Appendices

"Turnover: How lame-duck governments disrupt the bureaucracy and service delivery before leaving office", by Guillermo Toral

A Transition periods in a sample of democracies

Table A.1: Recent transition periods in a sample of 20 countries

Country	Year	Election held	Winner took office	Transition length	Winner
United Kingdom	2010	5/6/10	5/11/10	5 days	Cameron
France	2017	5/7/17	5/14/17	7 days	Macron
Japan	2012	12/16/12	12/26/12	10 days	Abe
India	2014	5/12/14	5/26/14	14 days	Modi
Canada	2015	10/19/15	11/4/15	16 days	Trudeau
Bolivia	2020	10/18/20	11/8/20	21 days	Arce
Spain	2011	11/20/11	12/21/11	31 days	Rajoy
New Zealand	2017	9/23/17	10/26/17	33 days	Ardern
Kenya	2022	8/9/22	9/13/22	35 days	Ruto
Argentina	2019	10/27/19	12/10/19	44 days	Fernández
Colombia	2022	6/19/22	8/7/22	49 days	Petro
Philippines	2022	5/9/22	6/30/22	52 days	Marcos
Peru	2021	6/6/21	7/28/21	52 days	Castillo
Nigeria	2015	3/29/15	5/29/15	61 days	Buhari
Brazil	2022	10/30/22	1/1/23	63 days	Lula
Germany	2021	9/26/21	12/01/21	73 days	Scholz
United States	2020	11/3/20	1/20/21	78 days	Biden
Chile	2021	12/19/21	3/11/22	82 days	Boric
Indonesia	2014	7/9/14	10/20/14	103 days	Widodo
Mexico	2018	7/1/18	12/1/18	153 days	López Obrador

Data consider the latest instance (up until January 1, 2023) in which a new party got to executive office at the national level through popular election – either direct elections in (semi-)presidential systems, or legislative elections in parliamentary systems. The year corresponds to the year when the election was held. The date for the 2014 elections in India corresponds to the last day of voting. The dates for the elections in Brazil, Chile, Colombia and Peru correspond to the second round of presidential elections.

B In-depth interviews

In-depth interviews with local actors gave origin to the hypotheses tested in this article, but were part of a larger empirical study of patronage in Brazil. Over 18 months of fieldwork in the period 2016-2019 I conduced 121 in-depth, semi-structured interviews with municipal bureaucrats and politicians, and with state-level horizontal accountability actors (e.g., prosecutors). I recruited interviewees at their offices, and collected their oral consent after providing information about the research project and their rights as participants. I conducted interviews in Portuguese, face-to-face, and at the interviewee's office. I chose not to record interviews because some of the topics discussed were highly sensitive, including corrupt and illegal uses of public employment. While recording interviews would have allowed for more complete transcripts, it would have seriously hindered the reliability of the data and subjects' willingness to participate. Some subjects agreed to participate on the condition of anonymity or confidentiality. When quoting interviewees, I specify only their position, the state, and the month of the interview in order to safeguard their identity. In total, I interviewed 51 municipal politicians, 54 municipal bureaucrats, and 16 horizontal accountability actors.[50] Interviews were done in 45 municipalities in 7 states across 3 different regions of Brazil.[51] Locations were chosen to ensure diversity in political and socioeconomic variables.

Within each municipality, fieldwork focused on the center, where government offices are. I approached potential interviewees at their offices and requested an interview after introducing myself and the research project. No compensation of any sort was offered or given to participants. Most subjects that I managed to speak to directly agreed to participate.[52] Interviews were semi-structured, and usually started as an open conversation about the interviewee's background, the challenges they faced in their position, and their perception of public services in the municipality. As the conversation advanced, I followed up with questions about the local dynamics of public employment, including in some cases specific questions about the connection between political turnover, bureaucratic turnover, and public service delivery. I took handwritten notes during and after the interviews. The median duration of interviews was one hour.

