	0.921	199.994	0.775	177.465

Notes: The table presents a comparison of the estimated coefficient β from columns 2 and 3 of Panel A of Table A13 (columns 1 and 3), and the estimated coefficient β^{DID} from the difference-in-differences specification (A2) (columns 2 and 4). The dependent variable is an indicator for employment in the public sector. Results in columns (1) and (2) are estimated on the sample of candidates to the local council, and results in columns (3) and (4) are estimated on the sample of donors. Standard errors are shown in parentheses and are double clustered at the individual and election level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE A20. **Public Sector Wage Premium**

Type of Job:	(1) All Jobs	(2) Managerial Occupations	(3) White Collar Lower Level	(4) Professional Occupations	(5) Blue Collar Workers
Panel A: Dep. Var. is Log Wage:					
Public	0.072*** (0.000)	0.074*** (0.000)	0.066*** (0.000)	0.219*** (0.000)	0.037*** (0.000)
R-squared	0.453	0.304	0.335	0.451	0.359
Panel B: Dep. Var. is Log Hourly Wage:					
Public	0.160*** (0.000)	0.222*** (0.000)	0.183*** (0.000)	0.227*** (0.000)	0.136*** (0.000)
R-squared	0.478	0.297	0.345	0.424	0.353
Observations	529,460,038	23,076,149	101,602,667	93,673,711	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. *** p<0.01, ** p<0.05, * p<0.1.

TABLE A21. Competence Measures and Public Services Delivery

Dependent Variable:	(1) Avg. Test Scores 4th	(2) Avg. Test Scores 4th	(3) Avg. Test Scores 8th	(4) Avg. Test Scores 8th	(5) Share ≥ 7 Prenatal Visits	(6) Share ≥ 7 Prenatal Visits	(7) Infant Mortality Rate	(8) Infant Mortality Rate
Panel A: Educational Qualification								
Share Qualified Public Sector	0.050** (0.021)		0.022 (0.025)		0.026** (0.011)		-0.138 (0.511)	
Share Qualified Education		0.077*** (0.015)		0.086*** (0.017)				
Share Qualified Health						0.041*** (0.014)		-1.232* (0.749)
Observations	19,755	18,849	12,932	12,353	58,718	53,440	58,720	53,442
Standardized Effect	0.016	0.040	0.009	0.056	0.016	0.018	-0.001	-0.009
Panel B: Residual Ability Score								
Avg. Resid. Ability	0.025*** (0.003)		0.025*** (0.004)		0.004** (0.001)		-0.114 (0.072)	
Avg. Resid. Ability Education		0.008*** (0.002)		0.008*** (0.002)				
Avg. Resid. Ability Health						0.002*** (0.000)		-0.024 (0.028)
Observations	19,694	18,400	12,876	12,139	72,970	48,312	72,982	48,314
Standardized Effect	0.047	0.029	0.060	0.032	0.015	0.021	-0.008	-0.005
Panel C: Previous Private Earnings								
Avg. Private Earnings	0.031*** (0.003)		0.033*** (0.003)		0.012*** (0.001)		-0.159*** (0.055)	
Avg. Private Earnings Education		0.017*** (0.002)		0.020*** (0.002)				
Avg. Private Earnings Health						0.001*** (0.000)		-0.010 (0.024)
Observations	19,706	18,429	12,890	12,164	73,058	48,423	73,070	48,425
Standardized Effect	0.081	0.064	0.108	0.085	0.067	0.021	-0.015	-0.002

Notes: The table presents estimates from a series of regressions of municipality-level public workforce's average competence on measures of public services delivery. The dependent variable is the municipality-level average test scores in math and Portuguese for students in the 4th grade (columns 1-2) and in the 8th grade (columns 3-4), the share of mothers in the municipality who received seven or more prenatal visits (columns 5-6), and the municipality-level infant mortality rate (columns 7-8). The competence measures are the share of public sector workers who are qualified, in terms of education, for their job (Panel A), the average residual ability scores of public sector workers in the municipality (Panel B), and the average previous private sector earnings of public sector workers in the municipality (Panel C). All regressions include a set of municipality-year level controls (per capita gdp, the number of municipal public employees per capita, current public expenditures per capita, capital public expenditures per capita, population, and the corresponding average competence measure calculated among the private sector workers in the municipality), year fixed effects, state fixed effects. "Standardized effect" is the coefficient multiplied by the standard deviation of the competence measure and divided by the standard deviation of the dependent variable. Standard errors in parentheses are clustered at the municipality level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE A22. **Correlations Between Competence Measures**

