PATRONAGE IN THE ALLOCATION OF PUBLIC SECTOR JOBS

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

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ABSTRACT. This paper studies patronage – the use of public sector jobs to reward political supporters of the party in power – in Brazilian local governments. We use longitudinal data on the universe of Brazilian public sector employees over the 1997-2014 period, matched with information on more than 2,000,000 political supporters of Brazilian local parties. Using a regression discontinuity design that generates exogenous variation in individuals' connection to the party in power, we first document the presence of significant political favoritism in the allocation of jobs throughout the entire Brazilian public sector hierarchy. Being a political supporter of the party in power increases the probability of having a public sector job by 10.5 percentage points (a 47% increase). Leveraging detailed information on supporters' and jobs' characteristics, we then show that patronage is the leading explanation behind this favoritism, with jobs in the public sector being used as reward for political supporters. We find that patronage has significant real consequences for selection to public employment, as the amount of support provided to the party in power substitutes qualifications as determinant of hiring decisions. Finally, consistent with this negative impact on the quality of the selected public workers, we present evidence suggesting that patronage practices are associated with a worse provision of public services.

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*PhD candidate, Department of Economics, Stanford University. emacol@stanford.edu.

†PhD candidate, Department of Economics, Harvard University. eteso@fas.harvard.edu.

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

1. Introduction

The quality of individuals employed in the public sector is a crucial determinant of government performance. While studies in this area have analyzed how various incentives shape the pool of individuals who decide to *apply* for public jobs, we know little about the process through which governments *select* public employees (Finan et al., 2015). Despite the introduction of rigid civil service systems, in virtually all countries politicians retain some discretion in this selection process (Evans and Rauch, 1999).[1] While this flexibility can allow politicians to select individuals deemed able and motivated to perform the job, it can also be susceptible to patronage: public sector jobs could be used to reward political supporters of the party in power.[2] As political support substitutes quality as a hiring criterion, patronage represents a potentially key impediment to the efficient recruitment of public sector workers.

Although accounts of this phenomenon are common,[3] we have little systematic evidence on the role of patronage in selection to public employment. Does patronage affect hiring in a modern bureaucracy? And if so, what is the impact of patronage on the quality of the public workforce and, ultimately, on public service delivery? The lack of data and suitable empirical settings has made it challenging to convincingly document the presence of patronage in public employment, let alone to study its consequences.

In this paper, we aim to fill this gap by testing for the presence and consequences of patronage in Brazilian local governments. First, we causally identify the effect of supporting the party in power on the probability of obtaining a public sector job. We identify the presence of significant political favoritism in the allocation of jobs throughout the entire Brazilian public sector hierarchy. We then show that patronage is the leading explanation behind this result, ruling out alternative mechanisms that could explain the presence of this favoritism. In line with political support substituting individual quality as determinant of hiring decisions, we find that supporters of the party in power are screened less on the basis of education and of skills valued by the private sector. Consistent with this negative effect on the quality of the public workforce, we then show that patronage practices are associated with a worse provision of public services.

[1] As described by Grindle (2012), despite the establishment of civil service systems throughout the world, political actors often manage to retain discretion in the allocation of jobs through the use of temporary contracts and the reliance on job categories exempted from the formal selection rules.

[2] The term patronage indicates 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).

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

Brazilian local governments represent a very interesting setting to study patronage in public employment.[4] Among Latin American countries, Brazil is considered a primary example of a *de jure* professionalized and meritocratic civil service (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 of developing countries 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 challenge in the empirical investigation of patronage is the lack of comprehensive information on *both* the careers of public sector workers *and* their connections with the political power. We build a new dataset that allows us to overcome this challenge. To do so, we combine data from two sources. First, we use a matched employer-employee dataset covering the entire Brazilian public sector for the 1997-2014 period. Second, we use administrative data on about 2,000,000 political supporters of Brazilian local parties. These supporters are either *i)* local candidates, namely party members running for a seat in a Brazilian municipal council, or *ii)* campaign donors to a local party.[5] 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 that they support. The data allow us to track the labor market careers of supporters of different parties, investigating whether those supporting the party in power are favored in accessing public jobs. Crucially, the availability of data on the universe of public jobs allows us to analyze favoritism at all layers of the public hierarchy, from high level bureaucratic positions, to the middle-tiers of the bureaucracy and to jobs as front service providers. Moreover, we have rich information on the characteristics of political supporters, such as their education, private sector careers, and amount of support provided to a party, and of the public jobs that they obtain, such as the specific occupation and length of the employment spell. This allows us to conduct several empirical tests to show that patronage is the key driver of political favoritism in public employment, and to study its effects.

To isolate the causal link between the provision of political support and an individual's public sector career, we exploit quasi-experimental variation in connection to the party in power generated by very competitive municipal electoral races. Our regression discontinuity design compares supporters of the winning party in a municipal election (*i.e.* the party of

[4]Brazil is a highly decentralized country, with municipalities responsible for hiring the majority of public sector employees.

[5]Most of the candidates running for a seat in a municipal council are not ultimately elected. Given the part-time nature of the job, even those elected to the council are allowed by law to have jobs outside of politics. This makes both elected and non-elected local candidates well suited to study how political supporters' careers in the public sector are affected by the power of the party to which they are connected. Importantly, throughout the whole paper, being a member of a local council is not considered a "public sector job".

the elected mayor) to supporters of the losing party in the same election (*i.e.* the party of the runner-up mayoral candidate). We focus on elections where the margin of victory of the winning party over the runner-up is small, and we show that supporters of the two sides in these elections are not different along a wide set of pre-treatment characteristics.[6]

In the first step of our analysis, we show that supporters of the party in power are significantly favored in accessing public sector jobs. We find that providing political support to the party in power increases the probability of being employed in the public sector by 10.5 percentage points. Relative to a 22.5% employment probability for supporters of the runner-up party, this represents a 47% increase.[7] This effect is large and statistically significant for both groups of supporters we analyze, implying that the provision of both electoral and financial support matters. Importantly, this political favoritism is not limited to a specific layer of the public sector hierarchy, but it is present across all categories of jobs, from managerial positions at the top of the bureaucracy, to lower levels of the bureaucracy, and to professional and blue collar jobs. In other words, political favoritism in public hiring does not merely affect the careers of high level bureaucrats, but it is a widespread phenomenon across the whole Brazilian public sector hierarchy.[8]

In the second step of the analysis, we show that patronage is the leading explanation behind this favoritism in public employment: public sector jobs are exchanged for political support, in a *quid pro quo* relationship in which the amount of support provided substitutes qualifications as hiring criterion. We first document that a supporter's public sector return is proportional to the *amount* of support provided to the party. For a candidate running for a seat in a local council, we use the number of votes she brought to the party as a measure of the amount of support. For a donor, we use the amount of money donated to the campaign of the party. We show that, while all supporters of the party in power enjoy a certain degree of favoritism, the extent of preferential access to public jobs and the associated monetary returns are monotonically increasing in the amount of support provided.

[6]In our baseline specification, we focus on elections where the margin of victory is lower than 5%, but we show robustness of our estimates to restricting this bandwidth to 3% or 1%.

[7]Our regression discontinuity design uses supporters of the losing mayoral candidate as a control group for supporters of the elected mayor. While this ensures that we are comparing individuals with similar pre-treatment unobservable characteristics, it also raises the potential concern that our estimate of political favoritism not only captures a "reward" for the supporters of the mayor but also a "punishment" for the supporters of the runner-up (Labonne and Fafchamps, 2017). To evaluate the magnitude of this "punishment" component, we use data on the careers of all individuals who were employed in a municipality in the years leading up to the election and did not support any party. Using these individuals as a control group, in a difference-in-differences design, we find estimates that are very similar to the ones obtained from the regression discontinuity design, suggesting that the "punishment" component of our estimates of favoritism is limited.

[8]This political favoritism in accessing public sector jobs translates into a net increase in supporters' labor market earnings: on average, supporters of the mayor increase their earnings in the formal economy by 25%.

We then establish that providing political support to the party in power acts as a substitute for individual quality. First, we collect information on the educational requirements to adequately perform each occupation in the Brazilian public sector. Coupled with information on supporters' educational attainment, this allows us to analyze whether supporters of the party in power are more likely to be hired in a public job for which they do not have the required educational level. We find that supporters of the party in power are screened less on education than supporters of the runner-up party. Among public sector workers, individuals in the former group are 17% more likely to be *unqualified* in terms of education than those in the latter. Second, we use supporters' private sector wages before the election as a measure of skills and productivity. We find that supporters of the party in power are screened less also along this dimension of quality. Political favoritism is particularly concentrated among supporters with lower private sector earnings.

We also evaluate whether two alternative interpretations of the political favoritism that we documented are consistent with the empirical evidence. In the first alternative interpretation, mayors are using their discretion to hire individuals who have higher ability, despite being less qualified on observable dimensions. In other words, political favoritism is the result of mayors having better "soft" information about members of their network, and thus being able to screen them on dimensions of talent that we cannot observe. We evaluate the plausibility of this interpretation in two ways. First, we calculate a measure of pre-election personal ability *conditional* on observables, as in Besley et al. (2017) and Dal Bó et al. (2017). That is, we calculate private sector earnings residuals from a Mincer regression controlling for an individual's demographic and job characteristics.[9] Using this measure, we find that supporters of the party in power are screened *less* on this metric of residual personal ability. Second, we analyze political supporters' long-run careers. *Ex-ante* unobservable dimensions of "talent" should be revealed and become common knowledge after several years on a public job.[10] Hence, if mayors are using hiring discretion to select talented individuals in their political network, these talented workers, once hired, should keep their job even if the party in power changes. However, we find that this is *not* the case. The career of these individuals is strictly linked to the fortune of the party they support, as they lose their job as soon as their own party loses power.

In the second alternative interpretation, political favoritism is the result of the mayor's desire to hire individuals with similar ideological views, as the matching between the ideology

[9]Specifically, we estimate earnings residuals from a fully saturated Mincer regression using information on private sector earnings for *all* Brazilian workers and controlling for a full-set of interactions between age, education, gender, and sector and location of employment.

[10]An important dimension of "talent" to perform a public job is an individual's public service motivation, which could be not captured by our measure based on private sector earnings, and which mayors could better observe among members of their political network.

of the mayor and that of her bureaucrats increases organizational efficiency.[11] However, contrary to this interpretation, we do *not* find that, among the mayor's supporters, those who have a stronger ideological link to the party enjoy a higher degree of favoritism in accessing public jobs. Supporters who recently switched political alliances are as likely to be allocated a public sector job as individuals who have been loyal to the party for a long period of time.[12]

Taken together, these results indicate that patronage negatively affects selection to public employment, as the supporters who benefit most from patronage are less qualified on observable dimensions, are *not* characterized by better unobservable characteristics, and are *not* more ideologically aligned to the party in power. However, there may still be positive effects of patronage which we are unable to investigate. For instance, loyalty between supporters and parties could limit agency problems and increase supporters' effort on the job.[13] In other words, whether patronage is associated with a net negative effect on the quality of public services is an empirical question.

In the final part of the paper, we move a first step towards understanding the ultimate effect of patronage on the quality of public goods provision. To do so, we use our data to build an estimate of patronage that is specific to each municipality and election in the 2004-2012 period. We then exploit differential changes in within-municipality variation in the extent of patronage over time to test whether patronage is associated with the quality of public goods provision. We focus on one of the main responsibilities of Brazilian local governments: primary education. We use data on students' standardized test scores as an objective measure of students' achievements. We show that an increase in patronage in a municipality is associated with lower students' test scores in the local public schools. This result provides suggestive evidence that patronage has significantly negative welfare consequences.[14]

Our paper contributes to a recent body of research on the personnel economics of the bureaucracy. Papers in this growing literature have analyzed the role of incentives in the

[11]Pursuing this goal can be especially valuable at high level of the public sector hierarchy, as having high-level bureaucrats who are ideologically aligned with the political power can facilitate policy implementation. However, this ideological alignment can be beneficial also at lower levels of the hierarchy, if workers exert more effort when they care about the mission of the organization (Ashraf et al., 2014). However, see Rasul and Rogger (2015) for evidence that ethnic *heterogeneity* within bureaucracies leads to better organizational performance.

[12]This is true for both the groups of supporters analyzed. Candidates who in the previous election were affiliated with a different party are as likely to benefit from favoritism as candidates who have remained loyal to the same party. Donors who were contributing to a different party are as likely to benefit from favoritism as donors who were loyal to the same party in their contributions.

[13]A likely additional effect of patronage is to lead to an inefficiently large public sector workforce (Shleifer and Vishny, 1994).

[14]Consistent with politicians increasing the size of the bureaucracy in presence of incentives to engage in patronage practices, we also show that a higher extent of patronage is associated with higher growth in the municipality personnel.

selection and performance of public sector workers (Dal Bó et al. (2013), Ashraf et al. (2014), Ashraf et al. (2016), Bertrand et al. (2016), Deserranno (2017)), the impacts of political oversight over the bureaucracy (Iyer and Mani (2011), Rogger (2014), Akhtari et al. (2016), Gulzar and Pasquale (2016), Ornaghi (2016)), and bureaucrats' management practices (Rasul and Rogger, 2017).[15] Weaver (2017) shows how corruption in hiring for public sector jobs can lead to the selection of higher quality workers if quality and willingness to bribe are positively correlated.[16] Xu (2017) studies patronage in the historical context of the British colonies, showing that socially connected governors performed worse during the historical period characterized by political discretion in the appointment of governors.[17] We contribute to this literature by providing the first causal analysis of the presence and extent of patronage in a contemporary setting, and along the whole public sector hierarchy, and by studying how patronage (negatively) affects the process of selection to public employment. More generally, by showing how political incentives affect a government's allocation of public jobs and the quality of the pool of hires, 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)).

The rest 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. In Section 5 we present our estimates of political favoritism in public employment. In Section 6 we investigate the nature of this favoritism, showing that patronage is its leading explanation and that this negatively affects selection to public employment. In section 7 we discuss the relationship between patronage and the quality of public goods provision. Section 8 concludes.

[15] Best et al. (2016) quantify how much of the variation in state effectiveness is due to individual bureaucrats' effectiveness, in the context of Russian public procurement agencies.

[16] Guardado (2017) studies office-selling in the context of colonial provincial governorships in Peru in the 17th-18th centuries, linking the type of the appointed governors to long-run development.

[17] Other studies of patronage include Folke et al. (2011) and Ujhelyi (2014), who 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 elite, that is 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.

2. Institutional Context

In this section, we first describe the main features of Brazilian municipal elections and the role played by the two groups of political supporters which are the focus of our paper, namely candidates to Brazilian local councils and individual donors. We then discuss the selection process of public sector workers in Brazil.

2.1. **Local Politics in Brazil.**

Brazil's 5,570 municipalities are governed by a mayor (*prefeito*) together with a council of local legislators (*Camara 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 in a municipality for a maximum of two consecutive terms. Mayors are elected by plurality rule, with municipalities with more than 200,000 registered voters holding a second round if no candidate has received a majority in the first round. While mayors are associated with a party, they are typically supported by a coalition of parties.[18]

The first group of political supporters analyzed in this paper are candidates who run for a seat in the council of local legislators. Candidates for the local council run individually in a unique "at-large" district comprising the whole municipality, and they are elected using an open-list proportional representation system.[19] Unlike mayors, members of the council do not face term limits. Candidates are members of a party, with parties generally forming pre-election coalitions.[20]

Council seats 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.[21] The seats allocated to a coalition are then assigned to the candidates of the coalition who received the highest number of "personal" votes. Therefore, the electoral system gives strong incentive to parties and coalitions to present lists with large numbers

[18]81% of mayoral candidates over the 2000-2012 period were supported by a coalition of parties (authors' own calculations using electoral data from the *TSE*).

[19]The number of council seats, ranging from 9 to 55, varies as a function of the population in the municipality. The allowed number of seats was established by the 1988 Brazilian Constitution up until the 2000 elections, by Resolution 21.702 elaborated by the *Tribuanal Superior Eleitoral* for the 2004 and 2008 elections, and by the 58th amendment to the Brazilian Constitution for the 2012 elections. These rules leave a degree of discretion to local legislators with respect to the choice of the number of council seats, establishing only a maximum (but not a minimum) number of seats as a function of population size (Dahis, 2015).

[20]87% of parties running in a local election over the 2000-2012 period were part of an electoral coalition. Parties supporting different mayors cannot be part of the same coalition for the local council election.

[21]Specifically, seats are awarded using an electoral quota and the d'Hondt formula.

of candidates, since even votes for non-viable candidates are valuable as they contribute to increase the number of seats allocated to the coalition.[22]

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 required to give up their outside jobs upon election, as being a legislator is a part-time activity.[23]

The second group of political supporters analyzed in this paper are donors to a municipal election campaign. Up until the 2012 municipal elections, mayoral candidates and candidates to the local council could receive campaign donations from both corporations and individuals, with the latter being allowed to donate up to 10% of their gross annual income.[24] Law no. 8713/1993 requires candidates to submit to electoral courts a detailed overview of all the campaign contributions received in the election cycle. In the 2008 and 2012 elections, the average share of funds that came from individuals was 28% for mayoral candidates and 40% for candidates to the local council.[25] Individual donors make up a very small share of the population, with only 0.42% of Brazilians who were at least 18 years old donating in the 2012 municipal election.[26]

2.2. **The Allocation of Jobs in the Public Sector.** Spending by Brazilian municipalities is mainly financed by transfers from the state and federal government, with municipalities being 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). Municipalities employ

[22]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. For the elections from 2000 to 2012, we find that coalitions take advantage of this rule, with each additional seat in the council being associated with a 1.7 increase in the number of candidates running in a coalition. However, the fact that the coefficient is less than 2 potentially implies that intra-coalition competition introduces some incentive to limit the number of candidates on the ballot.

[23]As described in Ferraz and Finan (2011), 98 percent 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. Members of the local council review and approve the local budget proposed by the mayor (with the power of vetoing certain budget items), and can submit bills mainly directed to the adoption of social programs.

[24]Until 2015, there was no limit on the total amount of donations a candidate or a party could receive. Donations from corporations have been prohibited by Law 13.165/2015. Therefore, since 2016, candidates can finance their campaign only with donations from individuals or using party funds.

[25]These shares are based on the authors' calculations using the campaign data from the *Tribunal Superior Eleitoral* described in section 3.1.

[26]While most of the amounts donated are relatively small, cases of large donations by individuals related to corporations are not uncommon. In the 2012 election, the largest single donor was a businessman of the luxury real estate sector, who donated a total of 2.85 million Reais (about 900,000 USD). See http://veja.abril.com.br/brasil/empresario-da-construcao-da-r-3-milhoes-a-campanhas/, accessed October 2017.

the largest share of Brazilian public sector employees – 56% as of 2014, up from 40% in 1997.[27]

Selection in most public sector jobs is based on objective selection criteria: applicants present academic and professional credentials, and undertake a formal civil service examination (*Concurso Publico*), which is job-specific and consists of a combination of written and oral tests. Article 37 of the Constitution establishes clear transparency requirements for the selection of public sector workers.[28] Public sector workers hired through this procedure acquire tenure after three years of service, following which they can be fired only for reasons of misconduct after a judicial decision.

Individuals can be hired in a public sector position without passing the civil service examination under three special exempt categories of jobs: commissioned posts (*cargos comissionados*), positions of trust (*função de confiança*), and temporary jobs (*emprego temporario*). Hiring in the first two categories is limited to positions of manager, supervisor or advisor, allowing politicians discretion in the selection of people in leadership roles.[29] In practice, the vague language used by the law leaves ample discretion to politicians, with possible cases of violations when individuals are hired in a commissioned post or in a position of trust even though their occupation does not fall under the leadership categories required by the Brazilian Constitution.[30]

Politicians can also hire temporary public servants to "meet a temporary need of exceptional public interest" (Artcle 37 IX of the Brazilian Constitution). In these cases, the law states that no civil service exam is necessary and that the selection process can be limited to the analysis of an applicant's curriculum, without other formal criteria of objective measurement. The law also contains a detailed list of the instances that fall under this category, and politicians can be prosecuted in case they hire temporary workers without justification.[31]

[27]These shares are based on the authors' calculations using data from the *RAIS* dataset described in section 3.2.

[28]Article 37 of the Constitution states: "*The governmental entities and entities owned by the Government in any of the powers of the union, the states, the federal district and the Municipalities shall obey the principles of lawfulness, impersonality, morality, publicity, and efficiency...*"

[29]The difference between positions of trust and commissioned posts is that the former requires that the individual is already employed as a civil servant, whereas the latter allows for the hiring of individuals who have never passed the civil service examination.

[30]For example, in 2012 the mayor of the municipality of Jundiai exploited commissioned posts and ad-hoc laws to appoint more than 300 people to jobs that did not fall under a leadership category. 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 October 2017.

[31]For instance, in 2015 the public prosecutor of Pernambuco accused the mayor of the municipality 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 October 2017.

In addition to the above exempt categories, there is some anecdotal evidence of cases of fraud in public examinations, especially at the local level. In 2012, a reportage by the team of journalists of *Fantastico*, one of the most popular TV shows of the premier Brazilian network "Globo," uncovered an astonishing number of such cases across the country.[32] Illegal interference with the public examinations is typically achieved by (i) providing individuals with the answer sheet prior to the exam, (ii) ex-post replacing specific individual tests with better ones, and (iii) directly changing the list of winning candidates.[33]

3. Data

We use information from two main sources. Data on electoral results, candidates to municipal councils, and individual donors come from the Brazilian Electoral Commission (TSE). Data on public sector employment come from the Relação Anual de Informações Sociais database (RAIS). In this section we (i) provide a description of the data sources, (ii) discuss the matching of the datasets, and (iii) present a number of descriptive facts that show the importance of political dynamics in driving public employment.[34]

3.1. **Electoral Data.** We obtain the publicly available electoral data for the 2000, 2004, 2008, and 2012 municipal elections from the Tribunal Superior Eleitoral (TSE). The data contain electoral results for both mayoral elections and elections for the local council.[35] We also have information on the coalition each candidate belongs to, and on the mayoral candidate supported by the coalition.