---

[50]41 of of the 51 politicians were secretaries. 46 of the 54 bureaucrats were school directors, clinic managers, and social assistance center coordinators. Of the 16 horizontal accountability actors, 8 were state prosecutors or prosecutorial staff.

[51]Interviews were done in the states of Ceará (43 interviews), Rio Grande do Norte (21), Paraíba (15), Rio de Janeiro (19), Minas Geráis (10) São Paulo (1), and Goiás (12).

[52]Some refused, mostly arguing they did not have time. Two refused due to the research topic.

C   Legal constraints on public employment

C.1   Rules in the Federal Constitution concerning civil service and temporary hiring

Brazil's Federal Constitution (promulgated on October 5, 1988) includes several rules constraining politicians' discretion over public employment.[53] Article 37.II mandates that hiring be made through civil service exams (*concurso público*), and that those who are approved in an exam be given priority for hiring. At the same time, it allows for the hiring of public employees under temporary contracts, be it for management and leadership positions, or in cases of "temporary need based on extraordinary public interest" (article 37.IX).

C.2   Rules in the Fiscal Responsability Law concerning personnel expenses

The Fiscal Responsibility Law (Complementary Law 101, approved on May 4, 2000) includes seven main rules designed for controlling personnel expenses and their use as patronage in electoral years.[54] First, no municipal government can spend more than 60% of the net liquid revenue in personnel expenses, with 6 points being reserved for the legislative and 54 for the executive (article 20). Second, personnel expenses cannot increase during the 180 days before the end of the government's mandate (article 21). Third, compliance with this limit is verified at the end of every quadrimestre or four-month period. If personnel expenses are over 90% of the limit (i.e. over 51.3%), the municipality cannot create new posts or give out salary increase (article 22). Fourth, if the limits are surpassed, the government must comply in the next two quadrimestres, with at least one third of the reduction in the first quadrimestre. However if the limits are surpassed during an electoral year, the government cannot receive so-called voluntary transfers,[55] or get credit or guarantees (article 23). Fifth, up to 30 days after the end of every quadrimestre the government must issue a Fiscal Management Report (RGF, *Relatório de Gestão Fiscal*), which must be open to the public and contain a comparison of actual personnel expenses and the legal limits (articles 54 and 55). Sixth, if personnel expenses reach 90% of the limit (i.e., 48.6% for executive governments), audit

---

[53]The constitution can be found at http://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm.

[54]The Fiscal Responsibility Law can be found at http://www.planalto.gov.br/ccivil_03/leis/lcp/lcp101.htm.

[55]Voluntary transfers are transfers from other levels of government that are not related to healthcare or mandated by the constitution.

courts will alert the legislature and the prosecutor's office (article 59). Finally, municipalities with less than 50,000 inhabitants can issue their RGFs every semester instead of every quadrimestre, and were only obliged to issue some of the other fiscal reports starting 2005 (article 63).

The Fiscal Responsibility Law also forbids, during the last 8 months of the mayor's mandate, entering into any spending obligation that cannot be paid in full by the end of the year, or that has any installments to be paid in the following year unless the municipal government has sufficient cash to do so (article 42). Considering that personnel expenses are by the largest spending category, this rule further constraints politicians' discretion over public employment during the election year.

C.3 Rules in the Electoral Law concerning the hiring and firing of bureaucrats around elections

Brazil's Electoral Law (Law 9,504, approved on September 30, 1997)[56] establishes a number of rules constraining the behavior of public officials in order to ensure the fair competition of candidates. These rules include a number of provisions regarding the hiring and firing of bureaucrats. First, bureaucrats cannot be hired, dismissed with no fair cause (*sem causa justa*), or transferred, from 3 months before the election up to January 1st. There are exceptions for dismissing employees in positions of trust, the hiring of people who passed a civil service examination before the beginning of the period (article 73.V), or hiring of positions necessary for the delivery of essential services. Second, wages cannot be increased beyond adjustments that allow employees to recover any purchasing power lost during the election year (article 73.VIII). Municipalities cannot receive voluntary transfers from the federal or state government during the 3 months before and the 3 months after the period, with the exception of those destined to emergency situations (article 73.VI.a).