	Education	Private Earnings	Residual Ability
Education	1		
Private Earnings	0.1837	1	
Residual Ability	-0.1532	0.4274	1

Notes: The table shows pair-wise correlations between our competence measures among all the political supporters in our data.

TABLE A23. Balance of Covariates for Candidates: Gaining a Connection

(1) Covariate	(2) Coefficient	(3) P-value	(4) Mean Cont. Group	(5) Observations	(6) Supporters	(7) Elections
Earnings Public t=0	-37.982	0.685	2521	126,391	121064	4147
Earnings Private t=0	-56.279	0.218	875.1	126,391	121064	4147
Earnings Total t=0	-127.463	0.289	3687	126,391	121064	4147
Employed Private t=0	-0.009*	0.067	0.129	126,391	121064	4147
Employed Public t=0	0.010	0.146	0.252	126,391	121064	4147
Employed Any t=0	-0.000	0.954	0.392	126,391	121064	4147
Employed Qualified t=0	0.007	0.253	0.198	124,958	119826	4147
Employed Unqualified t=0	0.003	0.275	0.0450	124,958	119826	4147
Employed Bureaucrat - Manager t=0	0.002	0.454	0.0270	125,127	119979	4147
Employed Bureaucrat - Lower Level t=0	0.001	0.725	0.0560	125,127	119979	4147
Employed Frontline High Skills t=0	0.002	0.547	0.097	125,127	119979	4147
Employed Frontline Low Skills t=0	0.005	0.153	0.0650	125,127	119979	4147
Earnings Public t=-1	-19.453	0.832	2572	126,391	121064	4147
Earnings Private t=-1	-53.125	0.239	885.3	126,391	121064	4147
Earnings Total t=-1	-104.022	0.391	3760	126,391	121064	4147
Employed Private t=-1	-0.005	0.31	0.135	126,391	121064	4147
Employed Public t=-1	0.010	0.159	0.264	126,391	121064	4147
Employed Any t=-1	0.004	0.553	0.410	126,391	121064	4147
Employed Qualified t=-1	0.006	0.327	0.204	124,579	119471	4147
Employed Unqualified t=-1	0.004	0.173	0.0490	124,579	119471	4147
Employed Bureaucrat - Manager t=-1	0.003	0.212	0.0320	124,777	119647	4147
Employed Bureaucrat - Lower Level t=-1	0.001	0.687	0.0620	124,777	119647	4147
Employed Frontline High Skills t=-1	0.001	0.826	0.097	124,777	119647	4147
Employed Frontline Low Skills t=-1	0.004	0.189	0.0640	124,777	119647	4147
Mincer Sample	-0.001	0.895	0.298	126,391	121064	4147
Residual Ability Score	-0.125	0.202	-0.691	37,800	36585	4030
Secondary School	-0.008	0.179	0.212	125,851	120561	4146
High School	0.003	0.637	0.360	125,851	120561	4146
University Degree	0.004	0.52	0.149	125,851	120561	4146
Age	0.053	0.739	43.32	126,290	120968	4146
Male	0.002	0.574	0.751	126,390	121063	4147
Run Past Election	0.006	0.374	0.328	126,391	121064	4147
Incumbent	0.001	0.905	0.113	126,391	121064	4147
Contributions Received	-47.229	0.749	1832	126,391	121064	4147
Contributions Spent	-47.344	0.75	1825	126,391	121064	4147

Notes: The table shows balance tests for candidates' covariates in the pre-election period, for the sample of candidates whose party was not already in power in the municipality. The coefficients and p-values in columns 2 and 3 are from regressions of the covariate in column 1 on an indicator for treatment status (supporting the winning party), controlling for margin of victory and including election year times party fixed effects, focusing on mayoral races decided by a margin of victory of 5 percentage points or less. Column 4 reports the mean of the covariate in the control group, namely among supporters of the runner-up mayoral candidate. See Table A3 for a description of the covariates listed in column 1. P-values are based on standard errors clustered at the election level. *** p<0.01, ** p<0.05, * p<0.1.