The TSE provides demographic information on the candidates, including their education and the amount of money raised during the campaign. Importantly, we have information on each candidate's individual tax identification number, called *CPF* (Cadastro de Pessoas Físicas). There are 1,034,194 candidates who run for a seat in the local council over this period, with about 27% of candidates running in more than one election. After dropping the few cases (0.3%) of candidates without valid information on their *CPF*, we are left with a sample of 1,031,083 unique members of a political party who run in an election for the local council over the 2000-2012 period. We code each candidate as a supporter of a specific

[32]See "Golpe transforma concursos publicos em cabides de emprego": http://g1.globo.com/fantastico/noticia/2012/06/golpe-transforma-concursos-publicos-em-cabides-de-emprego.html, accessed October 2017.

[33]For example, in the municipality of Novo Barreiro, in the state of Rio Grande do Sul, the public prosecutor found the mayor and other members of the local administration guilty of such a fraudulent scheme: a company bidding to administer the test won the tender under the condition that a few specific jobs were "kept available" for specific political appointees. In the nearby municipality of Itati, an exam's supervisor noticed that several applicants turned in blank tests, and then ended up being selected for the position.

[34]In the analysis of section 7 we use a number of additional municipal-level variables. We describe these variables and their sources in that section of the paper.

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

mayoral candidate if she belongs to a party in the coalition that supports that mayoral candidate.[36]

For the 2004, 2008, and 2012 municipal elections, TSE provides data on all individuals' campaign contributions in municipal elections. We keep all records for which the data contain valid information on a donor's *CPF*.[37] We code each donor as a supporter of a specific mayoral candidate if she either (i) contributed to that mayoral candidate's campaign, or (ii) contributed to the campaign of a candidate to the local council who belongs to the coalition that supports that mayoral candidate.[38] It is extremely rare for an individual to donate to the campaign of parties that support different mayoral candidates, and we drop the few cases (0.32%) where this happens, since this prevents us from identifying the donor as a supporter of a unique mayoral candidate in an election. Our final sample includes donations by 1,057,216 unique individuals.[39]

3.2. **Labor Market Data.** The principal source of employment data is the *RAIS* (Relação Anual de Informações Sociais) database. The *RAIS* database provides a unique picture of the universe of Brazilian public sector workers, as well as a general picture of private sector employment in the Brazilian formal economy. *RAIS* is an administrative matched employer-employee dataset managed by the Brazilian Ministry of Labor (Ministério do Trabalho e Emprego - MTE). The dataset covers the universe of workers among those employed in the Brazilian public sector and in the formal private sector (Menezes-Filho et al., 2008).[40] Each individual in *RAIS* is assigned a unique administrative worker identifier, which allows for tracking of the individual over time and across employers. We use data for the years 1997 to 2014.

Two categories of individuals who are formally employed 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

[36]Appendix Table A1 provides summary statistics for the universe of candidates in our dataset. Only 7% of candidates in our dataset are ever elected to the council. Conditional on running in multiple elections, it is not rare for a candidate to change party (the average number of parties is 1.72). The large majority of candidates is male, and there is wide variation in candidates' level of education.

[37]Missing information on a donor's *CPF* is extremely rare for the 2008 and 2012 elections, but about 36% of donations in the 2004 elections do not include this information. We also drop donors who are also political candidates during the 2000-2012 period, since these individuals enter our first group of supporters.

[38]While we choose to identify an individual as a supporter simply based on the extensive margin of her donations (whether she donated to a candidate) and not on the intensive margin (how much she donated), we will also leverage information on the amount donated to investigate possible heterogeneous effects in the amount of financial support provided.

[39]Appendix Table A2 provides summary statistics for the universe of donors in our dataset. The large majority of donors are active only in one election and donate only to a single party. The average donation is of R$727, corresponding to about USD230.

[40]The dataset also includes information on employees of no-profit and international organizations.

we talk about labor market outcomes in the public sector we are excluding the jobs of elected candidates as local legislators.

For each worker-job pair, the *RAIS* database contains information on payroll, hiring and separation dates, employer identifier, as well as location and industry of the employer. Additionally, it contains details on the hours worked by contract, the type of contract (permanent or temporary), the specific occupation of each worker, and the worker's level of education. Finally, the data contain information on a worker's *CPF*.

The Brazilian official occupational classification system divides the Brazilian labor market in 2,511 occupations. We complement the data from *RAIS* with information from the *Classificação Brasileira de Ocupações 2002* (*CBO*), an official publication by the Brazilian Ministry of Labor which describes, among other things, the educational level typically required to properly perform a specific occupation. We use this information to code, for each worker-job pair in *RAIS*, whether the worker is qualified for the job (namely, whether her educational level is the same or higher than the educational level typically required to perform her occupation).[41]

3.3. **Matching and Final Dataset.** We match our datasets of candidates and donors to *RAIS* using the individual identifier *CPF*, which is available in both datasets. We match 66.9% of political supporters to *RAIS* (67.3% of candidates and 66.4% of donors). Of these, 69% of candidates and 52% of donors are employed in the public sector for at least one year in the period 1997-2014.[42]

We construct a panel dataset at the supporter-year level, with information on employment status, annual earnings, and job characteristics, for the public and the private sector separately.[43] Each individual is allowed to have both a public sector *and* a private sector job in the same year.[44]

We have detailed information on a supporter's occupation. We can categorize each public sector job as a "permanent job", or as a "temporary job", the latter being one for which

[41]We code this variable as missing for the few occupations for which the *CBO* publication does not clearly specify a required educational level.

[42]The 33.1% of supporters who are not matched to *RAIS* are never employed in the public sector or as employees in the formal private sector in this period. These supporters are either unemployed, working in the informal economy, self-employed, or holding a job as elected politician (or a combination of these) during the entire 1997-2014 period. Importantly, the presence of an administrative individual identifier in both datasets means that there is no error in the matching procedure. This allows us to include also the unmatched supporters in the analysis, coding them as never employed in the public or private sector in the 1997-2014 period.

[43]If an individual does not work in a specific sector in a given year we impute 0 earnings to the respective variable. All earnings measures are expressed in 2000 Brazilian Reals. To reduce the possible influence of outliers in the earnings variables in our main analysis, we winsorize the earnings variables at the 1% in our sample of political supporters.

[44]A small subset of individuals have multiple occupations within the same sector in the same year. For these cases, we keep the job with the highest wage, following the common practice of other studies that use the *RAIS* dataset (Menezes-Filho et al., 2008, Colonnelli and Prem, 2017).

the worker has been hired through a temporary contract or through an exempt occupational category. We also categorize each job into one of five broad occupational categories following the *CBO* classification: managerial, professional, high skilled technical, clerical, and blue collar.[45] Finally, as described in the previous section, information from the *CBO* categorization of occupations allows us to code each supporter employed in the public sector as qualified or unqualified, in terms of education, to perform her specific occupation.[46]

3.4. **Descriptive Facts About the Brazilian Public Sector.**

3.4.1. *Public Sector Turnover Spikes in Election Years.* The first interesting stylized fact that emerges from the data is that electoral cycles are a crucial determinant of the size and composition of the public sector workforce. Panel A of Figure 1 plots the average share of yearly new hires and terminations in the municipal public sector in Brazilian municipalities over the 1999-2014 period.[47] We compute shares using as denominator the total number of public sector workers in the municipality in the previous year.

Local public sector turnover is significantly higher in a year that immediately follows a local election (indicated by a green vertical line in the figure).[48] As it is clear from Appendix Figure A1, there is no significant spike in private-sector turnover following an election year.

We formally investigate the magnitude of this turnover effect in Table 1.[49] Years following a municipal election see an increase in the share of new hires in the local public sector of about 7.9 percentage points, and an increase in the share of terminations of about 4.2 percentage points (columns 1 and 2). These represent a 50% and 36% increase relative to other years.[50] The larger increase in the share of new hires relative to the increase in terminations translates

[45]In the public sector, the most represented jobs in the managerial category are: manager of public sector agency, school headmaster, administrative director, health services manager; the most represented jobs in the professional category are: primary school teacher, secondary school teacher, doctor, nurse; the most represented jobs in the high skilled technical jobs category are: primary school teacher, nursing assistant; the most represented jobs in the clerical category are: administrative assistant, administrative supervisor, receptionist; the most represented jobs in the blue collar category are: garbage collector, community health worker, driver.

[46]Before 2003, *RAIS* uses a previous occupational classification. While it is possible to construct a matching between the previous and the current classification, the former is less detailed and the same occupational code matches multiple, more detailed occupational codes in the latter. For this reason, when we exploit information on a worker's specific occupation we will focus on the 2003-2014 period.

[47]For each municipality, the new hires are defined as the public sector workers employed by the municipality who where not public sector workers in the same municipality in the previous year. The terminations are defined as the municipal public sector workers who were employed by the municipality in the previous year and are not employed in the current year.

[48]This is consistent with Akhtari et al. (2016), who document the high rate of turnover for teachers and headmasters in local schools following the change of the party in power in a municipality.

[49]The panel of municipalities is not balanced since some municipalities are merged or split during this period. We obtain very similar estimates if we restrict the sample to a balanced panel of municipalities that exist and have positive local public sector employment throughout the entire period.

[50]In all specifications, we include municipality-specific time trends to account for municipality-specific trends in public sector employment over the period.

into a significant net increase in local public sector employment following an election year: the number of public sector employees in municipal governments grows 62% more in years following a local election (see column 3 of the table and panel B of Figure 1).

As shown in columns 4-7 of Table 1 (and in Appendix Figures A2), most of the abnormal turnover is driven by temporary jobs in the public sector, although the effect is significant also for permanent positions. Furthermore, Appendix Figures A3 show that these trends are significant for all categories of jobs, from managerial and professional positions to clerical and blue collar jobs.

While post-election years see lower municipal government expenditures (see column 8 of Table 1), expenditures in personnel is higher (see column 9 of Table 1), consistent with the higher growth in local public employment discussed above.[51]

3.4.2. *Political Supporters Are Over-represented Among Public Sector Workers.* Table 2 provides an overview of the labor market careers of political supporters in the period 1997-2014. We compare local candidates and donors to the population of 87.5 millions workers who enter the *RAIS* dataset during this period, having been employed in the formal economy for at least one year. For the purpose of this table, we exclude the 33.1% of supporters who are not present in *RAIS*, since they are never employed in the formal economy in the 1997-2014 period.

The most striking point of the table is the over-representation of political supporters among public sector employees. Political supporters are significantly more likely than the average Brazilian worker to have been ever employed in the public sector: among the universe of workers, 19% are employed in the public sector on at least one year over the 1997-2014 period, while this share is 52% for donors and 69% for local candidates. This is true for both temporary and permanent positions, and especially for public sector jobs at the municipal level.[52]

Additional interesting facts emerge from the data. Public sector occupations are lucrative relative to private sector ones: the average annual earnings of a job in the public sector are about 90% higher than the average earnings in the private sector (13,659 Brazilian Reals versus 7,070 Reals).[53] Conditional on being employed in the public sector, earnings of local candidates are on average slightly lower than the earnings in the population (median wages

[51]The fact that we do not see higher municipal expenditures in budget items other than personnel suggest that the higher growth in public employment cannot be explained by the mayor's need to hire new workers in post-election years because of an overall municipal increase in investment or the implementation of new policies promised during the campaign.

[52]Political supporters are instead significantly less likely to be ever employed in the private sector.

[53]Appendix Table A3 presents a more extensive investigation of the public sector wage premium, by comparing log wages in the public and private sector controlling for the worker's job tenure, the worker's age, municipality fixed effects, year fixed effects, and 43 occupations fixed effects. Even after conditioning on job's and worker's characteristics, a public job pays on average 7% more than a private sector job, with a significant premium in all occupational categories. The wage gap is even larger if we consider hourly wages.

are very similar), while local candidates earn more in the private sector. Consistent with donors belonging to a relatively wealthy group of citizens, their earnings in both the public and the private sector are on average the highest across the three groups of workers.

Figure 2 reveals that the public sector careers of political supporters seem affected by the fortunes of the political party that they support. We plot the evolution of supporters' employment probability in the public sector around the time of a municipal election, from 3 years before to 6 years after the election. Supporters are divided between candidates and donors, and we further differentiate between those who supported the mayor who ends up winning the election and those who supported one of the losing mayoral candidates. Supporters of the party who wins the mayoral elections experience a sharp increase in public sector employment probability that takes place precisely in the year of the election and somewhat dissipates at the end of the term. In the next section, we will use an identification strategy based on close races to identify whether these trends underline a causal relationship between political support and an individual's public sector career.

4. Measuring Favoritism: Empirical strategy

4.1. **Main Regression Discontinuity Design Estimates.** Our first goal is to estimate the extent of political favoritism in Brazilian public sector employment, that is the causal effect of supporting the party in power on an individual's probability of having a public sector job. In the ideal experiment, we would compare the public sector employment probability of supporters of the party in power, with their employment probability in the counterfactual scenario in which they had *not* been supporters of the party in power. In order to approximate this ideal experiment, we need to find a suitable control group for supporters of the party in power. Clearly, supporters of the party in power are not a random subset of the population. One important source of unobservable heterogeneity is public service motivation: individuals with stronger public service motivation will be more likely to both be employed in the public sector and support a political party.

For this reason, our identification strategy compares the labor market outcomes of supporters (candidates and donors) of the successful mayoral candidate with the outcomes of supporters of the runner-up mayoral candidate who runs in the same election (*i.e.* in the same municipality and in the same year). While both these groups of individuals are political supporters, the choice of which party to support is not random. For instance, individuals who are actively seeking access to public sector employment may be more likely to decide to support the stronger party in the election. For this reason, we further restrict the sample to elections where the margin of victory of the winning party over the losing party is small. The identification assumption is that, for these very competitive electoral races, whether a party wins or loses the election is "as good as" random. If this assumption holds, then whether a

supporter becomes connected to the party in power or to the losing party is also "as good as" random.[54]

In our main specification, we use a local linear regression approach (Gelman and Imbens, 2016) restricting the sample to elections where the winning mayoral candidate has a margin of victory over the runner up of 5% or less.[55] We pool all the close elections in our sample and include observations for the four years after the municipal election. We estimate the following model:

$$y_{ikcmt} = \beta Mayor_{cmt} + \sum_{k=1}^{+4} \theta_k MV_{cmt} + \gamma_{kmt} + \epsilon_{ikcmt} \tag{4.1}$$

where y_{ikcmt} is the labor market outcome (employment or earnings) of supporter i, who supports mayoral candidate c in the election taking place in municipality m and election year t, measured k periods (*i.e.* years) after the election year. γ_{kmt} are period-municipality-election year fixed effects.[56] MV_{cmt} measures the margin of victory of mayoral candidate c over the opponent in the election taking place in municipality m and election year t.[57] $Mayor_{cmt}$ is an indicator variable that equals one if mayoral candidate c won the election taking place in municipality m and election year t, becoming the municipality mayor for the following four years. To extend the RDD approach to our setting, we allow the effect of the running variable MV_{cmt} to vary flexibly over time. The coefficient β measures the average treatment effect, namely the average difference in employment probability/earnings, over the four years following the election, between the supporters of the winning mayor and

[54]This approach is similar to the one used by Fisman et al. (2014), who compare the wealth accumulation of losing and winning politicians who run in the same (very competitive) constituency.

[55]We compute also the optimal bandwidth following the procedure in Calonico et al. (2014). This selection procedure is specific to each outcome and sample, and, in our specifications, it always delivers an optimal bandwidth larger than 5%. In order to maintain the same sample of supporters and elections across all our results, throughout the paper we always use the more conservative 5% margin of victory cutoff to define an election as "close". Results in the paper appendix show that our estimates are highly robust to the use of the less conservative optimal bandwidths, and to the use of even more conservative bandwidths (3% or 1% margin of victory).

[56]Since candidates can run, and donors can contribute, in multiple elections, each supporter can enter the sample multiple times as part of different "natural experiments." The inclusion of period-municipality-election year fixed effects ensures that the outcomes of supporters of the winning mayor are compared to those of the supporters of the runner-up in the election taking place *in the same municipality and same election year* (as well as restricting the comparison to the same period relative to the election year, which increases precision). While the inclusion of γ_{kmt} increases precision, the validity of the identification assumption of the RDD does not rest on its inclusion, and results are robust to excluding this set of fixed effects from the estimating equation. In 0.4% of the cases a donor is a supporter of the winning mayor in a municipality, and of the runner-up in a different municipality in the same election year. We do not drop these cases from the analysis and we consider them as both "treated" and "control" observations, depending on the municipality considered. Dropping these few cases from the analysis does not affect the results.

[57]The margin of victory will be positive for supporters of the elected mayor, and negative for supporters of the runner-up mayoral candidate.

the supporters of the runner-up 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 (both in the years before and after the election), we also estimate the following more flexible specification, in which the treatment effect is allowed to vary over time:

$$y_{ikcmt} = \sum_{k=-3}^{+4} \beta_k Mayor_{cmt} + \sum_{k=-3}^{+4} \theta_k MV_{cmt} + \gamma_{kmt} + \epsilon_{ikcmt} \tag{4.2}$$

The coefficients β_k captures the effect of supporting the party in power on employment probability/earnings k years before/after the year of the election.[58] We include observations for the three years before the election to document the absence of significant differences in the outcome variables between supporters of the winning mayor and of the runner-up in the years leading up to the election.

The identification assumption of our design is that potential outcomes are continuous around the zero margin of victory cutoff. That is, we assume that, for close electoral races, whether a political supporter ends up being connected to the party in power or to the losing side in the election is essentially random. While the validity of this assumption is ultimately untestable, we can show that supporters of the two sides are similar in observables before the election, which lends credibility to the assumption that the two groups are comparable, except for their different treatment status. Tables 3 and 4 provide evidence supporting this assumption using information on a wide array of pre-treatment covariates, including labor market outcomes in the election year and in the year before the election, political characteristics, and supporters' demographic characteristics. We find no evidence of discontinuity in pre-treatment covariates at the zero margin of victory cutoff.[59]

4.2. **The Effect of Gaining Versus Losing a Connection.** While the estimates from equations 4.1 and 4.2 measure the causal effect of being a supporter of the party in power on post-election public sector outcomes, they do not allow us to fully capture the labor market dynamics behind the effect. In particular, when a supporter *gains* a political connection, we expect her to experience a higher probability of *hiring* in the public sector (if she was not already employed in the public sector). Similarly, when a supporter *loses* a political

[58]Differently from a difference-in-differences specification, where one of the coefficients is constrained to zero, this specification estimates the treatment effects for each of the eight years ranging from three years before the election to four years after the election.

[59]Only 2 out of 41 covariates are significantly different between candidates of the two sides, while no covariate is statistically different in the sample of donors.

connection, she will be more likely to *lose* her public sector job (if she had one).[60] By measuring the average difference in outcomes between supporters of the two sides in the post-election period, estimates from equations 4.1 and 4.2 cannot capture these dynamics.

To separately identify the effect on public sector employment of gaining a political connection and the effect of losing one, we estimate two additional equations of the form:

$$y_{ikcmpt} = \sum_{k=-3}^{+4} \beta_k Shock_{cmt} + \sum_{k=-3}^{+4} \theta_k^1 MV_{cmt} + \sum_{k=-3}^{+4} \theta_k^2 MV_{cmt} Shock_{cmt} + \gamma_{kpt} + \delta_{ipt} + \epsilon_{ikcmt} \tag{4.3}$$

where p indexes the party of supporter i, γ_{kpt} are period-party-election year fixed effects, and δ_{ipt} are supporter-party-election year fixed effects.

In the first exercise, we 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 mayor wins the election ($Shock_{cmt} = 1$) with the labor market outcomes of supporters of the *same* party but whose supported mayor 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. The inclusion of period-party-election year fixed effects restrict the comparison to individuals who support the same party in the same election year, and with the inclusion of supporter-party-election year fixed effects we exploit only within-supporter variation over time. We normalize the coefficient β_0 to zero, so that β_k measures the change in employment probability 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.[61]

In a similar vein, in the second exercise we 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 mayor loses the election ($Shock_{cmt} = 1$) with the labor market outcomes of supporters of the *same* party but whose supported mayor wins the election ($Shock_{cmt} = 0$). This exercise allows us to

[60] The two effects will be symmetric if hired supporters keep their job only until their party maintains power. Alternatively, some hired supporters could manage to keep their job beyond the period of tenure of their party, resulting in an effect of gaining a connection which is larger (in absolute terms) than the effect of losing one.

[61] The estimation of equation 4.3 uses only elections in the 2004, 2008 and 2012 election cycles. We do not use elections from the 2000 election cycle as we do not have information on the parties belonging to the coalition in power in a municipality in the 1997-2000 period.

identify the change in public sector outcomes that takes place when a political supporter loses a connection to the party in power.[62]

4.3. **Difference-in-differences Estimates: Non-Supporters as Control Group.** Our regression discontinuity design uses supporters of the losing mayoral candidate as a control group for supporters of the elected mayor. While this ensures that we are comparing individuals with similar pre-treatment unobservable characteristics, it also raises two potential concerns. First, supporters of the runner-up could be punished for their opposition to the mayor and find it more difficult to enter the public sector relative to the counterfactual scenario in which they were not supporters of any party. If this is the case, our estimate of political favoritism would include this additional "punishment" effect.[63]

Second, 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. If this is the case, then our estimates would not merely capture a demand side effect (the mayor granting preferential access to her own supporters), but also a supply side effect (supporters of the losing side being less likely to apply to a public sector job, or more likely to turn down offers of employment).

To evaluate whether these two factors play a major role in our estimates, we can 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 mayor and non-supporters, we can estimate the causal impact of providing political support to the party in power relative to the counterfactual scenario in which no party was supported.

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 4.2.[64] 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 from the difference-in-differences model to our regression discontinuity design, we again focus only on election decided by a margin of victory of 5% or less.[65]

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

[62]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 A4, A5, A6 and A7 provide evidence supporting this assumption.

[63]See Labonne and Fafchamps (2017) for a discussion of this point in the context of local elections in the Philippines.

[64]As for the strategy described in that section, we do not use the 2000 election cycle.

[65]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.

$$y_{ikmt} = \sum_{k=-3}^{+4} \beta_k Mayor_{imt} + \gamma_{kmt} + \delta_{imt} + \epsilon_{ikmt} \tag{4.4}$$

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. We normalize the coefficient β_0 to zero, so that each coefficient β_k captures the effect of being a political supporter of the party in power (as opposed to not being a supporter of any party) in year k relative to the election.