C.4 Supreme Court ruling forbidding the hiring of family members

In 2008, Brazil's Federal Supreme Court ruled that hiring one's partner or a family member with up to a third degree of consanguinity is unconstitutional.[57] The ruling applies to all levels of government, including municipalities, and is of mandatory compliance.

---

[56] The Electoral Law can be found at http://www.planalto.gov.br/ccivil_03/leis/l9504.htm.
[57] The ruling is available at https://jurisprudencia.stf.jus.br/pages/search/seq-sumula761/false.

C.5 Legal rules on penalties for breaches of public employment laws

The Federal Constitution establishes a strong basis for prosecuting politicians who break the rules concerning public employment. In its Article 37.4, it establishes that "acts of administrative impropriety will imply the suspension of political rights, the loss of public service, the unavailability of assets and reimbursement to the public purse, in the form and gradation provided for by the laws, without prejudice to the appropriate criminal prosecution."

The Administrative Impropriety Law (Law 8,429, approved on June 2, 1992) includes important penalties for decisions that intentionally hurt public finances, illicitly increase leaders' wealth, or deviate from the principles of honesty, impartiality, or legality.[58] Penalties include the loss of any public position, the suspension of political rights between 3 and 5 years, and payment of a fine up to 100 times the wage received when in office.

The Penal Code (Decree-Law 2,848, approved December 7, 1940) includes penalties for ordering expenses not authorized by law (e.g., the kinds of personnel expenses forbidden by the Fiscal Responsibility Law).[59] In particular, those are subject to between 1 and 4 years in prison (article 359-D). The same penalty applies for increases in personnel expenses in the last 180 days of the mayor's mandate (article 359-G).

The Electoral Law establishes a number of strong penalties for deviations from its rules, including fines (to be paid by the candidate and/or their party), the suspension of the electoral candidacy of those benefited by the decision, and the loss of access to the party financing system.

---

[58]The Administrative Impropriety Law can be found at http://www.planalto.gov.br/ccivil_03/leis/l8429.htm.

[59]The Penal Code can be found at http://www.planalto.gov.br/ccivil_03/decreto-lei/del2848compilado.htm.

D Prosecution of politicians for cases related to legal constraints on public employment

The prosecution and the conviction of municipal politicians for the breaching of public employment rules is not rare. Lambais and Sigstad (2023) estimate that about 7.7% of mayoral election winners or runner-ups across the country are involved in a judicial case related to corruption charges ("improbidade administrativa"). Bento et al. (2021) document 1,716 judicial cases involving mayors and former mayors between 1992 and 2016 in the state of Rio Grande do Sul, which has 497 municipalities.[60] The prosecution of politicians is not unique to Brazil. Da Ros and Gehrke (2022) document a large number of convictions of former heads of government for corruption charges (30 in the 2010s alone), all around the world. A news agency recently documented at least 76 national leaders who were prosecuted after leaving office only since 2000.[61]

To assess the extent to which former mayors in Brazil are prosecuted for misconduct related to public employment, I scraped the news published by the São Paulo State Prosecutors' office (MPSP, *Ministério Público do Estado de São Paulo*).[62] São Paulo is the most populous and wealthiest state in Brazil; it has 645 municipalities.

I found 275 news pieces mentioning former mayors (i.e., where the text included the string "*ex-prefeito*' or "*ex-prefeita*") between 2013 and 2022. Of those, at least 32 reports relate to violations of public employment laws in 25 different municipalities. This figure is likely an under-estimate of all former mayors who have been prosecuted for personnel-related charges in the state of São Paulo, given the MPSP does not publicize all cases. 72% of these reports relate to convictions in court. Penalties imposed in court or requested by the Prosecutor's Office include the suspension of political rights (mentioned in 75% of the reports), fines (72%), the loss of office (19%), and having the defendant's assets blocked (9%).