TABLE A24. Balance of Covariates for Candidates: Losing a Connection

(1) Covariate	(2) Coefficient	(3) P-value	(4) Mean Cont. Group	(5) Observations	(6) Supporters	(7) Elections
Earnings Public t=0	61.865	0.731	3580	67,898	65997	3895
Earnings Private t=0	-37.226	0.549	814.1	67,898	65997	3895
Earnings Total t=0	76.045	0.729	4716	67,898	65997	3895
Employed Private t=0	-0.000	0.995	0.108	67,898	65997	3895
Employed Public t=0	0.004	0.657	0.339	67,898	65997	3895
Employed Any t=0	0.008	0.443	0.454	67,898	65997	3895
Employed Qualified t=0	0.007	0.423	0.250	66,884	65068	3892
Employed Unqualified t=0	-0.002	0.713	0.0780	66,884	65068	3892
Employed Bureaucrat - Manager t=0	-0.001	0.911	0.0610	67,142	65312	3892
Employed Bureaucrat - Lower Level t=0	0.008	0.165	0.0740	67,142	65312	3892
Employed Frontline High Skills t=0	-0.003	0.643	0.109	67,142	65312	3892
Employed Frontline Low Skills t=0	0.000	0.938	0.0870	67,142	65312	3892
Earnings Public t=-1	62.381	0.72	3572	67,898	65997	3895
Earnings Private t=-1	-27.480	0.653	809.5	67,898	65997	3895
Earnings Total t=-1	66.368	0.747	4691	67,898	65997	3895
Employed Private t=-1	0.001	0.827	0.116	67,898	65997	3895
Employed Public t=-1	0.007	0.516	0.351	67,898	65997	3895
Employed Any t=-1	0.009	0.39	0.473	67,898	65997	3895
Employed Qualified t=-1	0.008	0.383	0.256	66,649	64842	3894
Employed Unqualified t=-1	-0.001	0.85	0.0830	66,649	64842	3894
Employed Bureaucrat - Manager t=-1	-0.002	0.798	0.0690	66,970	65141	3894
Employed Bureaucrat - Lower Level t=-1	0.009	0.157	0.0800	66,970	65141	3894
Employed Frontline High Skills t=-1	-0.000	0.965	0.109	66,970	65141	3894
Employed Frontline Low Skills t=-1	-0.000	0.94	0.0850	66,970	65141	3894
Mincer Sample	-0.000	0.986	0.295	67,898	65997	3895
Residual Ability Score	0.057	0.734	-0.632	19,883	19493	3423
Secondary School	-0.018**	0.028	0.210	67,659	65772	3895
High School	0.014	0.152	0.365	67,659	65772	3895
University Degree	0.008	0.341	0.161	67,659	65772	3895
Age	0.058	0.774	43.96	67,858	65958	3893
Male	-0.000	0.966	0.736	67,896	65995	3895
Run Past Election	0.001	0.937	0.392	67,898	65997	3895
Incumbent	-0.001	0.833	0.161	67,898	65997	3895
Contributions Received	-112.035	0.698	2578	67,898	65997	3895
Contributions Spent	-98.041	0.735	2565	67,898	65997	3895

Notes: The table shows balance tests for candidates' covariates in the pre-election period, for the sample of candidates whose party was already in power in the municipality. The coefficients and p-values in columns 2 and 3 are from regressions of the covariate in column 1 on an indicator for treatment status (supporting the losing mayoral candidate), controlling for margin of victory and including election year times party fixed effects, focusing on mayoral races decided by a margin of victory of 5 percentage points or less. Column 4 reports the mean of the covariate in the control group, namely among supporters of the runner-up mayoral candidate. See Table A3 for a description of the covariates listed in column 1. P-values are based on standard errors clustered at the election level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE A25. Balance of Covariates for Donors: Gaining a Connection