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

$$y_{ikmt} = \beta^{DID} Mayor_{imt} * Post_{kmt} + \gamma_{kmt} + \delta_{imt} + \epsilon_{ikmt} \tag{4.5}$$

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

5. Estimates of Favoritism in Public Sector Employment

5.1. **Main Regression Discontinuity Estimates.** Table 5 shows the results of the estimation of equation (4.1), pooling all supporters and separately differentiating between candidates and donors. Figure 3 shows the results of the estimation of equation (4.2), while Figure 4 reports a non-parametric representation of the results by plotting the dynamics of mean public sector outcomes for supporters of the two sides.[66]

We estimate a large and statistically significant impact of supporting the party in power on the probability of being employed in the public sector and on annual public sector earnings. The estimates of Table 5 provide the average causal effect pooling all post-election periods: supporters of the winning mayoral candidate are 10.5 percentage points more likely to have a public sector job in the post-election period – 47% more likely than the supporters of the runner-up mayoral candidate. The effect is sizable for both groups of supporters: a 51% higher probability for candidates and a 33% higher probability for donors.[67] As shown in Figures 3 and 4, the effect fully materializes at the time of the election and it persists for the whole post-election period. These effects translate into a significant increase in public sector earnings: relative to the supporters of the runner-up mayoral candidate, candidates

[66]Appendix Tables A8, A9, and A10 present results when we use a local linear regression using the optimal bandwidth selection procedure following (Calonico et al., 2014), or restricting the margin of victory to define an election as "close" to 3% or 1%.

[67]As shown in Appendix Table A11, we estimate a sizable presence of patronage in all election years over the 2000-2012 period.

supporting the winning mayor have earnings that are 53% higher, and donors have earnings that are 29% higher.[68] [69]

Figure 5 shows the discontinuous jump in public sector employment probability after the election that takes place at the zero margin of victory cutoff, for candidates (Panel A) and donors (Panel B). Interestingly, the effect looks largely independent of the distance from the zero margin of victory cutoff. While differences between supporters of the two sides cannot be interpreted as causal as we move far away from the discontinuity, the figure suggests that the effect that we uncover is likely to generalize to municipalities where the mayoral race was decided by larger vote margins.

This preferential access to public sector jobs translate into a net increase in supporters' labor market earnings. Panel A of Table 6 shows only a limited crowding out effect of supporting the winning mayor on supporters' private sector earnings (a 9.5% reduction relative to supporters of the runner-up) and employment probability (a 14.8% reduction relative to supporters of the runner-up). As a consequence, Panel B shows that there is a sizable net increase in earnings in the formal economy for supporters of the winning mayor: total annual earnings in the formal economy are 34% higher for candidates in the winning coalition and 10% higher for donors in the winning coalition.

Since our data have information on the specific job within the public sector obtained by a candidate, we can break down public sector jobs among those under the jurisdiction of the local, state, and federal government. In Table 7 we present the results of the estimation of equation (4.1) using employment probabilities in a municipal, state or federal public sector job as separate dependent variables (and further differentiating between municipal jobs in the supporter's municipality and in a different municipality). In line with the mayor being able to allocate to political supporters only jobs over which she has discretion, the whole

[68]While we take the electoral coalition as our unit of analysis, one may wonder whether the effect is present only, or mainly, for supporters of the same party of the elected mayor. In Appendix Table A12 we find that all supporters enjoy a significant preferential treatment. Among candidates, those of the same party of the mayor benefits more, but the effect is sizable also for those belonging to a different party in the mayor's coalition. Among donors, the largest treatment effect is for those who contributed to the mayor directly, but we find large and significant effects also among those who contributed to other candidates in the mayor's party or coalition.

[69]As shown in Appendix Table A13, most of the effect for candidates is driven by those who fail to win a council seat. However, the effect is significant also for the subset of candidates elected to the council, consistent with the part-time nature of the job as local councilor, which allows successful candidates to have also a job in the public sector. These 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 the political wage and other perks from office if they are elected.

effect is concentrated at the municipal level and driven by municipal jobs in the supporter's municipality.[70]

5.2. **Gaining Versus Losing a Connection.** Estimates from equation 4.3 allow us to separately investigate the effect of gaining a political connection and the effect of losing one. Figure 6 and Appendix Table A15 present the results.[71] 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 a large increase in the probability of having a public sector job (an increase of 10.2 p.p, or 46% relative to the pre-election period) and in public sector earnings (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 large (although relatively smaller) decrease in the probability of having a public sector job (by 8.7 p.p, or 30% of the average probability in the pre-election period) and in public sector earnings (31% relative to the pre-election period). These estimates are significant for both candidates and donors. 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 prospects.

5.3. **Difference-in-Differences Estimates.** Estimates from equation 4.4 allow us to gauge the extent to which our RDD estimates of political favoritism are inflated by our use of supporters of the losing side as a control group. Figure A4 presents the estimated coefficients β_k. Estimates focusing on candidates as political supporters are in blue, while estimates focusing on donors are 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 6.

In Appendix Table A16 we report a comparison of the estimated average treatment effects of the RDD and difference-in-differences specifications.[72] The difference-in-differences estimates are similar in magnitude to the RDD ones, suggesting that the use of supporters

[70]In Appendix Table A14 we investigate whether the effect is entirely driven by temporary employment contracts. While the estimates are significantly larger for temporary contracts, supporters of the winning side are also significantly more likely to be employed in permanent positions. This is consistent with the evidence presented in section 3.4.1, which showed significant turnover also in permanent public sector jobs around municipal elections.

[71]In Appendix Table A15 we present estimates from a more parsimonious version of equation 4.3, in which we estimate the average treatment effect in the post-election period, rather than separate coefficients for each post-election period.

[72]Specifically, the RDD average treatment effects are the estimated coefficients in columns 2 and 3 of Panel A of Table A15. For the difference-in-differences average treatment effects, we present the estimates of equation 4.5.

of the losing side as a control group does not significantly inflate the estimates of political favoritism.

5.4. **Favoritism is Widespread Throughout the Entire Hierarchy.** Leveraging information on the specific job in which supporters are hired, we can investigate whether political favoritism is concentrated in specific layers of the public sector hierarchy, or whether it is instead widespread throughout the entire hierarchy.

We generate five different indicator variables, each turning to one if, in a given year, a supporter has a job belonging to one of five occupational categories – managers, professionals, technical workers, clerks, blue collar workers. Table 8 shows the estimated coefficients β from estimating equation (4.1) for these five different dependent variables.[73] We estimate a positive and significant effect of supporting the winning mayoral candidate throughout the whole hierarchy of occupations.

Supporters of the winning mayor are 5.3 percentage points more likely to be employed in a job at the top of the bureaucracy (in managerial occupations), relative to a 2.8% chance for supporters of the runner-up. They are also 12% more likely to be employed as professional, 14% more likely to be employed in a high-skills technical occupation, 62% more likely to be a white-collar public sector worker, and 27% more likely to be employed in a blue collar job. All the estimates are highly significant, indicating a large presence of political favoritism for all types of public sector jobs.[74]

The results presented in this section document a significant presence of political favoritism in employment across all the layers of the Brazilian local public sector. The effect is not limited to a specific group of political supporters: while the magnitude of the effect is larger for candidates for a seat in a local council, individuals who provided financial support to the winning party enjoy a sizable benefit as well.[75]

6. Patronage as Mechanism, and Impact on Selection to Public Employment

In this section, we show that patronage is the leading explanation behind political favoritism in public sector employment, and that this negatively affects the quality of the pool of public workers. First, we show that the political supporters enjoying the largest preferential treatment are those who provided more political support to the party in power.

[73] Appendix Table A17 presents the estimates using the optimal bandwidth selection procedure.

[74] All the estimates are large and significant for both types of supporters, with the exception of professional and high skills technical occupations in the sample of donors.

[75] In this paper, we can focus only on two groups of political supporters (although arguably two important ones), not considering other individuals connected to politicians, like friends and family members. Even restricting attention only to these supporters, as shown in Figure A5, the winning mayor's supporters make up between 0.2% and 0.8% of the population in small and medium size Brazilian municipalities. A large share of them (between one out of four and one out of two, on average) is employed in the municipal public sector.

Second, we show that the provision of political support substitutes quality as a hiring criterion: relative to supporters of the runner-up mayoral candidate, supporters of the mayor are screened less on education and on skills valued by the private sector. Third, we present evidence against an interpretation of favoritism as the result of a mayor's better screening of her supporters on hard-to-observe dimensions of talent. Fourth, we present evidence suggesting that politicians' desire to hire individuals with similar ideological views is not a primary driver of political favoritism in hiring.

6.1. **Political Favoritism is Increasing in the Amount of Political Support.** If political favoritism stems from a *quid pro quo* relationship between a political supporter and a political party, we expect the extent of the reward to be dependent on the amount of support provided. In this section, we ask whether this is indeed the case. For candidates to the local council, we use their electoral performance as a measure of political support. For donors, we use the amount of money contributed.

We start by looking at candidates' electoral performance. Candidates 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. As shown in Appendix Table A13, most of the political favoritism for candidates is driven by those failing to win a council seat. Therefore, in this section we focus on this subset of candidates.

We calculate, for each losing candidate, the quintile of the vote share distribution within her coalition (either the mayor's or the runner-up's coalition) in which she falls (considering only votes brought by losing candidates). We are therefore categorizing losing candidates on the basis of the number of votes that they contributed to their coalition. We then create five indicator variables ($Quintile^q_{imt}$), turning to one if candidate i's within-coalition vote share in the election in municipality m and election year t falls into quintile q. We estimate an augmented version of equation (4.1) in which we interact $Mayor_{cmt}$ with these five indicator variables:

$$y_{ikcmt} = \sum_{q=1}^{5} \beta^q Quintile^q_{imt} * Mayor_{cmt} + \sum_{q=2}^{5} \theta^q Quintile^q_{imt} + \\ + \sum_{k=1}^{+4} \theta_k MV_{cmt} + \gamma_{kmt} + \epsilon_{ikcmt} \tag{6.1}$$

This specification allows us to investigate whether candidates who contributed relatively more votes to their coalition are more likely to enjoy a preferential access to public sector

jobs. We estimate a similar version of the same equation, categorizing donors on the basis of the amount of money donated to the coalition of the mayoral candidate supported.

Figure 7 presents a graphical representation of the treatment effects at different quintiles of the distribution of political support, looking at employment probability in the top panel and at public sector earnings in the bottom panel.[76] Consistent with the hypothesis that candidates and donors who provided more support are rewarded more, we find that the amount of political favoritism is strictly increasing in a candidate's position in the distribution of vote share, and in a donor's position in the distribution of money contributed. While the effect is positive and significant throughout the whole distribution, the treatment effect monotonically increases in the amount of support provided. 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 top quintile of the money distribution increases the treatment effect on public sector earnings by 349%.[77]

6.2. **Providing Political Support Decreases Screening on Education.** Being a political supporter of the party in power could increase the probability of obtaining a public sector job, but only conditional on being qualified for the position.[78] Alternatively, providing political support could act as a substitute for an individual's level of qualifications, decreasing the importance of qualifications for political supporters, and lowering the average quality of the workforce.

To test whether providing political support decreases screening on education, we combine information on (i) the required level of education to perform each occupation in the Brazilian public sector, collected from the *Classificação Brasileira de Ocupações 2002* as described in Section 3.2, and (ii) information on supporters' education. Since we do not have information on the education of all supporters for the sample of donors, we exclude them from the analysis

[76]Appendix Table A18 presents the results in table format.

[77]These heterogeneous effects are similar and equally significant if we look at the effect on public sector employment probability.

[78]This scenario would correspond to the mayor having lexicographic preferences over a worker's qualifications and political affiliation.

of this section.[79] We estimate a series of equations of the form:

$$y_{ikcmt} = \beta^{QM} Qualified_i * Mayor_{cmt} + \beta^{M} Mayor_{cmt} + \\ + \beta^{Q} Qualified_i + \sum_{k=1}^{+4} \theta_k MV_{cmt} + \gamma_{kmt} + \epsilon_{ikcmt} \tag{6.2}$$

where y_{ikcmt} 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, the variable $Qualified_i$ is an indicator variable equal to one if supporter i has a level of education that is equal or higher to the one required to perform this job, and all the other variables are defined as before. We estimate three different specifications, where we focus on jobs for which the required level of education is middle school degree, high school degree, or college degree, respectively. The coefficient β^{QM} measures the effect of being a supporter of the mayor on the importance of education to obtain a public sector job. If being a supporter of the mayor decreases screening on education, then β^{QM} will be negative.

Table 9 presents the results. Column 1 focuses on public sector jobs that require middle school education, with the coefficient on the double interaction showing that for this category of jobs the importance of education is significantly lower for supporters of the winning mayoral candidate. Put it differently, the effect of being connected to the mayor is significantly stronger among supporters who are not qualified for the position in terms of education: being a supporter of the mayor increases the chances of obtaining a job requiring a middle school degree by 1.7 percentage points conditional on *not* having a middle school degree, and by only 0.7 percentage points conditional on having it. Column 3 reveals a similar pattern when we focus on public sector jobs that require a university degree. The coefficient for the specification focusing on jobs requiring a high school degree is negative, but small and statistically insignificant.

As a consequence of the lower screening on education for supporters of the winning mayor, Table 10 shows that public sector employees who supported the mayor in the previous election are 2.7 percentage points (or 17%) more likely to be unqualified in terms of education than public sector employees who supported the runner-up.[80] This is true both at the top of the

[79]We have information on donors' education only for donors who have been matched to the *RAIS* dataset, but conducting the analysis only on this subset of donors 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*. Since we have data on candidates' education from the *TSE*, we have this information for all candidates independently on whether they were matched to *RAIS*.

[80]As for all our previous results, we restrict the sample to elections decided by a 5% margin of victory between the winner and the runner-up. We focus on the sample of all public employees who are supporters of the mayor or of the runner-up in the four years after the election in which they are supporters. Each supporter enters the sample once for every year in which she has a public sector job. We then regress an indicator variable equal to one if the supporter is unqualified on an indicator for having been a supporter of the winning mayoral candidate, including election (municipality-year of the election) fixed effects and

hierarchy (for managerial jobs) and for mid-level bureaucrats (for clerical jobs), as well as among professional workers.[81]

These results show that the being a political supporter of the mayor acts as a substitute for an individual's qualification, worsening selection on education for applicants to a public sector job: having the required educational level to perform a public sector job is less relevant for supporters of the winning mayor.[82]

6.3. **Providing Political Support Decreases Screening on Skills Valued by the Private Sector.** As a second measure of a supporter's quality, we use her previous earnings in the private sector. In other words, as in Dal Bó et al. (2013), we consider a supporter's private sector outside opportunity as a measure of her skills, under the assumption that workers with higher skills will be compensated with higher earnings in the private sector.

We focus on the subset of supporters who are employees in a formal private sector firm in the two years preceding the election, and we test whether political favoritism is higher for supporters with lower previous private sector earnings.[83] We estimate the following equation:

$$\begin{aligned} y_{ikcmt} =& \beta^{PM} PrivateEarnings_{imt} * Mayor_{cmt} + \beta^{M} Mayor_{cmt} + \\ &+ \beta^{P} PrivateEarnings_{imt} + \sum_{k=1}^{+4} \theta_k MV_{cmt} + \gamma_{kmt} + \epsilon_{ikcmt} \end{aligned} \tag{6.3}$$

where y_{ikcmt} is an indicator variable equal to one if in period k supporter i is employed in a public sector job, the variable $PrivateEarnings_{imt}$ is a supporter's private sector earnings before the election (in thousands R$), and all the other variables are defined as before. The coefficient β^{PM} measures the effect of being a supporter of the mayor on the relationship between private sector opportunities and the likelihood of being employed in a public sector

the margin of victory of the mayor supported. As these results focus on supporters employed in the public sector, and thus who appear in the *RAIS* dataset, we can include also donors in this set of results.

[81]As shown in the table, the share of unqualified public sector workers among managers is high also among supporters of the runner-up (44.2%). If we exclude managerial occupations, which require a university degree, from the estimation in column 3 of Table 9, we find essentially the same result, with an estimate on the double interaction equal to -0.025 and a standard error of 0.004.

[82]We also test whether supporters of the mayor are screened less on education relative to non-supporters, augmenting equation 4.5 to test for heterogeneous effects depending on a supporter's education. Specifically, we add to equation 4.5 the triple interaction between $Mayor_{imt}$, $Post_{kmt}$ and $Qualified_i$, and the double interaction between $Post_{kmt}$ and $Qualified_i$. Appendix Table A19 shows that supporters of the mayor are screened less on education also relative to non-supporters. For instance, results in Column 3 of Appendix Table A19 shows that, while in the post-election period the importance of having a college degree increases for non-supporters (among non-supporters, the importance of having a college degree for obtaining a job requiring a college education increases by 11.3 percentage points in the post-election period), it decreases for supporters of the mayor (among them, the importance of having a college degree for obtaining a job requiring a college education decreases by 2 percentage points in the post-election period).

[83]To account for year- and location-specific factors affecting private sector earnings, we first regress private sector earnings on year times municipality fixed effects, and we take the residuals of this regression. For supporters who are employed in the formal private sector in both years preceding the election, we assign them the average of the residuals.

job. If being a supporter of the mayor decreases screening on skills valued by the private sector, then β^{PM} will be negative.

Panel A of Table 11 shows that the effect of being a supporter of the mayor is significantly stronger among supporters with lower private sector skills. A one standard deviation (*i.e.* 6.59) increase in a supporter's private sector earnings decreases the treatment effect by 3.3 percentage points. In Panel B of Table 11 we present estimates of equation 6.3 in which the continuous private sector earnings measure is replaced by indicators turning to one if supporter i is in the top tercile or in the second tercile of the private earnings distribution, respectively.[84] Favoritism is most limited for supporters in the top tercile of the distribution: moving from the first to the third tercile of the distribution decreases the treatment effect by 38% for candidates (column 2) and by 20% for donors (column 3).

These results show that political favoritism brings into the public workforce a larger share of individuals with lower skills valued by the private sector.[85]

6.4. **Is the mayor successfully screening on unobservables?** The mayor could be using her discretion in hiring decisions to bring into the public workforce individuals who, despite being of lower ability on observable dimensions, are more talented along hard-to-observe dimensions. In other words, political favoritism could be the result of mayors having better "soft" information about members of their network, and thus being able to screen them on dimensions of talent that we cannot observe. We investigate the plausibility of this interpretation in two ways. First, we use a measure of pre-election personal ability *conditional* on observables, as in Besley et al. (2017) and Dal Bó et al. (2017). Second, we provide a test of this theory based on political supporters' long-run careers in the public sector.

6.4.1. *Selection on residual ability.* In order to obtain a measure of supporters' individual ability that goes beyond observable individual characteristics, we follow the approach in Besley et al. (2017) and Dal Bó et al. (2017), estimating residuals from a Mincer earnings regression controlling for individual and job-specific characteristics.

The intuition for this approach is simple. Workers who have higher private sector earnings when compared to workers with the same demographic characteristics and employed in a similar job, will have higher ability. While we cannot observe what accounts for this residual higher earnings, we can use residuals from the Mincer earnings regression as a measure of unobservable ability.

[84]We divide supporters in terciles based on the earnings distribution for all supporters in their same coalition (*i.e.* the coalition of the mayor or the coalition of the runner-up in the election).

[85]We also show these results using non-supporters as a control group, augmenting equation 4.5 to test for heterogeneous effects depending on a supporter's private sector earnings. Appendix Table A20 shows that supporters of the mayor are screened less on skills valued by the private sector also relative to non-supporters.

We estimate one equation for each year between 1995 and 2014 using information on all Brazilian private sector employees.[86] We also estimate each regression separately for men and women, in order to account for gender-specific differences in labor-market outcomes. Specifically, we obtain, for each individual i and year t, residuals from the following specification:

$$y_{i,m,t} = f(age_{i,t}, education_{i,t}, sector_{i,t}) + \alpha_m + \epsilon_{i,m,t} \tag{6.4}$$

where $y_{i,m,t}$ are annual private sector earnings of individual i working in municipality m in year t, $age_{i,t}$ are a set of age fixed effects (over 5-years intervals), $education_{i,t}$ are four fixed effects for individual educational level (less than middle school, middle school degree, high school degree, university degree), $sector_{i,t}$ are fixed effects for the sector of i's firm. We include a full-set of interactions between these variables, as well as municipality fixed effects (α_m) to account for location-specific differences in earnings. Our residual ability score is the average of each individual's residuals across all years in which she is employed in the private sector.[87]

We divide supporters in terciles based on the distribution of individual ability for all supporters in their same coalition (*i.e.* the coalition of the mayor or the coalition of the runner-up in the election). We then estimate the following equation:

$$\begin{aligned} y_{ikcmt} = {} & \beta^{M3} Tercile3_i * Mayor_{cmt} + \beta^{M2} Tercile2_i * Mayor_{cmt} + \\ & + \beta^{M} Mayor_{cmt} + \beta^{3} Tercile3_i + \beta^{2} Tercile2_i + \sum_{t=1}^{+4} \theta_t MV_{cmt} + \gamma_{kmt} + \epsilon_{ikcmt} \end{aligned} \tag{6.5}$$

where $Tercile3_i$ and $Tercile2_i$ are indicators turning to one if supporter i has a high level of ability (*i.e.* she is in the top tercile of the ability distribution) or a medium level of ability (*i.e.* she is in the second tercile of the ability distribution), respectively. The coefficient β^{M3} (respectively, β^{M2}) measures the effect of being a supporter of the mayor on the importance

[86] To minimize endogeneity concerns, we use observations for candidates and donors only in years before the first election in which they run/donate. This means that we can calculate this measure only for supporters who are ever employed in the formal private sector before their first election, that is 27.2% of candidates and 37.9% of donors.

[87] 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. In Appendix Figure A6, 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, supporters (both donors and candidates) of the elected mayor have a similar ability distribution than supporters of other mayoral candidates (see Appendix Figures A7 and A8).

of having high ability (respectively, medium ability) relative to low ability (the excluded category) for the probability of obtaining a public sector job.

If being a supporter of the mayor increases screening on this residual measure of ability, then we expect $\beta^{M3} > \beta^{M2} > 0$.

Contrary to this hypothesis, Table 12 shows that supporting the winning party *decreases* the importance of residual ability for the probability of being hired in the public sector, and this is true for both candidates and donors. Being a supporter of the mayor increases the chances of obtaining a job the most for supporters in the bottom tertile of the ability distribution. High ability supporters are 3 percentage points less likely than low ability supporters to benefit from their connection to the mayor (see column 1).

6.4.2. *Supporters' long-run public sector careers.* Mayors could have a superior ability to screen members of their political network along unobservable dimensions of quality that are not captured by our measure of residual private sector earnings. For instance, we cannot observe an individual's public service motivation, and favoritism could be the result of the mayor hiring members of her political network whom she can identify as being particularly motivated to work in the public sector.