Below are some illustrative examples of the news reports found in the MPSP website:

---

[60]Bento, Juliane Sant'Ana, Luciano Da Ros, and Bruno Alex Londero (2021). Condenando politicos corruptos? Analise quantitativa dos julgamentos de prefeitos municipais pelo Tribunal de Justica do Rio Grande do Sul (1992-2016). *Civitas-Revista de Ciencias Sociais* 20, 348–376.

[61]Axios, (2022). Former leaders have been jailed or charged all over the world. August 26, 2022. https://www.axios.com/2022/08/26/countries-where-former-leaders-jailed-charged (last accessed on October 26, 2022).

[62]The news reports published by MPSP can be found at https://www.mpsp.mp.br/noticias.

- The former mayor of Jundiaí (population 370,126)[63] was convicted for illegally hiring hundreds of employees in violation of the constitutional provisions about public employment. He had his political rights suspended for 3 years, and the municipality was forced to dismiss all illegally-hired employees.[64]

- The former mayor of Campinas (population 1,080,113) was convicted in court for surpassing the limit on personnel expenditures, among other reasons. He was fined with 12 times his monthly salary and had his political rights suspended for 5 years.[65]

- The former mayor of Porto Ferreira (population 51,400) had her assets blocked by a court (totalling over 1.9 million Brazilian reais, or about USD 644,000 with the exchange rate at the time), following the MPSP's action against her for surpassing the legal limits on personnel expenses.[66]

- The former mayor of Americana (population 210,638) was convicted in court for hiring 233 temporary workers in violation of the constitutional rules on public employment. He was imposed a fine equivalent to 100 times his last salary as mayor, and the suspension of his political rights for three years.[67]

- The current and former mayors of Regente Feijó (population 18,494) were prosecuted for irregularly keeping in the payroll temporary workers. The Prosecutor's Office requested that they be imposed a fine, the loss of office, and the suspension of their political rights.[68]

- The former mayor of Guareí (population 14,565) was convicted for breaking legal constraints on hiring. He was imposed a fine and had his political rights suspended for 5 years. The municipality was forced to dismiss the temporary employees.[69]

---

[63]Population figures correspond to the 2010 census.
[64]The report is available at https://mpsp.mp.br/w/minist%C3%A9rio-p%C3%BAblico-obt%C3%A9m-condena%C3%A7%C3%A3o-de-ex-prefeito-de-jundia%C3%AD-por-improbidade.
[65]The report is available at https://mpsp.mp.br/w/mp-obt%C3%A9m-condena%C3%A7%C3%A3o-de-ex-prefeito-de-campinas.
[66]The report is available at https://mpsp.mp.br/w/ex-prefeita-de-porto-ferreira-tem-os-bens-bloqueados-pela-justi%C3%A7a.
[67]The report is available at https://mpsp.mp.br/w/mp-obt%C3%A9m-condena%C3%A7%C3%A3o-de-ex-prefeito-de-americana-por-improbidade-devido-a-cargos-comissionados.
[68]The report is available at https://mpsp.mp.br/w/mp-obt%C3%A9m-liminar-que-obriga-regente-feij%C3%B3-a-exonerar-servidores-p%C3%BAblicos-contratados-sem-concurso.
[69]The report is available at https://mpsp.mp.br/w/justi%C3%A7a-acata-pedido-do-mpsp-e-condena-ex-prefeito-de-guare%C3%AD-por-danos-ao-er%C3%A1rio.

E Administrative labor market and healthcare datasets

E.1 Administrative labor market data

I leverage the anonymized RAIS, made available by Brazil's Ministry of the Economy. In it, I identify municipal employees using the legal nature of the employer and the municipality.[70] Descriptive statistics for the data on municipal employees are reported in Table A.2. Between 2005 and 2017 the number of municipal government contracts has increased by 2.5 million or 60%, but the share of civil service employees has remained roughly constant at about two thirds.[71] I code as civil service contracts those in the *regime jurídico único de servidores públicos*, and as temporary all other employees, who are hired through a variety of legal regimes.[72]

Table A.2: Descriptive statistics for municipal employees as identified in RAIS, for election and post-election years between 2004 and 2017