(1) Covariate	(2) Coefficient	(3) P-value	(4) Mean Cont. Group	(5) Observations	(6) Supporters	(7) Elections
Earnings Public t=0	60.336	0.771	2661	108,202	106958	3660
Earnings Private t=0	-135.467	0.33	1460	108,202	106958	3660
Earnings Total t=0	-242.306	0.476	4760	108,202	106958	3660
Employed Private t=0	-0.001	0.919	0.190	108,202	106958	3660
Employed Public t=0	0.006	0.605	0.190	108,202	106958	3660
Employed Any t=0	0.007	0.676	0.391	108,202	106958	3660
Employed Qualified t=0	0.004	0.697	0.159	107,794	106558	3659
Employed Unqualified t=0	0.002	0.605	0.0270	107,794	106558	3659
Employed Bureaucrat - Manager t=0	0.001	0.69	0.0290	107,951	106712	3660
Employed Bureaucrat - Lower Level t=0	-0.001	0.776	0.0460	107,951	106712	3660
Employed Frontline High Skills t=0	0.003	0.622	0.084	107,951	106712	3660
Employed Frontline Low Skills t=0	0.003	0.262	0.0290	107,951	106712	3660
Earnings Public t=-1	78.350	0.692	2530	108,202	106958	3660
Earnings Private t=-1	-128.972	0.347	1468	108,202	106958	3660
Earnings Total t=-1	-192.980	0.558	4602	108,202	106958	3660
Employed Private t=-1	0.003	0.815	0.197	108,202	106958	3660
Employed Public t=-1	0.007	0.535	0.189	108,202	106958	3660
Employed Any t=-1	0.011	0.538	0.396	108,202	106958	3660
Employed Qualified t=-1	0.007	0.472	0.158	107,798	106560	3660
Employed Unqualified t=-1	-0.001	0.763	0.0270	107,798	106560	3660
Employed Bureaucrat - Manager t=-1	0.002	0.638	0.0290	107,960	106719	3660
Employed Bureaucrat - Lower Level t=-1	-0.000	0.978	0.0470	107,960	106719	3660
Employed Frontline High Skills t=-1	0.002	0.720	0.082	107,960	106719	3660
Employed Frontline Low Skills t=-1	0.004	0.180	0.0280	107,960	106719	3660
Mincer Sample	0.005	0.778	0.368	108,202	106958	3660
Residual Ability Score	-0.140	0.509	0.341	39,718	39377	3140
Amount of Contributions	-11.304	0.927	1303	108,202	106958	3660

Notes: The table shows balance tests for donors' covariates in the pre-election period, for the sample of donors whose party was not already in power in the municipality. The coefficients and p-values in columns 2 and 3 are from regressions of the covariate in column 1 on an indicator for treatment status (supporting the winning mayor), controlling for margin of victory and including election year times party fixed effects, focusing on mayoral races decided by a margin of victory of 5 percentage points or less. Column 4 reports the mean of the covariate in the control group, namely among supporters of the runner-up mayoral candidate. *Amount of Contributions* is the donor's amount contributed to the party and coalition of the supported mayor. See Table A3 for a description of the other covariates listed in column 1. P-values are based on standard errors clustered at the election level. *** p<0.01, ** p<0.05, * p<0.1.