We can provide a test of this hypothesis by analyzing a supporter's long-run career in the public sector. Dimensions of a supporter's quality that are *ex-ante* unobservable outside of the mayor's political network, should be revealed and become common knowledge after several years on a public job. Hence, if mayors are using hiring discretion to select the best individuals in their political network, these workers, once hired, should keep their job even if the party in power changes. If instead public sector jobs are allocated to supporters on the basis of patronage relationships, we expect them to be closely linked to the fortunes of the party supported. In this case, if the party fails to re-win the mayoral elections, the benefits to political supporters should dissipate.[88]

We provide evidence to adjudicate between these two hypotheses by testing whether the higher probability of having a public sector job for supporters of the winning mayor dissipates right after the party of the mayor loses power. We do so by dividing supporters in three groups: those supporting a party winning two consecutive elections in the municipality (in period 0 and period 4); those supporting a party winning the election in period 0 but losing the election in period 4; those supporting a party losing both the election in period 0 and the election in period 4.[89] We then estimate the following equation:

[88]The crucial assumption of this argument is that the degree to which hires reveal their *ex-ante* unobservable ability and motivation as they perform their job is on average not lower than the private information that the new mayor has on potential replacements among individuals in her network.

[89]We include only supporters of parties presenting a mayoral candidate in two consecutive elections in the same municipality.

(6.6)
$$y_{ikcmpt} = \sum_{k=-3}^{+6} \beta_k^{Both} MayorBoth_{cmt} + \sum_{k=-3}^{+6} \beta_k^{One} MayorOne_{cmt} + \sum_{k=-3}^{+6} \theta_k MV_{cmt} + \gamma_{kpt} + \epsilon_{ikcmt}$$

where $MayorOne_{cmt}$ is an indicator turning 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 $k = 4$), and $MayorBoth_{cmt}$ is an indicator turning to one for supporters of a party that wins the election in municipality m in both the elections. The excluded category of supporters is composed of those whose party loses both elections in the municipality. With the inclusion of period-party-election year fixed effects (γ_{kpt}) we are leveraging variation in the electoral fortunes of the same party across different municipalities. We include observations in the period ranging from 3 years before to 6 years after the first election (*i.e.* 2 years after the second election).

The left panel of Figure 8 plots the estimates of β_k^{Both} and β_k^{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. On the contrary, supporters whose party loses the subsequent election see a sharp drop in public sector employment probability after period 4.

While 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 the right panel of Figure 8 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 (and therefore characterized by a similar electoral strength in both elections).

These patterns show that public sector jobs allocated to supporters are deeply linked to the fortunes of their party, and cast doubts on the interpretation of political favoritism as an efficient way in which the mayor is screening members of her political network along hard-to-observe dimensions of quality.

6.5. **Is the mayor's goal to create an ideologically cohesive team?** Political supporters' preferential access to public sector jobs may be the result of the mayor's desire to hire individuals with similar ideological views. Theoretically, the matching between the political ideology of the mayor and that of her bureaucrats can increase organizational efficiency. For a politician, hiring top-level bureaucrats who share her same policy agenda could facilitate the process of policy implementation. But this ideological alignment could in principle be beneficial also at lower levels of the bureaucratic hierarchy: workers who are ideologically

aligned with the party in power may be motivated to increase effort since they care about the mission of their organization.[90]

If this interpretation of political favoritism is correct, then the supporters who benefit more from favoritism should be those who have a stronger ideological link to the party in power. We test for this hypothesis by investigating whether individuals who have been supporters of the mayor's party for a longer period of time are more likely to be favored in accessing public sector jobs. For each election, we focus on the subset of supporters who had run/donated also in the previous election, and we divide them in: "party loyals", namely those who were supporters of the party of the mayoral candidate also in the previous election, and "party switchers", namely those who in the previous election were supporters of a different party.

We calculate the extent of political favoritism in these different subsamples of supporters. Figure 9 shows that the effects of supporting the winning party estimated on these different subsamples are very similar.[91] In fact, we cannot reject the hypothesis that party switchers are rewarded less than party loyals. If anything, we find that "loyals" are rewarded less than "switchers" among donors, even if the effects are too noisily estimated to reject the hypothesis of equality of the coefficients in the different samples.

In other words, the mayor is more likely to hire her supporters irrespectively of the length of a supporter's connection to the party: individuals who recently switched political alliances are as likely to be allocated a public sector job as individuals who have been loyal to the party for multiple election cycles. This evidence cast doubts on the interpretation of political favoritism as the result of the mayor's desire to hire individuals with similar ideological views.

7. Patronage and Public Services Provision

Are municipalities where patronage is more widespread characterized by a worse public goods provision? While to answer this question in a rigorous way we would need exogenous variation in the extent of patronage across municipalities, in this section we move a first step towards answering this question: we analyze how changes in the extent of patronage within the same municipality over time correlate with changes in the quality of education, as well as with changes in the size of the public sector workforce.

As a first step, we calculate, for each of the 7,696 elections in the 2004-2012 period decided by a margin of victory of 10% or less, an estimate of patronage, defined as the average difference in public sector employment probability, over the four years after the election, between the supporters of the mayor versus the supporters of the runner-up.[92] Specifically,

[90]There is evidence that workers exert more effort when they care about the mission of their organization (Ashraf et al. (2014), Tonin and Vlassopoulos (2010), Tonin and Vlassopoulos (2015), DellaVigna and Pope (2017)).

[91]Appendix Table A21 presents the estimates in table format.

[92]We do not use the 2000 election cycle since for this specific year we do not have data on donors and, in addition, we cannot control for a series of important covariates that would require electoral data for the

we pool observations for the four post-election years, and for each municipality m and election year t we estimate the following specification:

$$y_{ik} = \gamma_k + \beta_{mt} Mayor_i + \epsilon_{it} \tag{7.1}$$

Where y_{ik} is an indicator variable equal to one if supporter i is employed in the municipality in period k (*i.e.* year relative to the election year), and γ_k are period fixed effects. Our estimate of patronage is the estimate of the coefficient β_{mt} on the indicator variable turning to one for supporters of the winning mayoral candidate. Figure 10 plots the distribution of these estimates. Most of the elections (81.4%) have a positive patronage estimate, indicating the widespread importance of political connections as drivers of Brazilian public sector employment.

We then focus on the sample of 2,420 municipalities that experience multiple close races over the 2004-2012 period and we estimate the following model:

$$y_{mt} = \alpha_m + \gamma_t + \delta \hat{\beta}_{mt} + \theta X_{mt} + \eta_{mt} \tag{7.2}$$

Where y_{mt} is a specific outcome in municipality m in the years following election year t, α_m are municipality fixed effects, γ_t are election year fixed effects, and $\hat{\beta}_{mt}$ is the patronage estimate for municipality m in election year t, estimated from equation 7.1.

Our empirical strategy controls for any time-invariant municipality-specific determinant of patronage that is correlated with welfare related outcomes, as well as for any unobservable that is common to all municipalities in an election year. However, it could be the case that other municipality-level *time-varying* heterogeneity correlated with the extent of patronage in a specific election drives also welfare outcomes. We control for an extensive set of time-varying municipal-level covariates to try to address this concern. First, we control for a set of characteristics of the election.[93] We control for a number of time-varying municipality characteristics, which include a second order polynomial in the municipality population, the

1996 election cycle, for which we have no information. Relative to the results presented so far, here we focus on a larger bandwidth to define a race as close. Since our analysis leverages variation within municipalities over time, if we used a smaller bandwidth we would have few municipalities experiencing multiple close elections over the sample period. However, as we showed in Figure 5, the magnitude of patronage seems to be very stable over different margin of victories. Additionally, the corresponding optimal bandwidth computed following (Calonico et al., 2014) is actually larger than 10 (11.3 in the sample of candidates and 11.4 in the sample of donors).

[93]In order to control for the extent of political turnover in the election, we include covariates for: the share of supporters of the mayor and of the runner-up whose party was already in the winning coalition, indicators for party turnover, for whether the incumbent mayor was re-elected and for whether the party of the mayor is the same in power at the state level, the share of new parties in power after the election, the share of new candidates in the winning coalition and in the winning party. We also control for the margin of victory of the winning mayoral candidate. In addition, since the identity of the elected mayor could be correlated with the extent of patronage, we control for the gender of the mayor, for a set of fixed effects for the mayor's education, and for a set of fixed effects for the mayor's party, since specific parties could be more likely to engage in patronage.

municipality per-capita gdp, and the number of private sector employees per capita. These variables are meant to address the concern that municipalities that are hit by negative economic shocks could experience worse welfare outcomes and at the same time see an increase in patronage. We also control for capital and current public expenditures per capita in the municipality. Finally, we control for the personnel turnover (the share of hires and the share of terminations) in the public sector in the year after the election. This is an important control, since patronage could be positively correlated with public sector turnover. At the same time, irrespective of whether turnover is driven by the appointment of political supporters, the disruption in the public sector personnel could lead to a worse provision of public services (Akhtari et al. (2016)).

We start by examining whether more patronage is associated with a larger public sector workforce.[94] Panel A of Table 13 shows that municipalities with an increase in patronage relative to other elections see a larger increase in the number of public sector workers per capita. An increase of one standard deviation in patronage is associated to a 0.041 standard deviations increase in the municipality number of public sector workers per capita.[95] The estimate is robust to the inclusion of the full set of controls.

Next, we investigate whether patronage is associated with a better or worse provision of public goods. We use welfare indicators related to education, one of the main responsibilities of Brazilian local governments. As a welfare indicator for education we use standardized test scores from *Prova Brasil*, a standardized exam administered to public schools students in the 4th and 8th grade.[96] We average each student's test scores in math and Portuguese, and then take the average in the municipality.[97]

Panels B and C of Table 13 show that patronage is associated with significantly lower test scores for both 4th grade and 8th grade students. Looking at the most conservative estimates (in column 4, the specification where all controls are included), a standard deviation increase in patronage is correlated with a 0.021 standard deviations decrease in 4th graders' test scores and with a 0.03 standard deviations decrease in 8th graders' test scores.[98] The estimates are stable across specifications, and they remain statistically significant even after we control

[94]We average the municipality-level number of public sector workers per capita over the four years after the election.

[95]To gauge the magnitude of the result, we find that a one standard deviation increase in the municipality gdp per capita is associated to a 0.082 standard deviations increase in the number of public sector workers per capita.

[96]Schools will less than 20 students enrolled in the 4th and 8th grade do not participate in the *Prova Brasil* exam, slightly reducing the available sample size.

[97]The exam is administered every two years. We use 2007 test scores for the 2004 election cycle, 2011 test scores for the 2008 election cycle, and 2013 test scores for the 2012 election cycle.

[98]To gauge the magnitude of the result, we find that a one standard deviation increase in the municipality gdp per capita is associated to a 0.078 standard deviations increase in 4th graders' test scores and to a 0.09 increase in 8th graders' test scores.

for the extent of public sector turnover following the election, suggesting that patronage is related to worse education outcomes even after accounting for possible disruptions in the public personnel following an election.

These results provide some suggestive evidence that patronage might have significant negative welfare consequences.

8. Conclusion

In this paper we study patronage – the use of public sector jobs to reward political supporters of the party in power – in the context of Brazilian local governments. While anecdotal accounts of patronage are common, multiple empirical challenges have made it difficult to convincingly document the presence, extent, and consequences of this phenomenon. Using a unique dataset on the universe of Brazilian public sector employees over the 1997-2014 period, matched with information on more than 2,000,000 political supporters of Brazilian local parties, this paper aims to fill this gap.

First, by leveraging competitive elections to obtain exogenous shocks to an individual's connection with the party in power, we identify the presence of significant political favoritism in public employment: being a political supporter of the party in power increases the probability of having a public sector job by 47%. This favoritism is large at all layers of the Brazilian public sector hierarchy.

Second, we show evidence that patronage is the crucial mechanism behind favoritism in public employment, leading to the selection of less qualified public workers. In line with a *quid pro quo* relationship between supporters and political parties, a supporter's public sector return is proportional to the amount of support provided. In turn, the provision of political support acts as a substitute for individual quality: supporters of the party in power are screened less in terms of education and of skills valued by the private sector. The evidence is inconsistent with a significant role played by alternative channels in explaining the existence of this favoritism. In particular, we show that the politicians' desire to hire individuals with similar ideological views is not a likely explanation for the results. Similarly, multiple pieces of evidence are inconsistent with an interpretation of favoritism as the result of politicians' efficient screening of supporters along hard-to-observe dimensions of quality.

Third, we move a first step towards understanding whether, in line with the negative impact on selection to public employment that we document, patronage negatively affects the quality of public goods provision. We do so by linking differential changes in within-municipality variation in the extent of patronage over time to the quality of municipal primary education, one of the main responsibilities of Brazilian local governments. We show that an increase in patronage is correlated with lower test scores of students enrolled in municipal public schools. In addition, an increase in the extent of patronage is associated

with significant higher growth in municipal public sector personnel, consistent with politicians increasing the size of the bureaucracy in presence of incentives to engage in patronage practices.

Clearly, we do not study all the possible mechanisms through which patronage might affect welfare. Potential additional costs of patronage include the disruption in the bureaucracy that is linked to political turnover,[99] or the misallocation of funds between public sector personnel and other, more productive investments. We are also unable to quantify potentially positive effects of patronage, such as possible decreases in agency problems because of loyalty between hired supporters and the party in power. Investigating the additional channels through which the presence of patronage practices might affect the quality of public service delivery represents an exciting avenue for future research.

[99] Akhtari et al. (2016)

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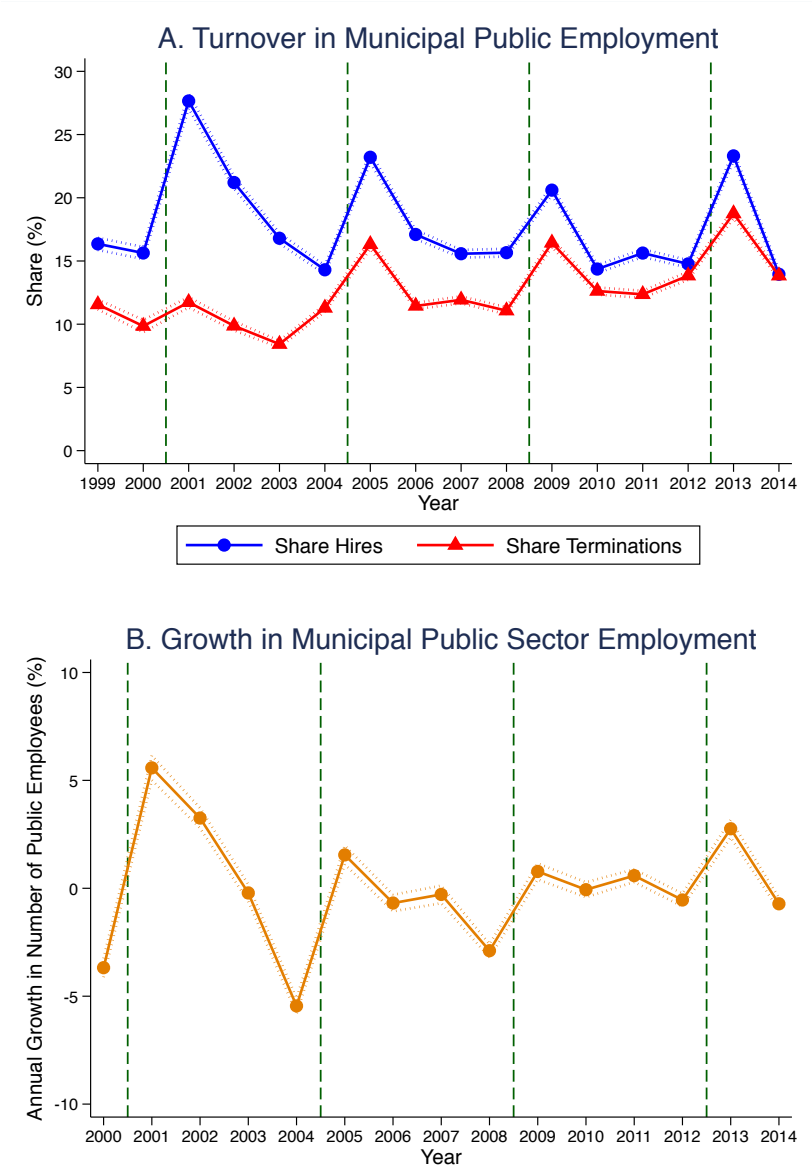
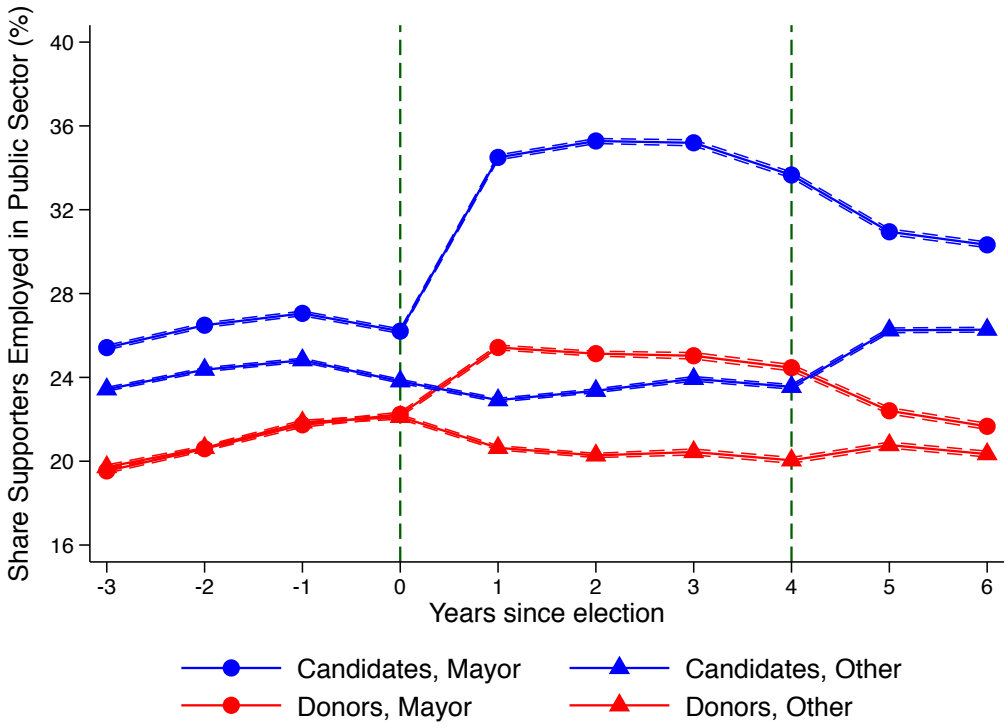
FIGURE 1. **Turnover and Growth in Municipal Public Employment are Higher Following Elections**



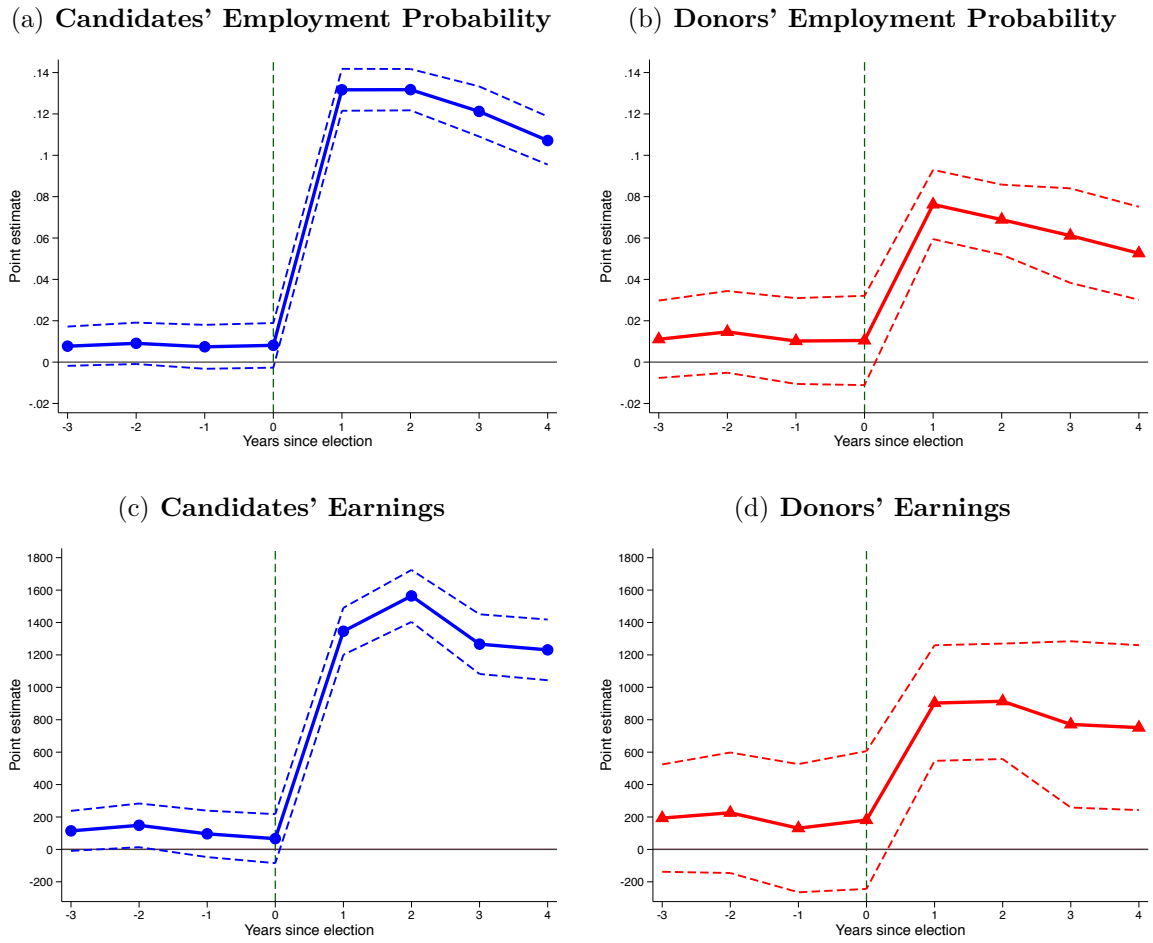
Notes: The figure shows the average share of hires and terminations in the local public sector (top panel), and (detrended) average annual growth in municipal public sector workforce (bottom panel) by year in Brazilian municipalities. Each observation in the data is a municipality-year pair. 95% confidence intervals are shown as dashed lines around the means. The green lines indicate the time of local elections, which were held in November of 2000, 2004, 2008, 2012, with the mayor taking office in January of 2001, 2005, 2009, 2013.