	Number of municipalities	% of total	Millions of contracts	Share civil service
2017	5522	99.17	6.60	0.67
2016	5480	98.42	6.42	0.67
2013	5499	98.76	6.50	0.64
2012	5513	99.10	6.09	0.65
2009	5497	98.81	5.61	0.64
2008	5481	98.53	5.33	0.65
2005	5459	98.15	4.41	0.66
2004	5387	96.92	4.06	0.69

Municipal governments (like all formal employers) are legally required[73] to report data for all its employees[74] to the Ministry of the Economy through the RAIS system. Yet, a minority of them

---

[70]I consider only employees hired by municipal executive governments and their foundations and other dependent entities.

[71]This share is the same in the data about municipal employees collected through government surveys by the Brazilian Institute of Geography and Statistics (IBGE, *Instituto Brasileiro de Geografia e Estatística*).

[72]Unfortunately, RAIS does not allow a reliable identification of temporary workers who are politically appointed (e.g., *cargo comissionado*, *função de confiança*).
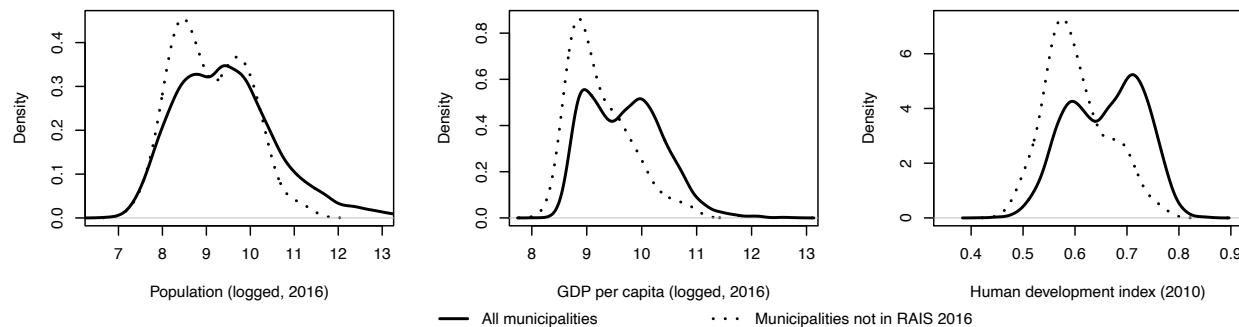
[73]Entities failing to comply with the obligation to report employment data to RAIS or reporting inaccurate data are subject to fines. Moreover, employers have a direct incentive to comply since employees who do not appear in RAIS are not eligible for PIS-PASEP, a well-known and constitutionally-enshrined program that complements the wages of formal workers who make less than twice the minimum wage. In 2017, about half of municipal government labor contracts were below that threshold.

[74]Elected officials, interns, and very transitory workers (*eventuais*) are not considered employees for the

(between 0.84 and 3.09% in the years I use) do not show up in the data. Technical staff at the Ministry confirmed that some municipalities fail to report employment data to RAIS, and associated it to capacity issues and/or corruption.

To understand the kind of municipalities that are not reporting employment data to RAIS, I examine the 88 municipalities that do not show up in the data in 2016,[75] and compare them to all 5,568 localities with municipal elections.[76] As can be seen in Figure A.1, municipalities failing to report employment data tend to be smaller, poorer, and less developed. This is consistent with both capacity and corruption mechanisms driving attrition. To the extent that municipal development correlates with the political use of public employment (Barbosa and Ferreira 2023; Colonnelli et al., 2020), their exclusion from the data is biasing the results. This bias, however, is likely to be in the direction of attenuating results (i.e. bringing them closer to zero). In any case, results are not representative of the overall population of municipalities, but rather of those complying with the RAIS reporting requirement.

Figure A.1: Socioeconomic characteristics of municipalities not reporting employment data in 2016

purposes of RAIS.

[75]Results are similar when analyzing the municipalities not reporting data in 2004.