TABLE A26. Balance of Covariates for Donors: Losing a Connection

(1) Covariate	(2) Coefficient	(3) P-value	(4) Mean Cont. Group	(5) Observations	(6) Supporters	(7) Elections
Earnings Public t=0	112.747	0.812	4029	80,385	79673	3144
Earnings Private t=0	255.871	0.146	1288	80,385	79673	3144
Earnings Total t=0	497.500	0.394	5904	80,385	79673	3144
Employed Private t=0	0.027	0.13	0.163	80,385	79673	3144
Employed Public t=0	-0.008	0.693	0.282	80,385	79673	3144
Employed Any t=0	0.019	0.337	0.452	80,385	79673	3144
Employed Qualified t=0	0.002	0.934	0.230	79,896	79205	3138
Employed Unqualified t=0	-0.008	0.203	0.0470	79,896	79205	3138
Employed Bureaucrat - Manager t=0	-0.008	0.508	0.0690	80,194	79487	3140
Employed Bureaucrat - Lower Level t=0	0.008	0.312	0.0700	80,194	79487	3140
Employed Frontline High Skills t=0	-0.006	0.533	0.104	80,194	79487	3140
Employed Frontline Low Skills t=0	-0.002	0.715	0.0370	80,194	79487	3140
Earnings Public t=-1	147.803	0.741	3706	80,385	79673	3144
Earnings Private t=-1	339.123**	0.042	1288	80,385	79673	3144
Earnings Total t=-1	643.444	0.25	5565	80,385	79673	3144
Employed Private t=-1	0.032*	0.069	0.172	80,385	79673	3144
Employed Public t=-1	-0.004	0.831	0.271	80,385	79673	3144
Employed Any t=-1	0.029	0.129	0.449	80,385	79673	3144
Employed Qualified t=-1	0.002	0.928	0.222	79,907	79217	3140
Employed Unqualified t=-1	-0.006	0.326	0.0450	79,907	79217	3140
Employed Bureaucrat - Manager t=-1	-0.006	0.623	0.0660	80,219	79512	3142
Employed Bureaucrat - Lower Level t=-1	0.007	0.353	0.0690	80,219	79512	3142
Employed Frontline High Skills t=-1	-0.004	0.654	0.100	80,219	79512	3142
Employed Frontline Low Skills t=-1	-0.001	0.822	0.0360	80,219	79512	3142
Mincer Sample	0.041**	0.043	0.369	80,385	79673	3144
Residual Ability Score	0.641*	0.059	0.0360	30,748	30560	2552
Amount of Contributions	-17.401	0.916	1422	80,385	79673	3144

Notes: The table shows balance tests for donors' covariates in the pre-election period, for the sample of donors whose party was already in power in the municipality. The coefficients and p-values in columns 2 and 3 are from regressions of the covariate in column 1 on an indicator for treatment status (supporting the losing mayoral candidate), controlling for margin of victory and including election year times party fixed effects, focusing on mayoral races decided by a margin of victory of 5 percentage points or less. Column 4 reports the mean of the covariate in the control group, namely among supporters of the runner-up mayoral candidate. *Amount of Contributions* is the donor's amount contributed to the party and coalition of the supported mayor. See Table A3 for a description of the other covariates listed in column 1. P-values are based on standard errors clustered at the election level. *** p<0.01, ** p<0.05, * p<0.1.

APPENDIX A.2. IDENTIFYING THE EFFECT OF GAINING VS LOSING A CONNECTION

While estimates from equations 4.1 and 4.2 show the causal effect of being politically connected, we also separately analyze the effect of gaining and losing a connection. We combine the RDD design with a difference-in-differences model, estimating equations of the following form:

$$(A1) \quad y_{ikpmt} = \sum_{s=-3}^{+4} \beta_s Shock_{pmt} \mathbb{1}(s = k) + \theta_k^1 MV_{pmt} + \theta_k^2 MV_{pmt} * Shock_{pmt} + \gamma_{kpt} + \delta_{ipt} + \epsilon_{ikpmt}$$

where γ_{kpt} are period-party-election year fixed effects, and δ_{ipt} are supporter-party-election year fixed effects.

We first restrict the sample to political supporters of a party that was *not* in the coalition in power in the municipality in the previous election cycle. We compare the labor market outcomes of those whose supported party wins the election ($Shock_{cmt} = 1$) with the labor market outcomes of supporters of the *same* party but whose mayoral candidate loses the election ($Shock_{cmt} = 0$). This exercise allows us to identify the change in public sector outcomes that takes place when a political supporter gains a connection to the party in power. We normalize the coefficient β_0 to zero, so that β_k measures the change in the outcome variable in period k relative to the election year, for individuals in municipalities where the supported mayor wins the election versus the change for individuals in municipalities where the supported mayor loses the election.