FIGURE 2. **Political Supporters Are More Likely to Be Public Employees When their Party is in Power**



Notes: The figure plots the share of political supporters (of the elected mayor or of one of the parties running against the elected mayor) employed in the public sector from three years before to six years after the municipal election. The sample of supporters is split between candidates who run for a seat in the local council (in blue) and donors (in red). The sample of elections is 2000, 2004, 2008, 2012 for candidates and 2004, 2008, 2012 for donors. The election is held in period 0 and the elected mayor is in power until period 4. The dotted lines show 95% confidence intervals around the means. The sample is composed of 508,218 candidates supporting the mayor, 682,206 candidates supporting one of the opposition parties, 522,708 donors supporting the mayor, and 571,595 donors supporting one of the opposition parties.

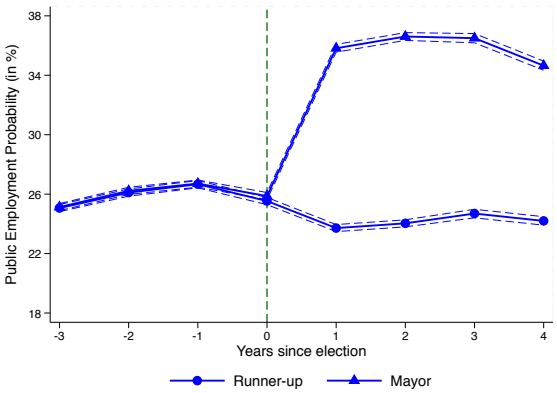
FIGURE 3. **Effect of Supporting the Winning Party on Public Sector Outcomes – Dynamics of the Effect**



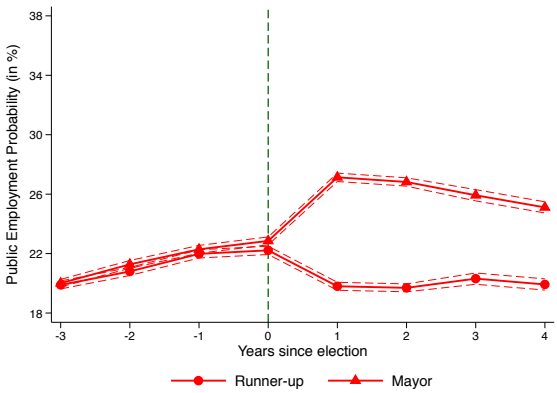
Notes: The figure presents the estimated effect of supporting the winning party on probability of employment in the public sector (top panels) and annual public sector earnings (bottom panels). The figure shows the dynamics of the regression discontinuity design estimates over time, by plotting the estimated β_k coefficients from equation (4.2). Panels (a) and (c) present estimates from the sample of candidates, while panels (b) and (d) present estimates from the sample of donors. See section 3.3 for a description of the outcome variables. The sample of elections is 2000, 2004, 2008, 2012 for candidates and 2004, 2008, 2012 for donors. The sample is composed of supporters of the winning mayoral candidate or the close loser, using a 5% margin of victory to define close races. The sample of candidates includes 233,238 supporters across 5,413 elections. The sample of donors includes 177,590 supporters across 3,162 elections. The dotted lines show 95% confidence intervals and are based on standard errors double clustered at the supporter and election level.

FIGURE 4. **Trends in Political Supporters' Mean Public Sector Outcomes Around the Election**

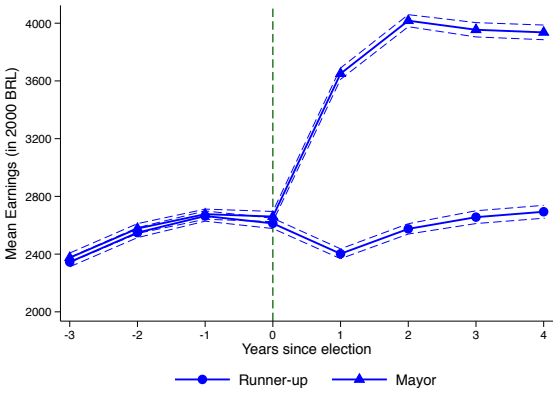
(a) **Candidates' Employment Probability**



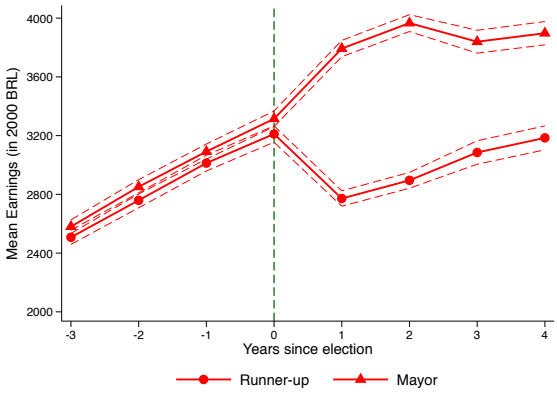
(b) **Donors' Employment Probability**



(c) **Candidates' Earnings**



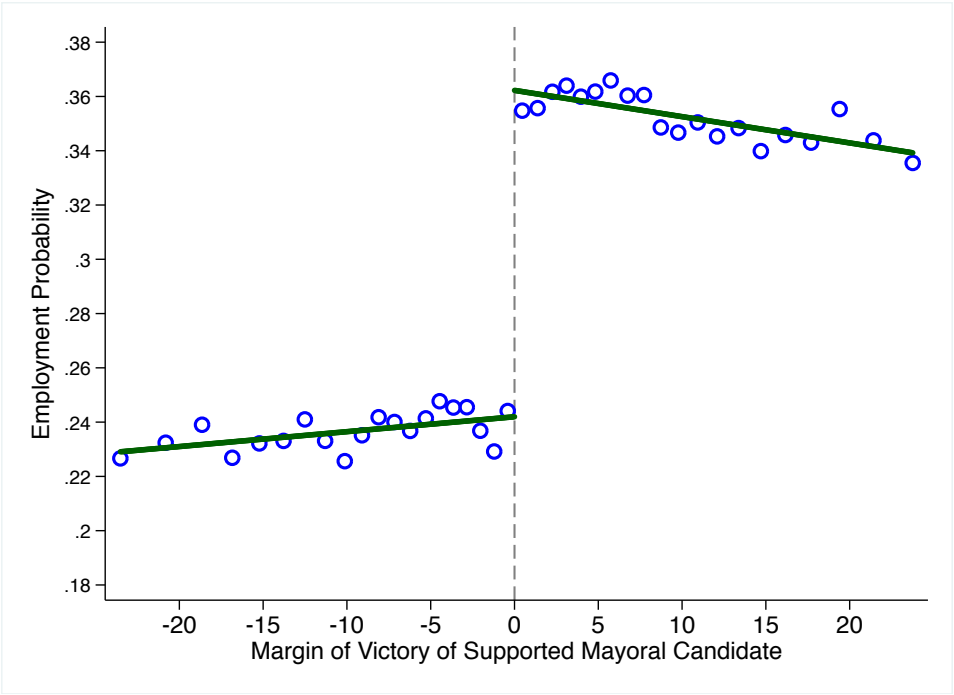
(d) **Donors' Earnings**



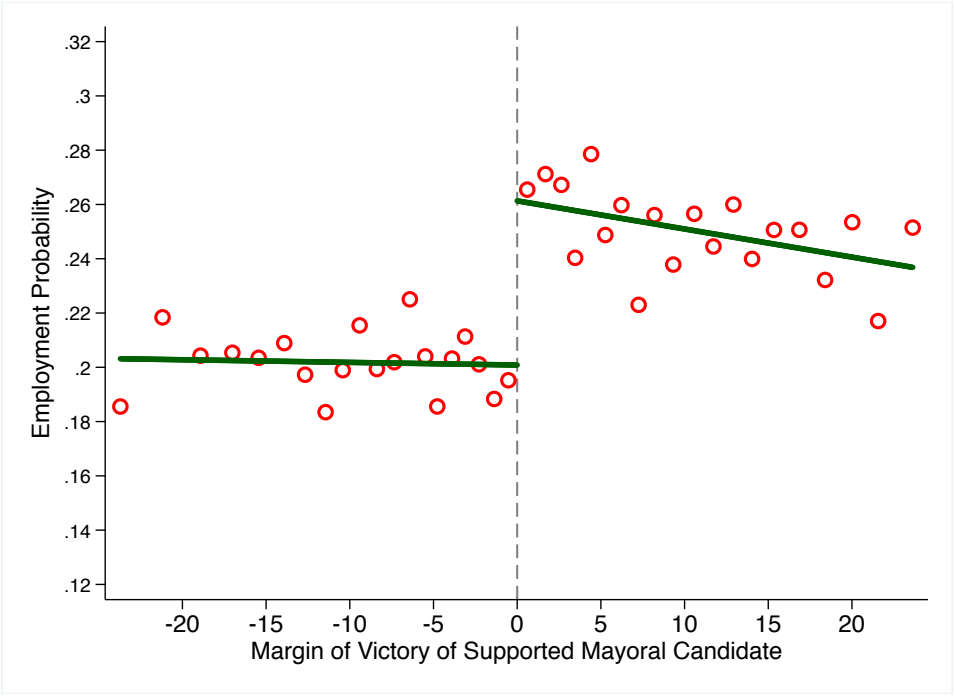
Notes: The figure shows the trends in mean public sector outcomes from three years before to four years after the election, for supporters of the winning mayoral candidate or the close loser, using a 5% margin of victory to define close races. Panels (a) and (b) focus on public sector employment probability for the subsample of candidates to the local council and of donors, respectively. Panels (c) and (d) focus on public sector earnings (in 2000 BRL) for the subsample of candidates to the local council and of donors, respectively. The samples are composed of 233,238 candidates across 5,413 elections, and 177,590 donors across 3,162 elections. See section 3.3 for a description of the outcome variables. The sample of elections is 2000, 2004, 2008, 2012 for candidates and 2004, 2008, 2012 for donors. The dotted lines show 95% confidence intervals around the mean.

FIGURE 5. **Post-Election Public Sector Employment Probability Around the Discontinuity Cutoff**

(a) **Candidates**

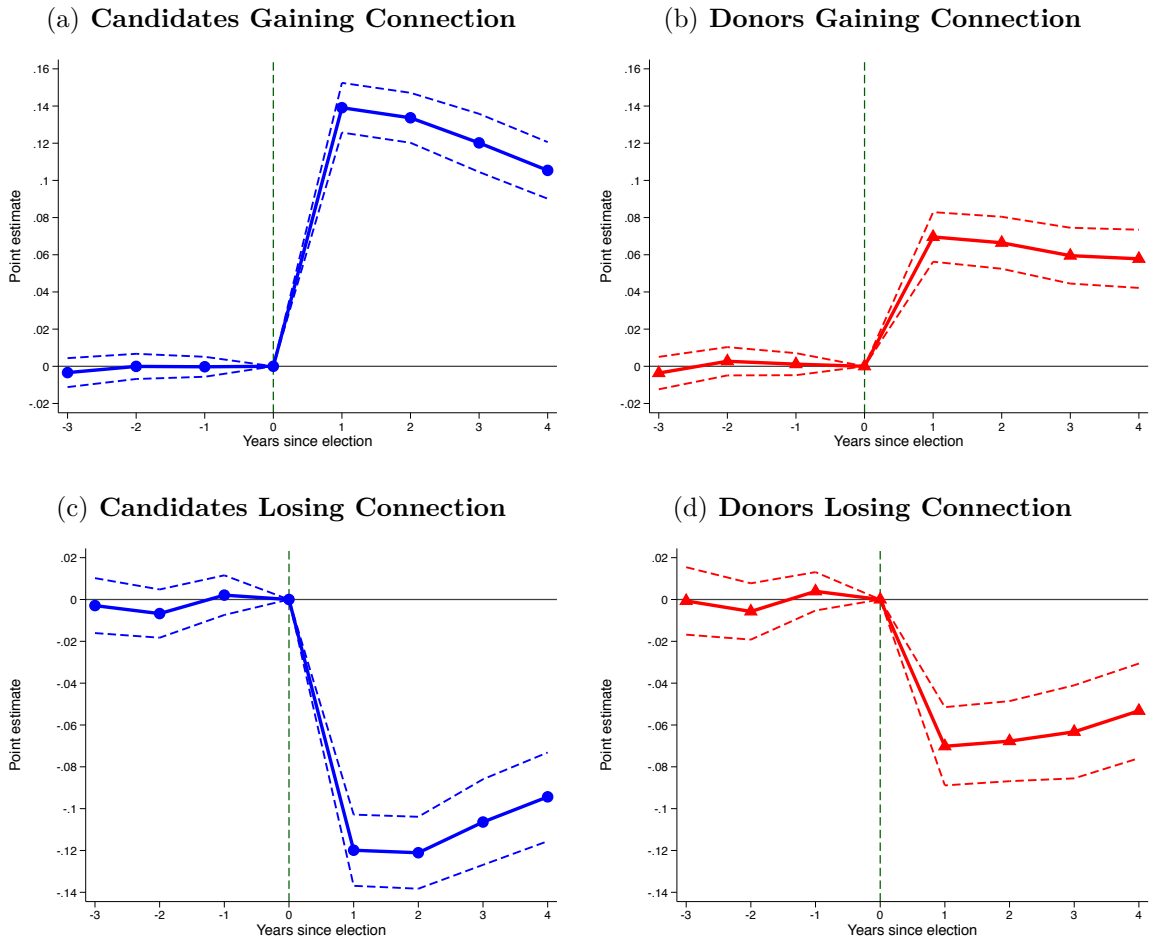


(b) **Donors**



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 mayoral candidate supported over the opponent. Supporters whose supported mayoral candidate lost have a negative margin of victory, while supporters of the winning mayoral candidate 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.

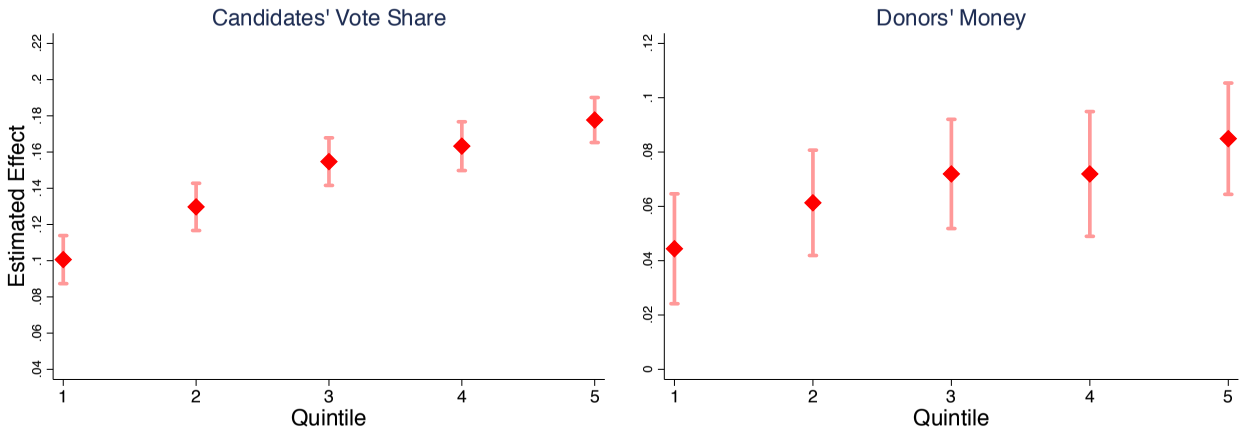
FIGURE 6. **Effect on Public Sector Employment Probability of Gaining versus Losing a Connection**



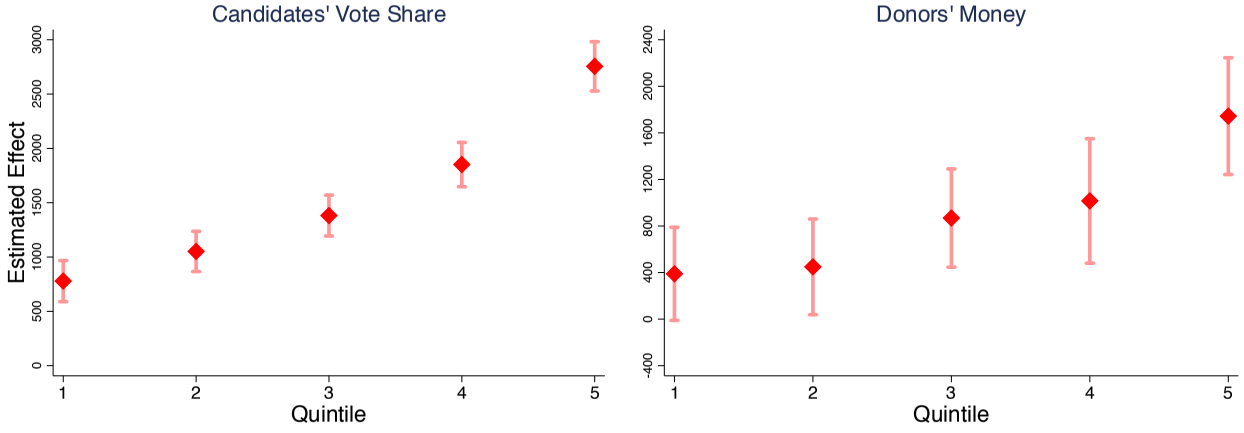
Notes: The figure presents the estimated effect of gaining a connection to the party in power (top panels) or losing a connection to the party in power (bottom panels) on a supporter's probability of employment in the public sector. The figure plots the estimated effect over time, by plotting the estimated β_k coefficients from equation (4.3). 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 who was not in the ruling coalition in the previous election cycle, and the variable *Shock* in equation (4.3) 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 who was already in the ruling coalition in the previous election cycle, and the variable *Shock* in equation (4.3) 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% or less. Panels (a) and (c) present estimates from the sample of candidates, while panels (b) and (d) present estimates from the sample of donors. See section 3.3 for a description of the outcome variables. The sample of elections is 2004, 2008, 2012 in all panels. The top panels include 121,064 candidates and 106,945 donors. The bottom panels include 65,997 candidates and 79,663 donors. The dotted lines show 95% confidence intervals and are based on standard errors double clustered at the candidate and election level.

FIGURE 7. **Public Sector Returns Are Increasing in Amount of Support Provided**

(a) Effects on Employment Probability

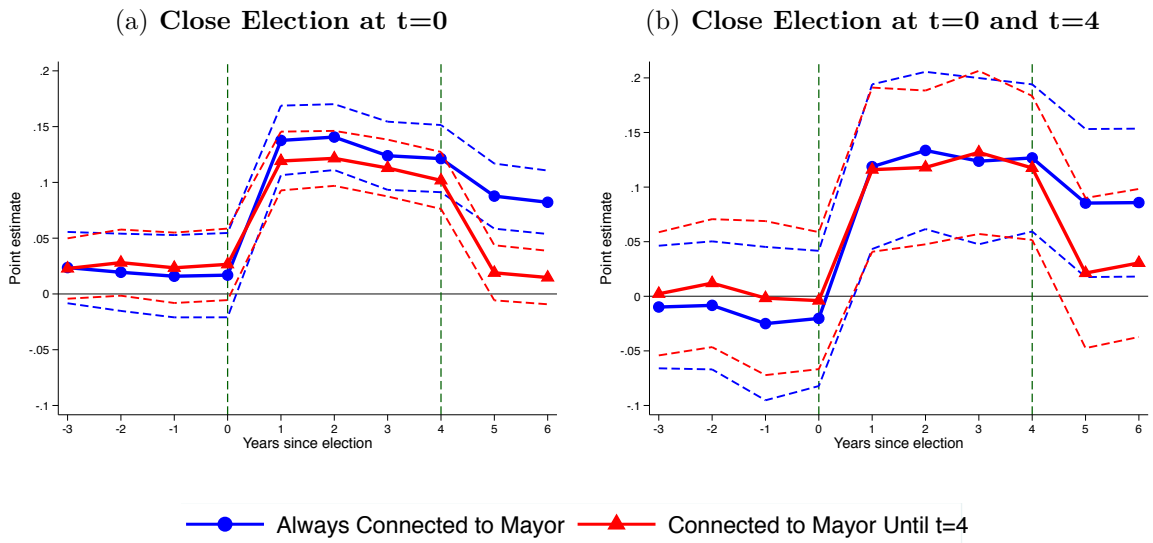


(b) Effects on Earnings



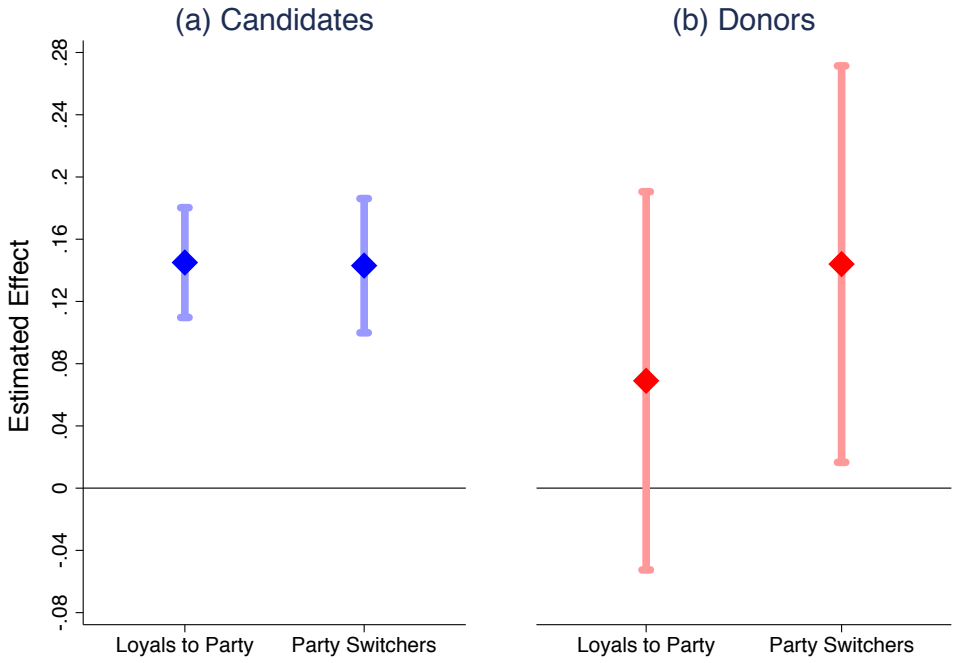
Notes: The figures present the estimated treatment effects from the estimation of equation 6.1. We report the estimated treatment effects of supporting the winning mayoral candidate, together with 95% confidence intervals, at different quintiles of the candidates' vote share distribution (left panels) 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 composed of supporters of the winning mayoral candidate or the close loser, using a 5% margin of victory to define close races. The samples in the left panels include candidates to the local council who were not elected. The samples in the right panels include donors. The sample of elections is 2000, 2004, 2008, 2012 in the left panels and 2004, 2008, 2012 in the right panels. 95% confidence intervals are based on standard errors double clustered at the candidate and election level.