[76]I exclude Brasília and Fernando de Noronha because they are federal and state districts that do not hold municipal elections.

E.2 Administrative healthcare data

I leverage two sources of administrative data on healthcare bureaucracies and the services they provide. Both can be accessed through the Ministry of Healthcare's DATASUS portal.

To measure the effects on public service delivery I use data from the Ministry of Health's Basic Healthcare Information System (SIAB, *Sistema de Informação da Atenção Básica*). The data are collected by municipal secretariats of healthcare, consolidated by state governments, and published by the federal government at the municipality-month level from 2004 to 2015.[77] I use SIAB to generate counts of a number of healthcare services for each municipality in each quarter around elections.

To examine the role that bureaucratic turnover plays in disruptions to the delivery of healthcare services, I use data from the Ministry of Health's National Registry of Health Establishments (CNES, *Cadastro Nacional de Estabelecimentos de Saúde*), which is collected through the same system as SIAB. CNES reports the total number of healthcare personnel working for each municipality in each month since 2007.[78] I use these data on stocks to measure the net change (from one quarter to the next) in the total number of healthcare professionals working for a municipality's healthcare system. Unlike RAIS, CNES does not allow us to identify hires, dismissals, and resignations, only changes in the stock of healthcare personnel. On the other hand, CNES allows a more precise count of healthcare professionals than RAIS, both in general and by skill level. Still, there is a very strong correlation between the two measures – the R^2 of a regression of CNES counts on RAIS counts is 0.84.

Municipal governments are legally required to compile and submit the corresponding data to both SIAB and CNES (Ministério da Saúde 2012d). The quality of health data collected by the Ministry of Healthcare has been examined empirically by researchers who have generally found them to be reliable despite some errors.[79]

---

[77]The 2016 election cycle is thus excluded from these analyses.

[78]Therefore, the election cycles of 2008, 2012 and 2016 are included in these analyses.

[79]Piccolo, Daiane Marcela (2018). Qualidade de dados dos sistemas de informacao do datasus: analise critica da literatura. *Ciencia da Informacao em Revista* 5(3), 13–19. Rocha, Thiago Augusto Hernandes, Nubia Cristina da Silva, Allan Claudius Queiroz Barbosa, Pedro Vas- concelos Amaral, Elaine Thume, Joao Victor Rocha, Viviane Alvares, and Luiz Augusto Facchini (2018). Cadastro nacional de estabelecimentos de saude: evidencias sobre a confiabilidade dos dados. *Ciencia Saude Coletiva* 23, 229–240.

F National vaccination schedule

Figure A.2 is the most recent national vaccination schedule, which is similar to the one prevalent in 2012 (Ministério da Saúde, 2012c, 90).

Most vaccines are prescribed during babies' first year of life: BCG and hepatitis B, at birth; rotavirus, pentavalent vaccine, poliomyelitis, and pneumococcal vaccine (first doses), at 2 months; meningococcal vaccine (first dose), at 3 months; rotavirus, pentavalent, poliomyelitis (second doses), at 4 months; meningococcal vaccine (second dose), at 5 months; pentavalent vaccine and poliomyelitis (third doses), at 6 months; yellow fever, at 9 months; and pneumococcal and meningococcal (reinforcements), triple vaccine (first dose), at 12 months.

Some vaccines are prescribed to pregnant women: hepatitis B, diphtheria, tetanus, and pertussis.