In a similar vein, we can restrict the sample to political supporters of a party that was *already* in the coalition in power in the municipality in the previous election cycle. We compare the labor market outcomes of those whose supported party loses the election ($Shock_{cmt} = 1$) with the labor market outcomes of supporters of the *same* party but whose mayoral candidate wins the election ($Shock_{cmt} = 0$). This exercise allows us to identify the change in public sector outcomes that takes place when a political supporter loses a connection to the party in power.

In order to measure the average treatment effect, we also estimate the following more parsimonious equation:

$$(A2) \quad y_{ikpmt} = \beta Shock_{pmt} * Post_{kt} + \theta_k^1 MV_{pmt} + \theta_k^2 MV_{pmt} * Shock_{pmt} + \gamma_{kpt} + \delta_{ipt} + \epsilon_{ikpmt}$$

in which the indicator variable $Shock_{pmt}$ is interacted with the variable $Post_{kt}$, an indicator taking value one for the post-election period.

Note that we do not use elections from the 2000 election cycle in the estimation of these equations, as we do not have information on the parties belonging to the coalition in power in a municipality in the 1997-2000 period.

The identifying assumption of these two similar empirical designs is once again that, for the supporters in both specifications, potential outcomes are continuous around the zero margin of victory cutoff. Appendix Tables A23, A24, A25 and A26 provide evidence supporting this assumption.

Appendix Figure A5 present the estimates from equation A1, and shows that both the acquisition and the loss of a connection to the party in power imply a significant shock to a political supporter's public employment probability. Appendix Table A13 shows estimates from the more parsimonious equation A2, in which we estimate the average treatment effect in the post-election period on employment probability and public sector earnings, rather than separate coefficients for each post-election period. The effect of gaining and losing a political connection is symmetric. When a supporter of a party that was previously *not* in the ruling coalition in the municipality gains a connection (i.e. the mayor she supports is elected), she experiences an increase of 10.2 percentage points in the probability of having a public sector job (a 46% increase relative to the pre-election period). When instead a supporter of a party that was previously in the ruling coalition in the municipality loses her connection (i.e. the mayor she supports loses the election), she experiences a 8.7 p.p decrease in the probability of having a public sector job (a 30% drop relative to the pre-election period). The effects on public sector earnings follow similar patterns.

APPENDIX A.3. NON-SUPPORTERS AS CONTROL GROUP

Our regression discontinuity design uses supporters of the losing party as a control group for supporters of the winning party. This raises the potential concern that the RDD estimates may be partially picking up a negative labor supply response by supporters in the control group: political supporters of the runner-up party could be more likely to turn down offers of employment in the public sector because of an ideological aversion to the party in power.

To evaluate the relevance of this mechanism, we use individuals who were not supporters of any party as a control group, in a difference-in-differences design. Under the assumption of no time-varying heterogeneity between supporters of the winning party and non-supporters, we can estimate the causal impact of providing political support to the winning party relative to the counterfactual scenario in which no party was supported.

Specifically, for each municipality and each election year, we use as a control group all individuals who appear in the *RAIS* dataset as employed in the municipality in the years before the election. We use as treated group political supporters of a party that was *not* in the coalition in power in the municipality in the previous election cycle, as in the specification of section A.2.⁵⁰ Therefore, in the pre-election period neither group of individuals is connected to the party in power in the municipality. In order to compare the magnitude of the difference-in-differences estimates to our RDD estimates, we again focus only on election decided by a margin of victory of 5 percentage points or less. Furthermore, as for the control group, also for supporters of the party in power we restrict the attention only to those who appear in the *RAIS* dataset as employed in the municipality in the years before the election.