FIGURE 8. **Supporters' Public Sector Employment Probability Depends on Party Fortune**



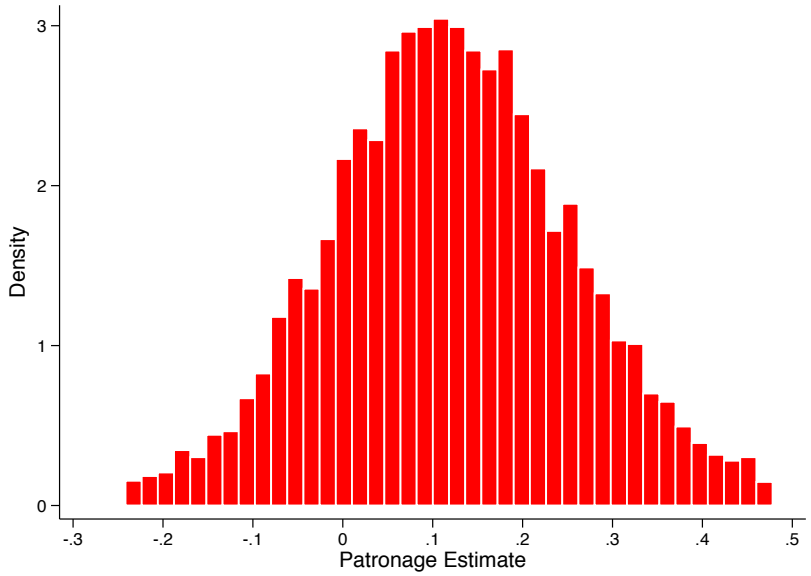
Notes: The figure presents the estimated β_k^{One} and β_k^{Both} coefficients from equation (6.6) with probability of employment in the public sector as the outcome variable. We separately focus on three groups of supporters: those supporting a party winning two consecutive elections (in year 0 and 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. In Panel (a), the sample is restricted to the subset of supporters of a party involved in a close mayoral election in year 0. In Panel (b), the sample is restricted to the subset of supporters of a party involved in two consecutive close mayoral 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 9. **Effect of Supporting the Winning Party Among Switchers and Loyals**



Notes: The figure shows the estimated coefficients and 95% confidence intervals for the estimated β from equation (4.1) with probability of employment in the public sector as the outcome variable, for different subsample supporters. "Loyals to Party" refer to candidates (respectively, donors) who in the previous election run in (respectively, donated to) the same party of the mayoral candidate supported in the current election. "Party Switchers" refer to candidates (respectively, donors) who in the previous election run in (respectively, donated to) a different party than the one of the mayoral candidate supported in the current election. Results in Panel (a) are estimated on the sample of candidates. Results in Panel (b) are estimated on the sample of donors. The sample is composed of supporters of the winning mayoral candidate or the close loser, using a 5% margin of victory to define close races. The sample is further restricted to supporters of the winning mayoral candidate or the close loser who had run/donated also in the previous elections. The sample of elections is 2004, 2008, 2012 for candidates and 2008 and 2012 for donors. 95% confidence intervals are based on standard errors double clustered at the candidate and election level.

FIGURE 10. **Distribution of Patronage Across Elections**



Notes: The figure shows the distribution of the estimates of patronage across the 7,696 elections over the 2004-2012 period decided by a margin of victory between the mayor and the runner-up of 10% or less. See Section 7 for a description of the method to calculate the election-specific patronage estimates. The average of the estimates is 0.118.

TABLE 1. **Election Cycles in Municipal Public Employment and Budget Outcomes**

Dependent Variable:	(1) Share Hires All	(2) Share Terminations All	(3) Employment Growth	(4) Share Hires Permanent	(5) Share Terminations Permanent	(6) Share Hires Temporary	(7) Share Terminations Temporary	(8) Tot. Exp. Per Capita	(9) Personnel Exp. Per Capita
Election	7.899***	4.221***	3.583***	3.294***	2.258***	21.908***	18.020***	-23.984***	23.862***
	(0.128)	(0.100)	(0.137)	(0.140)	(0.119)	(0.262)	(0.267)	(1.367)	(0.681)
Observations	85,792	85,792	81,441	84,286	84,286	62,786	65,202	75,661	75,661
R-squared	0.711	0.654	0.307	0.592	0.535	0.806	0.774	0.983	0.979
Mean D.V. Off Election	15.92	11.54	5.800	15.15	11.23	38.06	34.47	1284	570.2
Municipalities	5568	5568	5568	5567	5567	5478	5497	5568	5568

Notes: The table presents estimated coefficients on an indicator variable equal to one in years after a municipal election (2001, 2005, 2009, 2013). The unit of observation is a municipality-year pair. The dependent variable is the share of new hires and the share of terminations among all public sector workers in the municipality (column 1 and 2, respectively), the growth in the number of public sector employees with respect to the previous year (column 3), the share of new hires and the share of terminations among the permanent public sector workers in the municipality (column 4 and 5, respectively), the share of new hires and the share of terminations among the temporary public sector workers in the municipality (column 6 and 7, respectively), total public expenditure per capita (column 8) and public expenditure in personnel per capita (column 9). All specifications include municipality fixed effects and municipality-specific time trends. Local elections were held in November of 2000, 2004, 2008, 2012, with the mayor taking office in January of 2001, 2005, 2009, 2013. "Mean D.V. Off Election" shows the average of the dependent variable in off-election years. Robust standard errors are shown in parentheses and are clustered at the municipality level. *** p<0.01, ** p<0.05, * p<0.1

TABLE 2. **Descriptive Statistics on Supporters' Labor Market**

	Candidates (694,273 obs.)			**Donors** (701,954 obs.)			**Universe of Workers** (87,528,336 obs.)		
Panel A: Employment conditional on being in RAIS									
Ever employed in:	*Share*			*Share*			*Share*		
Public Sector	68.6%			51.9%			18.6%		
Public Municipal	55.7%			39.2%			11.3%		
Public State	20.9%			17.9%			6.7%		
Public Federal	4.1%			5.0%			2.8%		
Public Permanent	49.1%			35.3%			13.8%		
Public Temporary	41.6%			32.8%			8.7%		
Private Sector	62.1%			75.5%			91.5%		
Panel B: Earnings conditional on employment									
Annual Earnings:	*Mean*	*Median*	*SD*	*Mean*	*Median*	*SD*	*Mean*	*Median*	*SD*
Public Sector	12,123	7,548	117,475	17,300	10,088	41,390	13,659	7,678	62,697
Public Permanent	12,546	7,829	132,088	18,518	10,655	47,130	14,994	8,643	52,146
Public Temporary	10,881	6,695	57,636	14,519	8,832	23,542	8,233	4,718	94,425
Private Sector	7,775	4,620	29,739	10,551	4,807	70,710	7,070	4,128	61,299
Panel C: Occupational category conditional on public employment									
		Share			*Share*			*Share*	
Employed as:	*All*	*Permanent*	*Temporary*	*All*	*Permanent*	*Temporary*	*All*	*Permanent*	*Temporary*
Manager	15.8%	9.8%	31.0%	17.8%	11.6%	29.8%	8.2%	6.6%	13.6%
Professional	20.5%	22.9%	14.6%	27.0%	32.2%	17.0%	23.4%	24.0%	21.5%
High Skilled Technical	16.5%	19.1%	10.2%	13.9%	16.8%	8.4%	20.5%	21.5%	17.0%
Clerical	24.0%	21.0%	31.8%	26.8%	22.1%	35.7%	21.6%	20.1%	26.6%
Blue Collar	23.1%	27.3%	12.5%	14.5%	17.4%	9.1%	26.3%	27.8%	21.3%

Notes: The table provides a summary of the labor market careers of political supporters and of the universe of workers in *RAIS* in the period 1997-2014. See Section 3.3 for details on the definition of the variables.

TABLE 3. **Covariates Balance for 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 Managerial t=0	0.002	0.588	0.038	192,232	179338	4154
Employed Professional t=0	0.005**	0.037	0.057	192,232	179338	4154
Employed HS Technical t=0	-0.000	0.829	0.045	192,232	179338	4154
Employed Clerical t=0	-0.001	0.862	0.063	192,232	179338	4154
Employed Blue Collar 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 Managerial t=-1	0.003	0.339	0.044	191,710	178881	4154
Employed Professional t=-1	0.004	0.126	0.055	191,710	178881	4154
Employed HS Technical t=-1	0.000	0.884	0.046	191,710	178881	4154
Employed Clerical t=-1	-0.001	0.656	0.069	191,710	178881	4154
Employed Blue Collar t=-1	0.001	0.724	0.071	191,710	178881	4154
Mincer Sample	0.004	0.242	0.264	254,848	233238	5413
Mincer Ability	-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% or less. Column 4 reports the mean of the covariate in the control group, namely among supporters of the runner-up mayoral candidate. *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 Managerial/Professional/HS Technical/Clerical/Blue Collar* 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. *Mincer Ability* is a continuous measure of ability derived using the approach described in section 6.4.1. *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 supporters' 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 4. **Covariates Balance for 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 Managerial t=0	0.006	0.287	0.044	180,463	177178	3162
Employed Professional t=0	-0.001	0.866	0.06	180,463	177178	3162
Employed HS Technical t=0	0.002	0.458	0.029	180,463	177178	3162
Employed Clerical t=0	0.001	0.758	0.056	180,463	177178	3162
Employed Blue Collar 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 Managerial t=-1	0.006	0.31	0.045	180,497	177210	3162
Employed Professional t=-1	0.002	0.647	0.057	180,497	177210	3162
Employed HS Technical t=-1	-0.000	0.893	0.029	180,497	177210	3162
Employed Clerical t=-1	0.000	0.917	0.055	180,497	177210	3162
Employed Blue Collar t=-1	0.002	0.348	0.031	180,497	177210	3162
Mincer Sample	0.002	0.745	0.384	180,886	177590	3162
Mincer Ability	-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% 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 3 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 5. **Effect of Supporting the Winning Party on Public Sector Outcomes**

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)
	Employed Public			Earnings Public		
Group of Supporters:	All	Candidates	Donors	All	Candidates	Donors
Mayor	0.105***	0.124***	0.067***	1,224.376***	1,369.761***	858.287***
	(0.005)	(0.005)	(0.009)	(94.321)	(74.758)	(188.512)
Observations	1,447,538	867,888	550,832	1,447,538	867,888	550,832
R-squared	0.322	0.358	0.296	0.208	0.239	0.207
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 coefficients of β from equation (4.1) using as dependent variable 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. See section 3.3 for a description of the outcome variables. The sample is composed of supporters of the winning mayoral candidate or the close loser, using a 5% margin of victory to define close races. The sample of elections is 2000, 2004, 2008, 2012 in columns 1, 2, 4, 5, and 2004, 2008, 2012 in columns 3, 6. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Robust 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. **Effect of Supporting the Winning Party on Formal Sector Employment**

Panel A: Private Sector

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***	-0.026***	-0.016**	-110.537***	-97.927***	-145.062*
	(0.003)	(0.003)	(0.007)	(35.889)	(27.366)	(84.661)
R-squared	0.192	0.164	0.242	0.112	0.101	0.146
Mean D.V. Runner-up	0.155	0.125	0.204	1155	876.9	1606

Panel B: Formal Sector

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)
	Employed Any Job			Total Earnings		
	All	Candidates	Donors	All	Candidates	Donors
Mayor	0.075***	0.090***	0.046***	1,077.973***	1,281.960***	533.717**
	(0.004)	(0.005)	(0.008)	(118.237)	(82.704)	(252.499)
R-squared	0.456	0.463	0.467	0.261	0.280	0.274
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 coefficients of β from equation (4.1) using as dependent variable 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. See section 3.3 for a description of the outcome variables. The sample is composed of supporters of the winning mayoral candidate or the close loser, using a 5% margin of victory to define close races. The sample of elections is 2000, 2004, 2008, 2012 in columns 1, 2, 4, 5, and 2004, 2008, 2012 in columns 3, 6. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Robust 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 7. **Effect of Supporting the Winning Party on Public Employment Probability – By Public Actor Allocating Jobs**

Dep. Var. is Employment in:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Municipal (Same)		Municipal (Other)		State		Federal	
Group of Supporters:	Candidates	Donors	Candidates	Donors	Candidates	Donors	Candidates	Donors
Mayor	0.137***	0.085***	-0.003***	-0.010***	-0.010***	-0.008**	0.000	-0.000
	(0.005)	(0.008)	(0.001)	(0.002)	(0.002)	(0.004)	(0.001)	(0.002)
Observations	867,888	550,832	867,888	550,832	867,888	550,832	867,888	550,832
R-squared	0.285	0.201	0.047	0.062	0.119	0.121	0.048	0.059
Mean D.V. Runner-up	0.138	0.090	0.014	0.026	0.078	0.069	0.010	0.013
Supporters	233238	177590	233238	177590	233238	177590	233238	177590
Elections	5413	3162	5413	3162	5413	3162	5413	3162

Notes: The table presents the estimated coefficients of β from equation (4.1) when the dependent variable is an indicator variable 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 composed of supporters of the winning mayoral candidate or the close loser, using a 5% margin of victory to define close races. The sample of elections is 2000, 2004, 2008, 2012 in columns 1, 3, 5, 7, and 2004, 2008, 2012 in columns 2, 4, 6, 8. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Robust 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 8. **Effect of Supporting the Winning Party On Public Employment Probability Across the Public Sector Hierarchy**

Dep. Var. is Employment in:	(1) Managerial Job	(2) Professional Job	(3) High Skilled Technical Job	(4) Clerical Job	(5) Blue Collar Job
Panel A: All Supporters					
Mayor	0.053***	0.007***	0.005***	0.031***	0.013***
	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)
Observations	1,186,480	1,186,480	1,186,480	1,186,480	1,186,480
R-squared	0.120	0.092	0.068	0.116	0.088
Mean D.V. Runner-up	0.0280	0.0600	0.0350	0.0500	0.0490
Supporters	361979	361979	361979	361979	361979
Elections	4160	4160	4160	4160	4160
Panel B: Candidates					
Mayor	0.069***	0.009***	0.006***	0.040***	0.016***
	(0.004)	(0.003)	(0.002)	(0.003)	(0.003)
Observations	609,018	609,018	609,018	609,018	609,018
R-squared	0.157	0.100	0.086	0.142	0.121
Mean D.V. Runner-up	0.0270	0.0570	0.0420	0.0540	0.0660
Supporters	177659	177659	177659	177659	177659
Elections	4153	4153	4153	4153	4153
Panel C: Donors					
Mayor	0.031***	0.003	0.003	0.020***	0.010***
	(0.004)	(0.004)	(0.002)	(0.004)	(0.002)
Observations	548,694	548,694	548,694	548,694	548,694
R-squared	0.114	0.112	0.071	0.114	0.067
Mean D.V. Runner-up	0.0300	0.0620	0.0270	0.0470	0.0310
Supporters	177011	177011	177011	177011	177011
Elections	3159	3159	3159	3159	3159

Notes: The table presents the estimated coefficients of β from equation (4.1) using as dependent variable an indicator 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 composed of supporters of the winning mayoral candidate or the close loser, using a 5% margin of victory to define close races. The sample of elections is 2004, 2008, 2012. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Robust 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 9. **Providing Political Support Decreases the Importance of Education as a Hiring Criterion**

Dep. Var. is Employment in Public Job Requiring:	(1) Middle School Degree	(2) High School School Degree	(3) University Degree
Mayor∗Qualified	-0.010***	-0.003	-0.015**
	(0.002)	(0.003)	(0.006)
Mayor	0.017***	0.047***	0.070***
	(0.002)	(0.004)	(0.004)
Qualified	0.011***	0.081***	0.352***
	(0.001)	(0.002)	(0.005)
Observations	604,366	604,366	604,366
R-squared	0.080	0.178	0.299
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 (6.2) using as dependent variables 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). The sample includes only candidates to the local council, and is restricted to supporters of the winning mayoral candidate or the close loser, using a 5% margin of victory to define close races. The sample of elections is 2004, 2008, 2012. "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. Robust 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 10. **Extent of Public Employees' Unqualification is Larger Among Mayor's Supporters**

	Dep. Var. is Indicator for Being Unqualified for the Job					
Sample: Supporters Employed in:	(1) Any Job	(2) Managerial Job	(3) Professional Job	(4) High Skilled Technical Job	(5) Clerical Job	(6) Blue Collar Job
Mayor	0.027***	0.074***	0.021***	0.002	0.039***	0.002
	(0.003)	(0.011)	(0.005)	(0.007)	(0.005)	(0.006)
Observations	320,233	49,600	66,266	36,140	71,257	56,822
R-squared	0.367	0.257	0.227	0.244	0.199	0.203
Mean D.V. Runner-Up	0.160	0.442	0.102	0.152	0.100	0.142
Supporters	115610	22742	26364	15231	31185	23207
Elections	4061	1891	2831	2124	2759	2879

Notes: The table investigates the difference in the share of unqualified workers between public employees who are supporters of the mayor and those who are supporters of the runner-up, in the four years after the election in which they are supporters. We regress an indicator variable equal to one if the supporter is unqualified for the job on an indicator for having been a supporter of the winning mayoral candidate, including election (municipality-year of the election) fixed effects and the margin of victory of the mayor supported. In column 1 we pool all employees, in column 2 we focus on managerial jobs, in column 3 we focus on professionals, in column 4 we focus on high skilled technical jobs, in column 5 we focus on clerical occupations, in column 6 we focus on blue collar jobs. The sample includes both candidates to the local council and donors, and is restricted to supporters of the winning mayoral candidate or the close loser in a close race, using a 5% margin of victory to define close races. The sample of elections is 2004, 2008, 2012. "Mean D.V. Runner-Up" shows the average of the dependent variable among supporters of the runner-up mayoral candidate. Robust 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 11. **Favoritism Stronger for Supporters with Lower Private Sector Opportunities**

Dep. Var. is Employment in Public Sector			
	(1)	(2)	(3)
Group of Supporters:	All Supporters	Candidates	Donors
Panel A: Continuous Measure of Previous Private Earnings			
Mayor∗Private Earnings	-0.003***	-0.005***	-0.002***
	(0.000)	(0.001)	(0.000)
Mayor	0.093***	0.126***	0.056***
	(0.007)	(0.010)	(0.009)
R-squared	0.270	0.365	0.228
Mean D.V. Runner-Up	0.0980	0.111	0.0850
Panel B: Terciles of Previous Private Earnings			
Mayor∗ Tercile 3	-0.038***	-0.059***	-0.013*
	(0.006)	(0.010)	(0.008)
Mayor∗ Tercile 2	-0.013**	-0.015	-0.010
	(0.006)	(0.010)	(0.008)
Mayor	0.112***	0.154***	0.065***
	(0.008)	(0.012)	(0.011)
Observations	224,132	104,630	117,202
R-squared	0.269	0.364	0.227
Mean D.V. Runner-Up	0.103	0.121	0.0880
Supporters	71515	31438	39452
Elections	4010	3679	2500

Notes: The table presents the estimated coefficients from equation (6.3), estimated in the sample of all supporters (column 1), in the sample of candidates (column 2) and in the sample of donors (column 3). Panel A looks at the heterogeneous treatment effect interacting the indicator for supporting the mayor with a continuous measure of previous private sector earnings, while Panel B looks at the heterogeneous treatment effect interacting the indicator for supporting the mayor with an indicator for being in the top tercile of the distribution of previous private sector earnings and with an indicator for being in the second tercile of the distribution of previous private sector earnings. The dependent variable in all columns is an indicator equal to one if the supporter is employed in the public sector. The sample is restricted to supporters of the winning mayoral candidate or the close loser, using a 5% margin of victory to define close races, and using only the sample of supporters employed in the private sector in at least one of the two years preceding the election. The sample of elections is 2000, 2004, 2008, 2012 in columns 1 and 2, and 2004, 2008, 2012 in column 3. "Mean D.V. Runner-up" shows the average of the dependent variable in the post-election period for the supporters of the runner-up. Robust 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 12. **Favoritism Stronger for Supporters with Lower Residual Ability**

	(1)	(2)	(3)
	Dep. Var. is Employment in Public Sector		
Group of Supporters:	All Supporters	Candidates	Donors
Mayor∗Tercile 3	-0.032***	-0.023***	-0.030***
	(0.006)	(0.087)	(0.009)
Mayor∗Tercile 2	-0.016***	-0.007	-0.027***
	(0.006)	(0.008)	(0.009)
Mayor	0.147***	0.175***	0.101***
	(0.008)	(0.010)	(0.013)
Observations	418,012	211,612	204,864
R-squared	0.362	0.426	0.334
Mean D.V. Tercile 1 Runner-up	0.277	0.291	0.250
Supporters	131928	62725	68826
Elections	4855	4794	3086

Notes: The table presents the estimated patronage effects from equation (6.5). The dependent variable is an indicator variable equal to one if the supporter is employed in a public sector job. The sample is composed of supporters of the winning mayoral candidate or the close loser, using a 5% margin of victory to define close races, and using only the sample of supporters with a non-missing value in the Mincer ability variable. The sample in column 1 includes candidates and donors. The sample in column 2 includes candidates. The sample in column 3 includes donors. The sample of elections is 2000, 2004, 2008, 2012 in columns 1, 2, and 2004, 2008, 2012 in column 3. "Mean D.V. Tercile 1 Runner-up" shows the average of the dependent variable in the post-election period for the supporters of the runner-up who are in the bottom tertile of the ability distribution. Robust 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.