Figure A.2: Brazil's national vaccination schedule

CALENDÁRIO NACIONAL DE VACINAÇÃO/2020/PNI/MS																	
Vacinas	BCG	Hepatite B	VORH Rotavírus	Pentavalente (DTP+Hib+ Hep B)	DTP	VIP e VOP	Pneumocócica 10	Meningocócica C	Febre Amarela	Tríplice Viral	Tetra Viral	Varicela monovalente	Hepatite A	HPV	Menigocócica ACWY	Dupla Adulto	dTpa (adulto)
Protege contra	Formas graves da tuberculose	Hepatite B	Rotavírus	Difteria, Tétano, Coqueluche, Hepatite B e meningite por *Haemophilus influenzae* tipo b	Difteria, Tétano e Coqueluche	Poliomielite	Pneumonia, otite, meningite e outras doenças causadas pelo pneumococo	Doença invasiva causada pela *Neisseria meningitidis*	Febre Amarela	Sarampo Caxumba e Rubéola	Sarampo Caxumba Rubéola e Varicela	Varicela	Hepatite A	HPV	Doença invasiva causada pela *Neisseria meningitidis*	Difteria e Tétano	Difteria, Tétano e Coqueluche
Grupo Alvo / Idade																	
Criança / Ao nascer	Dose Única (1)	Dose ao nascer (2)															
2 meses			1ª dose	1ª dose		1ª dose VIP (1)	1ª dose										
3 meses								1ª dose									
4 meses			2ª dose	2ª dose		2ª dose VIP (1)	2ª dose										
5 meses								2ª dose									
6 meses				3ª dose		3ª dose VIP (1)											
9 meses									Dose Inicial								
12 meses							Reforço (1)	1º Reforço (1)		1ª dose							
15 meses					1º Reforço	1º Reforço VOPb (1)					Dose Única (1)		Dose Única (1)				
4 anos					2º Reforço	2º Reforço VOPb (1)			Reforço (3)			2ª dose (6)					
9 anos									Uma dose (4)					2 doses (7)			
Adolescente / 10 a 19 anos		3 doses: a partir de 7 anos de idade (5)							Uma dose (4)	2 doses (5)				2 doses	Entre 11 a 12 anos de idade: 1 dose (9)	3 doses e reforço a cada 10 anos (5)	10 a 19 anos
Adulto / 20 a 59 anos		3 doses (5)							Uma dose (4)	Até 29 anos: 2 doses. Entre 30 e 59 anos: 1 dose. (5) e (8)						3 doses e reforço a cada 10 anos (5)	Profissional de Saúde: 1 dose + reforços a cada 10 anos (10)
Idoso / 60 anos ou mais		3 doses (5)														3 doses e reforço a cada 10 anos (5)	
Gestante		3 doses (5)														2 doses (5)	1 dose a cada gestação (11)

(1) Até menor de 5 anos de idade;(2) Essa dose pode ser feita até 30 dias de vida do bebê;(3) Considerar intervalo mínimo de 30 dias entre as doses;(4) Pessoas entre 5 a 59 anos de idade não vacinadas - administrar uma dose e considerar vacinado;(5) A depender da situação vacinal, completar esquema;(6) Pode ser feita até menor de 7 anos de idade. Profissionais de saúde que trabalham na área assistencial devem receber uma ou duas doses a depender do laboratório produtor;(7) Para meninas de 09 a 14 anos e meninos de 11 a 14 anos de idade: 2 doses - 0, 6 meses a depender da situação vacinal. Adolescentes e adultos de 9 a 26 anos vivendo com HIV/aids: 3 doses - 0, 2 e 6 meses;(8) Profissionais da saúde devem receber duas doses independente da idade;(9) Para adolescentes na faixa etária de 11 e 12 anos de idade, com a vacina Meningocócica ACWY, independente de dose anterior de Meningocócica C ou dose de reforço;(10) Profissionais de saúde e parteiras tradicionais, como dose complementar no esquema básico da dT e reforços a cada dez anos;(11) A partir da 20ª semana gestacional (até 45 dias após o parto).

G Outcome means, by whether the mayor wins the reelection

Mean of employment and healthcare outcomes, untransformed, by whether the incumbent wins the reelection (continuous lines) or loses it (dashed lines), regardless of their vote margin.