We estimate the following difference in differences specification, using observations from 3 years before to 4 years after the election:

$$(A1) \quad y_{ikmt} = \sum_{s=-3}^{+4} \beta_s \text{Mayor}_{imt} \mathbb{1}(s = k) + \gamma_{kmt} + \delta_{imt} + \epsilon_{ikmt}$$

Where i indexes an individual, m indexes a municipality, t indexes an election-year, and k indexes the year relative to the election. γ_{kmt} are period-municipality-election year fixed effects and δ_{imt} are individual-municipality-election year fixed effects. Each coefficient β_s captures the effect of being a political supporter of the party in power in year k relative to the election.

In order to measure the average treatment effect, we also estimate the following more parsimonious equation:

$$(A2) \quad y_{ikmt} = \beta^{DID} \text{Mayor}_{imt} * \text{Post}_{kt} + \gamma_{kmt} + \delta_{imt} + \epsilon_{ikmt}$$

⁵⁰As for the strategy described in that section, we do not use the 2000 election cycle for the sample of candidates to the local council.

in which the indicator variable $Mayor_{imt}$ is interacted with the variable $Post_{kt}$, an indicator taking value one for the post-election period.

Figure A6 presents the estimated coefficients β_s . Estimates focusing on candidates as political supporters are plotted in blue, while estimates focusing on donors are plotted in red. For both groups of supporters, we find no substantial differential pre-trend in public employment probability relative to non-supporters. The effect of supporting the party in power materializes at the time of the election, and it is similar in magnitude to the effect of gaining a connection reported in Panels (a) and (b) of Figure A5.

In Appendix Table A19 we report a comparison of the estimated average treatment effects of the RDD and difference-in-differences specifications. Specifically, the RDD average treatment effects are the estimated coefficients in columns 2 and 3 of Panel A of Table A13. For the difference-in-differences average treatment effects, we present the estimates of equation A2. The difference-in-differences estimates are similar in magnitude to the RDD ones. This alleviates the concern that the RDD estimates are purely picking up a negative labor supply response by the losing candidates.

The use of this difference-in-differences approach also addresses an additional concern for the interpretation of the RDD estimates, namely that the RDD estimates are reflecting not only a reward for supporters of the winning party, but also a punishment for the supporters of the losing side. See Labonne and Fafchamps (2017) for a discussion of this point in the context of local elections in the Philippines. The estimates using non-supporters as a control group suggest that this punishment effect is likely to be second-order in our context.

APPENDIX A.4. MINCER REGRESSION APPROACH

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 :

$$(A1) \quad y_{i,m,t} = f(\text{age}_{i,t}, \text{education}_{i,t}, \text{sector}_{i,t}) + \alpha_m + \epsilon_{i,m,t}$$

where $y_{i,m,t}$ are hourly private sector earnings of individual i working in municipality m in year t , $\text{age}_{i,t}$ are a set of age fixed effects (over 5-years intervals), $\text{education}_{i,t}$ are four fixed effects for individual educational level (less than middle school, middle school degree, high school degree, university degree), $\text{sector}_{i,t}$ 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.

In Appendix Figure [A7](#), we plot the distributions of the ability score for candidates, donors, and the other 75 millions workers in the *RAIS* dataset: we find that candidates' average score is 0.11 standard deviations lower than that of the average Brazilian worker, while donors' average score is 0.11 standard deviations higher than that of the average Brazilian worker. These differences are statistically significant, with p-values below 0.01. In contrast, Appendix Figures [A8](#) and [A9](#) show that supporters (both donors and candidates) of the elected mayor have a similar ability distribution than supporters of other mayoral candidates.

[Dal Bó et al. \(2017\)](#) calculate this measure for the Swedish population and show that, for males, it is significantly correlated with leadership and cognitive scores conducted in the Swedish military-draft system. While we cannot present a comparable test in our setting, we find that this measure of ability is a strong predictor of political success: elected candidates have a score that is 0.075 standard deviations higher than non-elected candidates. This is consistent with the findings in [Besley et al. \(2017\)](#), where this measure of ability is shown to be a strong predictor of political success in the Swedish context.