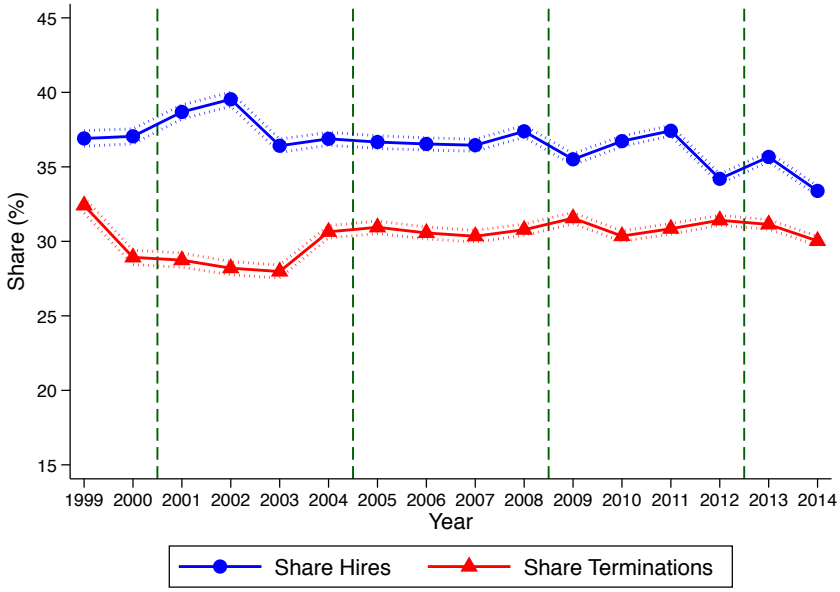
TABLE 13. **Patronage And Municipal-Level Outcomes**

	(1)	(2)	(3)	(4)
Panel A: Dep. Var. is Public Sector Workers Per Capita				
Patronage	0.005***	0.005***	0.005***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Observations	5,475	5,451	5,442	5,208
R-squared	0.926	0.927	0.930	0.940
SD D.V.	0.0180	0.0180	0.0180	0.0180
SD Patronage	0.144	0.144	0.144	0.145
Municipalities	2420	2410	2407	2314
Panel B: Dep. Var. is 4th Grade Test Scores				
Patronage	-0.061*	-0.067**	-0.063**	-0.069**
	(0.032)	(0.032)	(0.032)	(0.032)
Observations	4,787	4,764	4,757	4,541
R-squared	0.873	0.874	0.877	0.877
SD D.V.	0.432	0.432	0.432	0.429
SD Patronage	0.142	0.142	0.142	0.142
Municipalities	2136	2126	2124	2036
Panel C: Dep. Var. is 8th Grade Test Scores				
Patronage	-0.065**	-0.067**	-0.071**	-0.076**
	(0.031)	(0.031)	(0.032)	(0.032)
Observations	3,118	3,101	3,094	2,931
R-squared	0.880	0.881	0.882	0.883
SD D.V.	0.352	0.353	0.353	0.349
SD Patronage	0.140	0.140	0.140	0.140
Municipalities	1384	1377	1375	1309
Election Controls	Yes	Yes	Yes	Yes
Mayor Controls	No	Yes	Yes	Yes
Municipality Controls	No	No	Yes	Yes
Public Budget Controls	No	No	No	Yes

Notes: The table presents estimates of a regression of the variable listed in the title of the panel on the patronage estimate at the municipality-election level, controlling for election year fixed effects and municipality fixed effects. The sample includes only elections decided by a margin of victory of 10% or less, and is restricted to municipalities with at least two close races in the 2004-2012 period. Election controls include the share of candidates and donors supporting the mayor and the runner-up whose party was already in the winning coalition, indicators for party turnover, for whether the incumbent mayor is re-elected and for whether the party of the mayor is the same in power at the state level, the share of new parties in power after the election, the share of new candidates in the winning coalition and in the winning party, and the margin of victory of the winning mayor. Mayor controls include an indicator for whether mayor is male, mayor's education fixed effects, and fixed effects for the mayor's party. Municipality controls include a second-order polynomial in municipality population, municipality per capita gdp, and the number of private sector employees per capita. Public budget controls include capital and current expenditures per capita, and churn in the public sector in the year after the election. See Section 7 for a description of the method to calculate the election-specific patronage estimates. "SD D.V." shows the standard deviation of the dependent variable. "SD Patronage" shows the standard deviation of the patronage estimate. Standard errors in parentheses, clustered at the municipality level. *** p<0.01, ** p<0.05, * p<0.1.

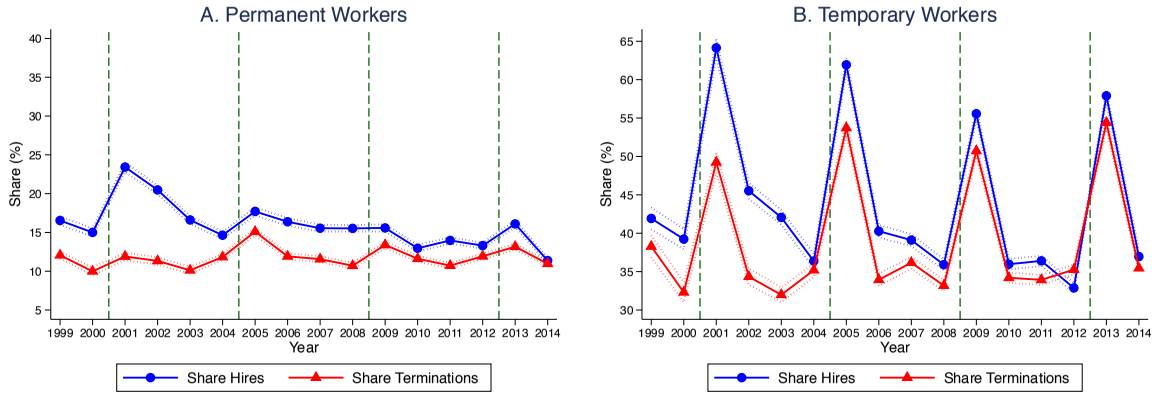
APPENDIX A: Additional Tables and Figures

FIGURE A1. **Turnover in Private Sector Employment Does Not Spike Following Elections**



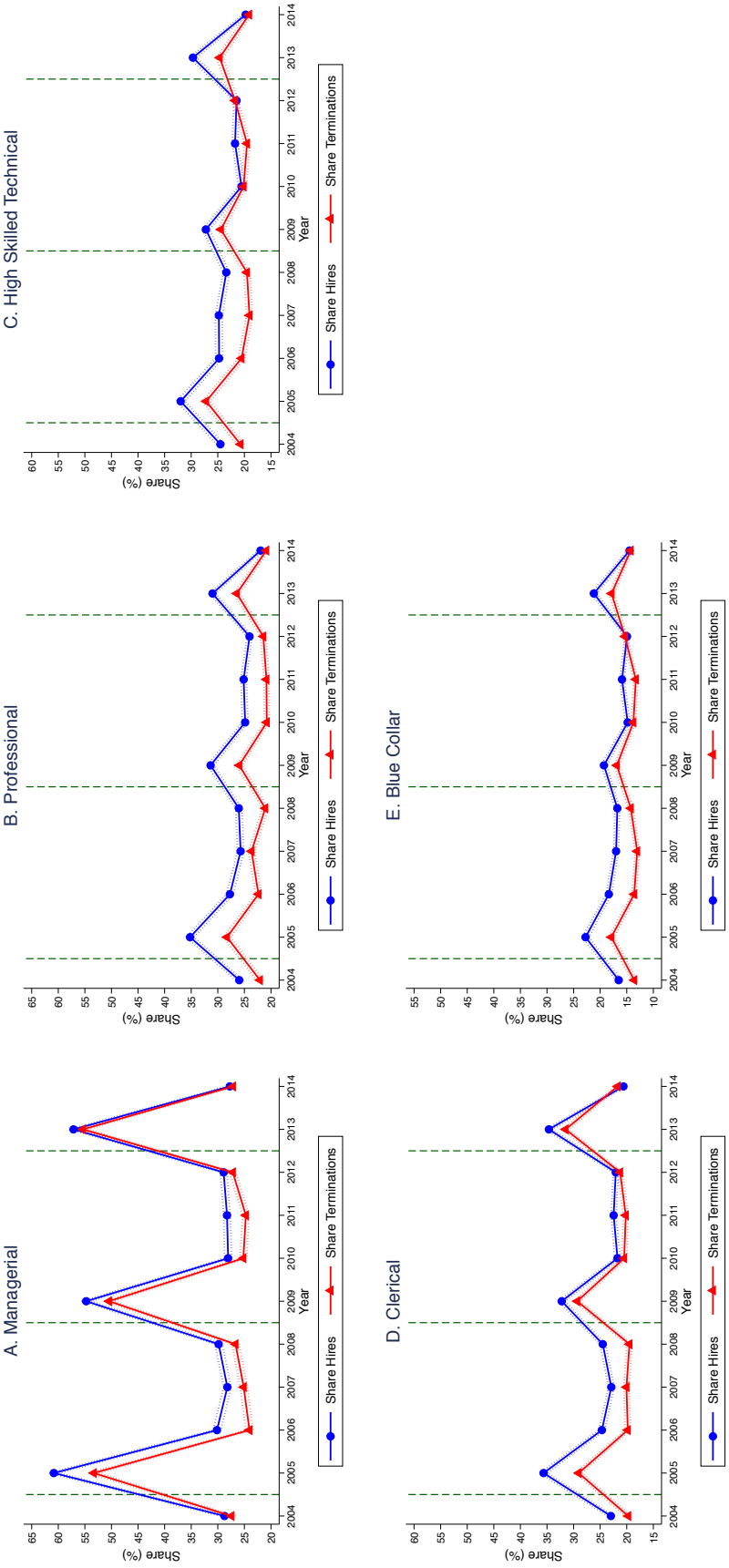
Notes: The figure shows the average share of hires and terminations in the private sector by year in Brazilian municipalities. Each observation in the data is a municipality-year pair. 95% confidence intervals are shown as dashed lines around the means. The green lines indicate the time of local elections, which were held in November of 2000, 2004, 2008, 2012, with the mayor taking office in January of 2001, 2005, 2009, 2013.

FIGURE A2. **Turnover in Municipal Public Employment By Type of Contract**



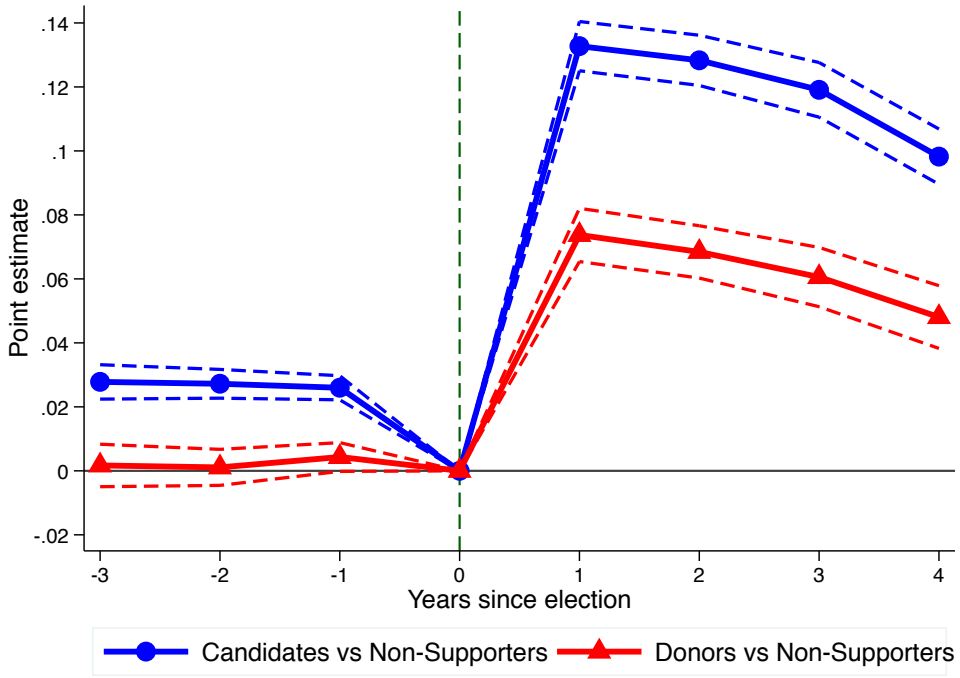
Notes: The figure shows the average share of hires and terminations in the local public sector for permanent (left panel) and temporary (right panel) public sector jobs. Each observation in the data is a municipality-year pair. 95% confidence intervals are shown as dashed lines around the means. The green lines indicate the time of local elections, which were held in November of 2000, 2004, 2008, 2012, with the mayor taking office in January of 2001, 2005, 2009, 2013.

FIGURE A3. Turnover in Municipal Public Employment By Job Category



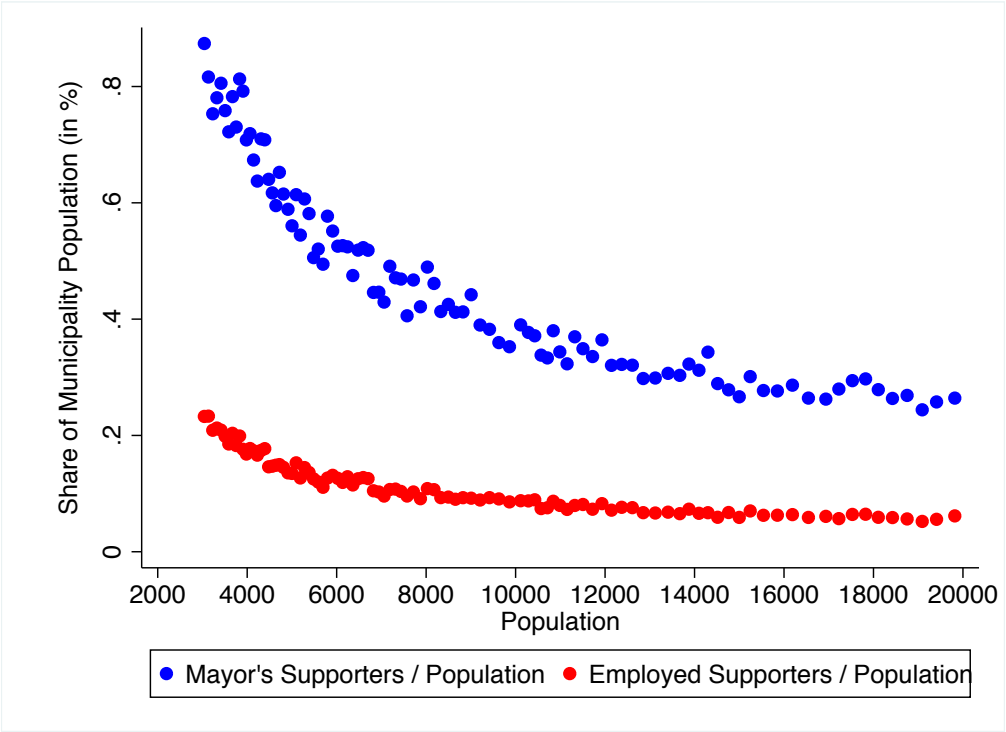
Notes: The figure shows the average share of hires and terminations in the local public sector for different categories of public sector jobs. Each observation in the data is a municipality-year pair. 95% confidence intervals are shown as dashed lines around the means. The green lines indicate the time of local elections, which were held in November of 2004, 2008, 2012, with the mayor taking office in January of 2005, 2009, 2013.

FIGURE A4. **Effect of Supporting the Winning Party on Public Sector Outcomes – Non-Supporters as Control Group**



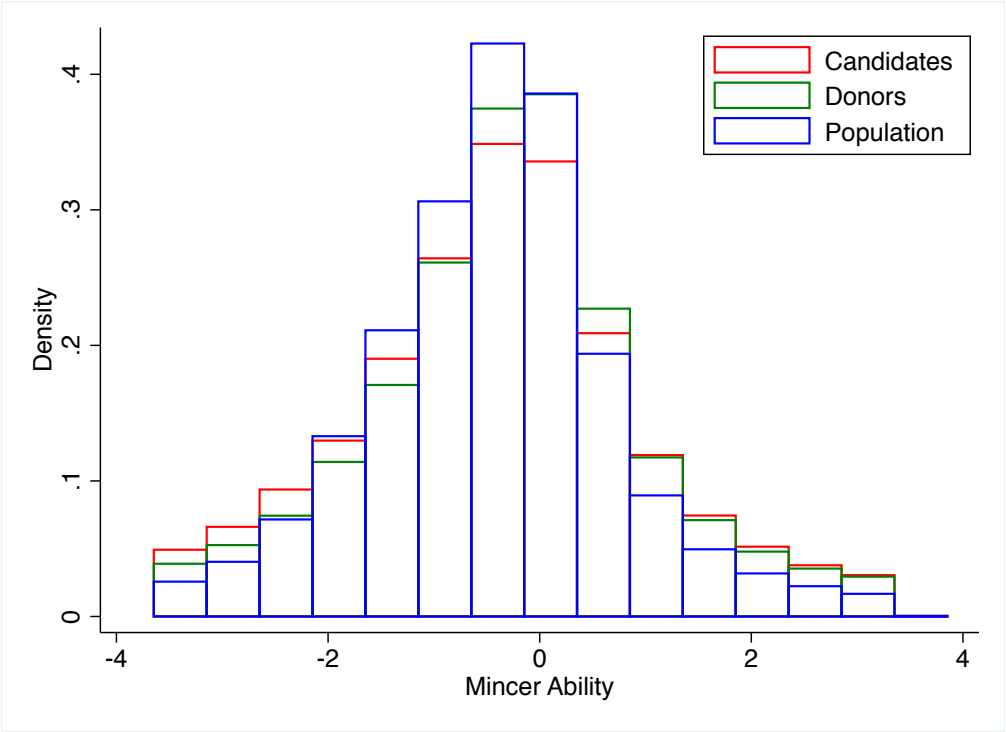
Notes: The figure presents the estimated effect of supporting the winning party on probability of employment in the public sector. The figure shows the estimated β_k coefficients from equation (4.4). Estimates in blue focus on the sample of candidates, while estimates in red focus on the sample of donors. See section 3.3 for a description of the outcome variables. 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 A5. **Mayor's Supporters and Employed Supporters as a Share of the Municipality Population**



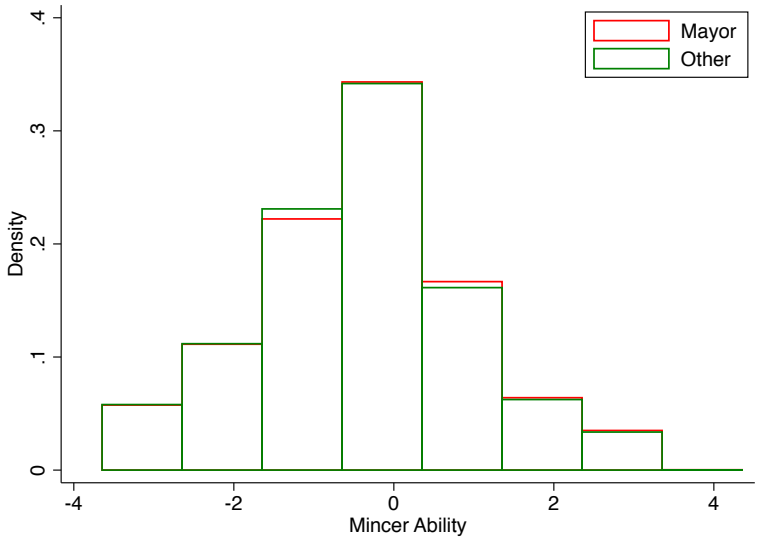
Notes: The figure shows the distribution of the number of the mayor's supporters (local candidates and donors) as a share of the population in the municipality (in blue), and the number of these supporters who are employed as a share of the population in the municipality (in red), for municipalities with a population between 3,000 and 20,000 inhabitants.

FIGURE A6. **Distribution of Ability Scores in the Population and Among Supporters**



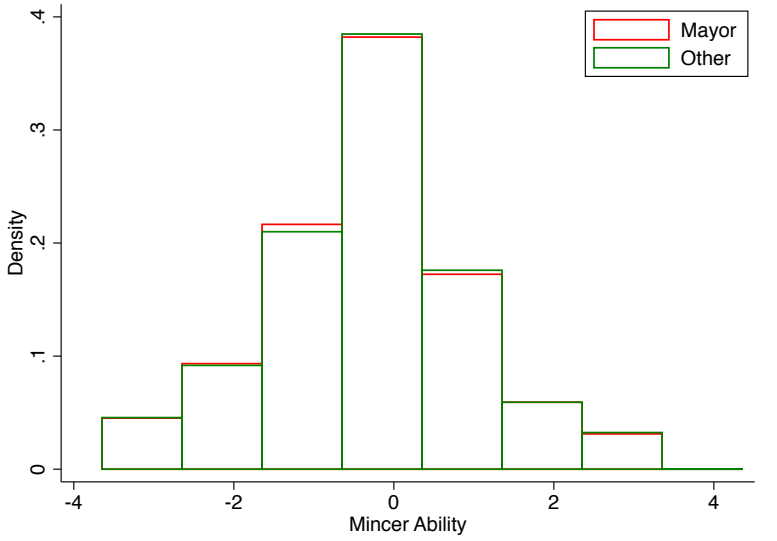
Notes: The figure shows comparisons of the distribution of the ability scores in the Brazilian population (in blue) and among supporters (candidates in red, and donors in green). See section 6.4.1 for a description of the procedure to calculate the ability scores.

FIGURE A7. **Distribution of Ability Scores Among Candidates Supporting the Mayor or a Different Mayoral Candidate**



Notes: The figure shows comparisons of the distribution of the ability scores among candidates supporting the mayor (in red) or a different mayoral candidate (in green). See section 6.4.1 for a description of the procedure to calculate the ability scores.

FIGURE A8. **Distribution of Ability Scores Among Donors Supporting the Mayor or a Different Mayoral Candidate**



Notes: The figure shows comparisons of the distribution of the ability scores among donors supporting the mayor (in red) or a different mayoral candidate (in green). See section 6.4.1 for a description of the procedure to calculate the ability scores.

TABLE A1. **Summary Statistics – Universe of 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	0.07	0.25	0	1	1,031,083
Number of Parties	1.72	0.69	1	4	274,792
Amount Spent in Race	2,685	15,621	0	3,445,467	1,079,728
Age	43.48	10.85	18	100	1,435,675
Male	0.76	0.43	0	1	1,436,252
Less than Middle School	0.28	0.45	0	1	1,436,387
Middle School	0.22	0.41	0	1	1,436,387
High School	0.35	0.48	0	1	1,436,387
College	0.16	0.36	0	1	1,436,387

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 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 – Universe of Donors to Local Elections**

(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	727,22	5794.79	0	5,609,230	1,144,211
Donated to Winning Coalition	0.48	0.50	0	1	1,144,211

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. **Public Sector Wage Premium**

Type of Job:	(1) All Jobs	(2) Managerial Jobs	(3) Professional Jobs	(4) High Skilled Technical Jobs	(5) Clerical Jobs	Blue Collar Jobs
Panel A: Dep. Var. is Log Wage:						
Public	0.072***	0.074***	0.328***	0.136***	0.066***	0.037***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R-squared	0.453	0.304	0.463	0.388	0.335	0.359
Panel B: Dep. Var. is Log Hourly Wage:						
Public	0.160***	0.222***	0.286***	0.192***	0.183***	0.136***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R-squared	0.478	0.297	0.388	0.355	0.345	0.353
Observations	529,460,038	23,076,149	42,819,113	50,854,596	101,602,667	311,107,509

Notes: The table presents the public sector wage premium across five 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 occupational groups fixed effects. 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 A4. **Covariates Balance 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 Managerial t=0	0.002	0.454	0.0270	125,127	119979	4147
Employed Professional t=0	0.002	0.497	0.0550	125,127	119979	4147
Employed HS Technical t=0	0.000	0.902	0.0420	125,127	119979	4147
Employed Clerical t=0	0.001	0.725	0.0560	125,127	119979	4147
Employed Blue Collar 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 Managerial t=-1	0.003	0.212	0.0320	124,777	119647	4147
Employed Professional t=-1	0.001	0.674	0.0530	124,777	119647	4147
Employed HS Technical t=-1	-0.000	0.887	0.0440	124,777	119647	4147
Employed Clerical t=-1	0.001	0.687	0.0620	124,777	119647	4147
Employed Blue Collar t=-1	0.004	0.189	0.0640	124,777	119647	4147
Mincer Sample	-0.001	0.895	0.298	126,391	121064	4147
Mincer Ability	-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 mayor), controlling for margin of victory and including election (*i.e.* municipality times election year) times party fixed effects, focusing on mayoral races decided by a margin of victory of 5% 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 3 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 A5. **Covariates Balance 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 Managerial t=0	-0.001	0.911	0.0610	67,142	65312	3892
Employed Professional t=0	-0.007	0.119	0.0620	67,142	65312	3892
Employed HS Technical t=0	0.004	0.263	0.0470	67,142	65312	3892
Employed Clerical t=0	0.008	0.165	0.0740	67,142	65312	3892
Employed Blue Collar 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 Managerial t=-1	-0.002	0.798	0.0690	66,970	65141	3894
Employed Professional t=-1	-0.005	0.304	0.0600	66,970	65141	3894
Employed HS Technical t=-1	0.004	0.288	0.0490	66,970	65141	3894
Employed Clerical t=-1	0.009	0.157	0.0800	66,970	65141	3894
Employed Blue Collar t=-1	-0.000	0.94	0.0850	66,970	65141	3894
Mincer Sample	-0.000	0.986	0.295	67,898	65997	3895
Mincer Ability	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 (*i.e.* municipality times election year) times party fixed effects, focusing on mayoral races decided by a margin of victory of 5% 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 3 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 A6. **Covariates Balance 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 Managerial t=0	0.001	0.69	0.0290	107,951	106712	3660
Employed Professional t=0	-0.000	0.958	0.0560	107,951	106712	3660
Employed HS Technical t=0	0.003	0.231	0.0280	107,951	106712	3660
Employed Clerical t=0	-0.001	0.776	0.0460	107,951	106712	3660
Employed Blue Collar 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 Managerial t=-1	0.002	0.638	0.0290	107,960	106719	3660
Employed Professional t=-1	0.002	0.719	0.0550	107,960	106719	3660
Employed HS Technical t=-1	0.000	0.863	0.0280	107,960	106719	3660
Employed Clerical t=-1	-0.000	0.978	0.0470	107,960	106719	3660
Employed Blue Collar t=-1	0.004	0.18	0.0280	107,960	106719	3660
Mincer Sample	0.005	0.778	0.368	108,202	106958	3660
Mincer Ability	-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 (*i.e.* municipality times election year) times party fixed effects, focusing on mayoral races decided by a margin of victory of 5% 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 3 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 A7. **Covariates Balance 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 Managerial t=0	-0.008	0.508	0.0690	80,194	79487	3140
Employed Professional t=0	-0.004	0.619	0.0730	80,194	79487	3140
Employed HS Technical t=0	-0.002	0.606	0.0310	80,194	79487	3140
Employed Clerical t=0	0.008	0.312	0.0700	80,194	79487	3140
Employed Blue Collar 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 Managerial t=-1	-0.006	0.623	0.0660	80,219	79512	3142
Employed Professional t=-1	-0.006	0.475	0.0690	80,219	79512	3142
Employed HS Technical t=-1	0.001	0.743	0.0310	80,219	79512	3142
Employed Clerical t=-1	0.007	0.353	0.0690	80,219	79512	3142
Employed Blue Collar t=-1	-0.001	0.822	0.0360	80,219	79512	3142
Mincer Sample	0.041**	0.043	0.369	80,385	79673	3144
Mincer Ability	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 (*i.e.* municipality times election year) times party fixed effects, focusing on mayoral races decided by a margin of victory of 5% 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 3 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 A8. **Effect of Supporting the Winning Party on Public Sector Outcomes – 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***	0.125***	0.068***	1,250.230***	1,379.926***	969.554***
	(0.004)	(0.003)	(0.008)	(74.431)	(53.558)	(175.471)
Observations	2,450,590	1,807,648	1,088,654	2,648,076	1,614,168	930,998
R-squared	0.319	0.356	0.289	0.208	0.239	0.209
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	687975	448590	347556	740230	407157	298806
Elections	8960	11194	5921	9706	9986	5128

Notes: The table presents the estimated coefficients of β from equation (4.1) using as dependent variable 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. See section 3.3 for a description of the outcome variables. The sample is composed of supporters of the winning mayoral candidate or the close loser, 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). The sample of elections is 2000, 2004, 2008, 2012 in columns 1, 2, 4, 5, and 2004, 2008, 2012 in columns 3, 6. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Robust 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 on Public Sector Outcomes – 3% 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***	0.122***	0.069***	1,253.877***	1,356.619***	884.004***
	(0.006)	(0.006)	(0.011)	(118.921)	(97.073)	(200.829)
Observations	844,858	516,330	311,852	844,858	516,330	311,852
R-squared	0.322	0.355	0.298	0.210	0.239	0.210
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 coefficients of β from equation (4.1) using as dependent variable 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. See section 3.3 for a description of the outcome variables. The sample is composed of supporters of the winning mayoral candidate or the close loser, using a 3% margin of victory to define close races. The sample of elections is 2000, 2004, 2008, 2012 in columns 1, 2, 4, 5, and 2004, 2008, 2012 in columns 3, 6. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Robust 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 on Public Sector Outcomes – 1% 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***	0.112***	0.082***	1,289.482***	1,240.820***	984.832***
	(0.011)	(0.012)	(0.019)	(241.140)	(187.805)	(346.646)
Observations	274,248	171,602	96,458	274,248	171,602	96,458
R-squared	0.321	0.353	0.301	0.215	0.238	0.230
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 coefficients of β from equation (4.1) using as dependent variable 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. See section 3.3 for a description of the outcome variables. The sample is composed of supporters of the winning mayoral candidate or the close loser, using a 1% margin of victory to define close races. The sample of elections is 2000, 2004, 2008, 2012 in columns 1, 2, 4, 5, and 2004, 2008, 2012 in columns 3, 6. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Robust 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 Election Cycle**

Dependent Variable:	(1) Employed Public	(2)	(3) Earnings Public	(4)
Group of Supporters:	Candidates	Donors	Candidates	Donors
Panel A: 2000 Election Cycle:				
Mayor	0.094***		1,026.259***	
	(0.009)		(132.944)	
Observations	242,384		242,384	
R-squared	0.310		0.205	
Mean D.V. Runner-up	0.204		2027	
Supporters	60596		60596	
Elections	1259		1259	
Panel B: 2004 Election Cycle:				
Mayor	0.128***	0.066***	1,343.418***	814.873*
	(0.010)	(0.021)	(146.942)	(456.498)
Observations	248,732	89,368	248,732	89,368
R-squared	0.369	0.356	0.248	0.260
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***	0.062***	1,522.456***	759.917**
	(0.010)	(0.013)	(156.320)	(300.431)
Observations	225,268	288,752	225,268	288,752
R-squared	0.380	0.272	0.255	0.184
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***	0.075***	1,778.027***	1,019.358***
	(0.010)	(0.012)	(160.962)	(256.238)
Observations	151,504	172,712	151,504	172,712
R-squared	0.367	0.296	0.241	0.206
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 coefficients of β from equation (4.1) using as dependent variable an indicator variable equal to one if the supporter is employed in a public sector job (columns 1-2) and public sector earnings (columns 3-4). Results in columns (1) and (3) are estimated on the sample of candidates. Results in columns (2) and (4) are estimated on the sample of donors. See section 3.3 for a description of the outcome variables. The sample is composed of supporters of the winning mayoral candidate or the close loser, using a 5% margin of victory to define close races. The sample of elections is 2000 in Panel A, 2004 in Panel B, 2008 in Panel C, 2012 in Panel D. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Robust 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 Type of Connection**

Group of Supporters:	(1)	(2)	(3)	(4)	(5)
	Candidates		Donors		
Connection to:	Party	Coalition	Mayor	Party	Coalition
Panel A: Dep. Var. is Employment Probability:					
Mayor	0.136***	0.117***	0.114***	0.071***	0.033***
	(0.007)	(0.006)	(0.014)	(0.016)	(0.012)
R-squared	0.395	0.359	0.351	0.304	0.271
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***	1,245.456***	1,713.739***	1,063.050***	144.292
	(108.166)	(94.133)	(342.821)	(349.026)	(270.998)
R-squared	0.290	0.234	0.274	0.219	0.191
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 coefficients of β from equation (4.1) using as dependent variables an indicator variable equal to one if the supporter is employed in a public sector job (Panel A) and 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. See section 3.3 for a description of the outcome variables. The sample is composed of supporters of the winning mayoral candidate or the close loser, using a 5% margin of victory to define close races. The sample of elections is 2000, 2004, 2008, 2012 in columns 1, 2, and 2004, 2008, 2012 in columns 3, 4, 5. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Robust 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. **Effect of Supporting the Winning Party on Public Sector Outcomes Winning versus Losing Candidates**

Dependent Variable:	(1) Employed Public	(2)	(3) Earnings Public	(4)
Type of Candidates:	Winners	Losers	Winners	Losers
Mayor	0.025***	0.148***	484.187***	1,585.560***
	(0.008)	(0.006)	(125.306)	(84.017)
Observations	160,918	705,352	160,918	705,352
R-squared	0.457	0.372	0.422	0.245
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 coefficients of β from equation (4.1). The dependent variable is an indicator for employment in the public sector (columns 1-2) and 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. See section 3.3 for a description of the outcome variables. The sample is composed of supporters of the winning mayoral candidate or the close loser, using a 5% margin of victory to define close races. The sample of elections is 2000, 2004, 2008, 2012. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Robust 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 Sector Outcomes – By Type of Contract**

Group of Supporters:	(1)	(2)	(3)	(4)
	Candidates		Donors	
Contract:	Permanent	Temporary	Permanent	Temporary
Panel A: Dep. Var. is Employment Probability:				
Mayor	0.044***	0.080***	0.023***	0.044***
	(0.004)	(0.004)	(0.006)	(0.005)
R-squared	0.259	0.197	0.208	0.149
Mean D.V. Runner-up	0.189	0.0520	0.140	0.0590
Panel B: Dep. Var. is Earnings:				
Mayor	503.924***	863.320***	313.212**	545.484***
	(62.773)	(53.721)	(139.765)	(92.799)
R-squared	0.169	0.141	0.148	0.103
Mean D.V. Runner-up	2076	486	2173	760
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 coefficients of β from equation (4.1) using as dependent variables an indicator variable equal to one if the supporter is employed in a public sector job (Panel A) and 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. See section 3.3 for a description of the outcome variables. The sample is composed of supporters of the winning mayoral candidate or the close loser, using a 5% margin of victory to define close races. The sample of elections is 2000, 2004, 2008, 2012 in columns 1, 2, and 2004, 2008, 2012 in column 3, 4. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Robust 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 On Public Sector Outcomes of Gaining versus Losing a Connection**

Panel A: Effect of Gaining a Connection

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***	0.129***	0.065***	1,088.626***	1,364.300***	743.153***
	(0.005)	(0.006)	(0.006)	(68.251)	(84.796)	(91.401)
Observations	1,695,258	920,516	774,742	1,695,258	920,516	774,742
R-squared	0.816	0.816	0.819	0.808	0.785	0.829
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

Panel B: Effect of Losing a Connection

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***	-0.112***	-0.065***	-1,085.737***	-1,395.449***	-828.333***
	(0.006)	(0.008)	(0.008)	(108.090)	(114.296)	(154.034)
Observations	1,041,564	482,214	559,350	1,041,564	482,214	559,350
R-squared	0.834	0.828	0.841	0.813	0.782	0.833
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 4.3, 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. See section 3.3 for a description of the outcome variables. The sample is composed of supporters of the winning mayoral candidate or the close loser, using a 5% margin of victory to define close races. The sample of elections is 2004, 2008, 2012. "Mean D.V. Pre-election" shows the average of the dependent variable in the four periods from $t = -3$ to $t = 0$. Robust 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. **Comparison of RDD and DID Estimates**

	(1)	(2)	(3)	(4)
Supporters:	Candidates		Donors	
Estimation:	RDD	DID	RDD	DID
Treatment Effect (β/β^{DID})	0.129***	0.103***	0.065***	0.064***
	(0.006)	(0.003)	(0.006)	(0.003)
Observations (millions)	0.921	199.997	0.775	177.464
R-squared	0.816	0.575	0.819	0.582

Notes: The table presents a comparison of the estimated coefficient β from columns 2 and 3 of Panel A of Table A15 (columns 1 and 3), and the estimated coefficient β^{DID} from the difference-in-differences specification (4.5) (columns 2 and 4). 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. See section 3.3 for a description of the outcome variables. The sample of elections is 2004, 2008, 2012. Robust 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 Public Employment Probability Across the Public Sector Hierarchy – Optimal Bandwidth**

Dep. Var. is Employment in:	(1) Managerial Job	(2) Professional Job	(3) High Skilled Technical Job	(4) Clerical Job	(5) Blue Collar Job
Panel A: All Supporters					
Mayor	0.055***	0.006***	0.003***	0.032***	0.010***
	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)
Observations	3,006,534	2,250,044	3,003,044	2,028,614	3,152,540
R-squared	0.117	0.092	0.066	0.115	0.085
Optimal Bandwidth	14.247	9.862	14.212	8.773	15.204
Mean D.V. Runner-up	0.0280	0.0600	0.0350	0.0510	0.0470
Supporters	874947	668631	873798	605401	916056
Elections	9954	7610	9942	6892	10395
Panel B: Candidates					
Mayor	0.071***	0.004***	0.004***	0.042***	0.014***
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
Observations	1,261,976	1,450,934	1,722,154	1,195,940	1,436,546
R-squared	0.156	0.098	0.085	0.142	0.118
Optimal Bandwidth	11.295	13.485	17.475	10.621	13.360
Mean D.V. Runner-up	0.0270	0.0560	0.0430	0.0530	0.0650
Supporters	346744	391993	455950	330515	388528
Elections	8446	9598	11284	8021	9527
Panel C: Donors					
Mayor	0.034***	0.002	0.001	0.023***	0.007***
	(0.003)	(0.003)	(0.001)	(0.003)	(0.001)
Observations	1,250,480	1,232,936	1,427,312	976,844	1,500,722
R-squared	0.108	0.111	0.066	0.111	0.066
Optimal Bandwidth	11.947	11.785	14.098	8.969	15.079
Mean D.V. Runner-up	0.0300	0.0620	0.0270	0.0480	0.0290
Supporters	398797	392489	450652	313481	474197
Elections	6716	6645	7523	5361	7862

Notes: The table presents the estimated coefficients of β from equation (4.1) using as dependent variables indicators for employment in the five occupational categories of the public sector. 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 dependent variables are indicators equal to one if the supporter is employed in the specific occupational category in the public sector. The sample is composed of supporters of the winning mayoral candidate or the close loser, 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). The sample of elections is 2004, 2008, 2012. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Robust 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***	1,976.481***	0.041***	1,354.756***
	(0.006)	(104.295)	(0.011)	(270.386)
Mayor∗Quintile 4	0.063***	1,072.718***	0.028**	626.614**
	(0.006)	(88.222)	(0.012)	(257.989)
Mayor∗Quintile 3	0.054***	603.133***	0.028***	479.573**
	(0.006)	(79.613)	(0.010)	(203.145)
Mayor∗Quintile 2	0.029***	272.940***	0.017*	60.043
	(0.006)	(73.999)	(0.009)	(161.647)
Mayor	0.101***	778.601***	0.044***	388.800*
	(0.007)	(96.470)	(0.010)	(204.127)
Observations	705,352	705,352	550,832	550,832
R-squared	0.378	0.262	0.299	0.222
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 the estimated coefficients from equation 6.1. We report the 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% 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 5 and 6 include donors. The sample of elections is 2000, 2004, 2008, 2012 in columns 1 and 2, and 2004, 2008, 2012 in columns 3 and 4. "Mean D.V. Runner-up" shows the average of the dependent variable for the supporters of the runner-up in the post-election period. Robust 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. **Patronage Decreases the Importance of Education in Public Sector Hiring – Non-Supporters as Control Group**

Dep. Var. is Employment in Public Job Requiring:	(1) Middle School Degree	(2) High School Degree	(3) University Degree
Mayor∗Qualified∗Post	-0.006**	-0.035***	-0.133***
	(0.003)	(0.004)	(0.009)
Mayor∗Post	0.015***	0.064***	0.087***
	(0.003)	(0.004)	(0.003)
Qualified∗Post	-0.004***	0.018***	0.113***
	(0.001)	(0.001)	(0.006)
Observations	181,022,074	181,022,074	181,022,074
R-squared	0.430	0.448	0.467
Elections	3580	3580	3580

Notes: The table presents the estimated coefficients from an augmented version of equation (4.5), where we add the triple interaction between $Mayor_{imt}$, $Post_{kmt}$ and $Qualified_i$, and the double interaction between $Post_{kmt}$ and $Qualified_i$. Dependent variables are indicator 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). $Qualified_i$ is an indicator taking value one if supporter i has a middle school degree (column 1), high school degree (column 2) and university degree (column 3). The sample of elections is 2004, 2008, 2012. Robust 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 A20. **Favoritism Stronger for Supporters with Lower Private Sector Opportunities – Non-Supporters as Control Group**

Dep. Var. is Employment in Public Sector			
	(1)	(2)	(3)
Group of Supporters:	All Supporters	Candidates	Donors
Panel A: Continuous Measure of Previous Private Earnings			
Mayor∗Post∗Private Earnings	-0.004***	-0.006***	-0.002***
	(0.000)	(0.001)	(0.000)
Mayor∗Post	0.122***	0.202***	0.184***
	(0.005)	(0.006)	(0.006)
R-squared	0.420	0.420	0.420
Panel B: Terciles of Previous Private Earnings			
Mayor∗Post∗Tercile 3	-0.049***	-0.074***	-0.019***
	(0.006)	(0.010)	(0.007)
Mayor∗Post∗Tercile 2	-0.019***	-0.025**	-0.004
	(0.006)	(0.010)	(0.007)
Mayor∗Post	0.138***	0.207***	0.076***
	(0.006)	(0.009)	(0.006)
R-squared	0.420	0.420	0.420
Observations	119,464,782	119,374,559	119,395,105
Elections	3067	3067	3063

Notes: The table presents the estimated coefficients from an augmented version of equation (4.5). In Panel A we add the triple interaction between $Mayor_{imt}$, $Post_{kmt}$ and $PrivateEarnings_{imt}$, and the double interaction between $Post_{kmt}$ and $PrivateEarnings_{imt}$. In Panel B we add the triple interactions between $Mayor_{imt}$, $Post_{kmt}$ and $Tercile2_{imt}$, and between $Mayor_{imt}$, $Post_{kmt}$ and $Tercile3_{imt}$, and the double interaction between $Post_{kmt}$ and $Tercile2_{imt}$ and between $Post_{kmt}$ and $Tercile3_{imt}$. The dependent variable in all columns is an indicator for employment in the public sector. The sample of elections is 2004, 2008, 2012. Robust 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 A21. **Effect of Supporting the Winning Party Among Switchers and Loyals**

Dep. Var. is Employment in Public Sector		
	(1)	(2)
Type of Supporter:	Loyals to Party	Party Switchers
Panel A: Candidates		
Mayor	0.145***	0.143***
	(0.018)	(0.022)
Observations	37,586	25,326
R-squared	0.487	0.506
Mean D.V. Runner-up	0.251	0.266
Supporters	10702	7093
Elections	1949	1515
Panel B: Donors		
Mayor	0.069	0.144**
	(0.062)	(0.065)
Observations	2,746	3,374
R-squared	0.539	0.535
Mean D.V. Runner-up	0.335	0.313
Supporters	1162	1378
Elections	160	263

Notes: The table presents the estimated coefficients β from equation (4.1) using as dependent variables an indicator variable equal to one if the supporter is employed in a public sector job, for different subsample of candidates/donors who have run/donated in subsequent elections. "Loyals Party" refer to candidates (respectively, donors) who in the previous election run in (respectively, donated to) the same party of the mayoral candidate supported in the current election. "Party Switchers" refer to candidates (respectively, donors) who in the previous election run in (respectively, donated to) a different party than the one of the mayoral candidate supported in the current election. Results in Panel A are estimated on the sample of candidates. Results in Panel B are estimated on the sample of donors. The sample is restricted to supporters of the winning mayoral candidate or the close loser, using a 5% margin of victory to define close races. The sample of elections is 2004, 2008, 2012 for candidates and 2008 and 2012 for 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. Robust 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.