Figure A.3: Outcome means on bureaucratic turnover, by whether the mayor wins the reelection
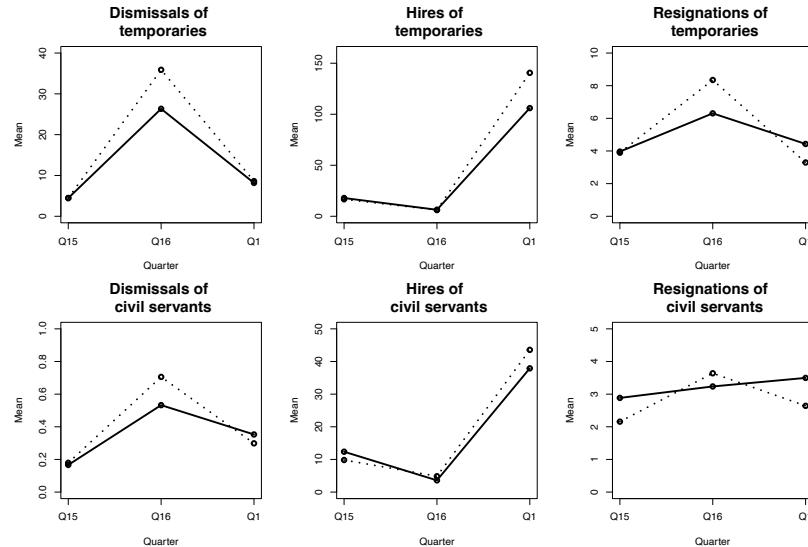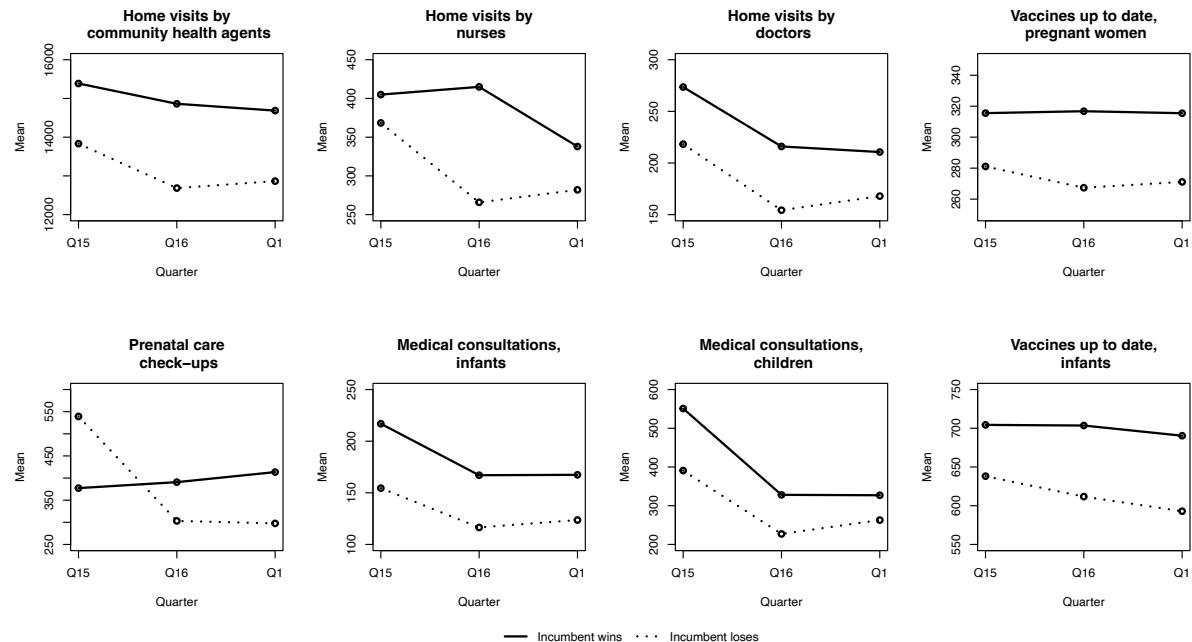
Figure A.4: Outcome means on healthcare service delivery, by whether the mayor wins the reelection

13

H Characterization of municipalities with close elections

The table below characterizes the set of municipality-election observations where the election is close (i.e., the incumbent wins or loses by less than 15 or less than 10 points), relative to other observations where the mayor runs (first and second columns) and relative to all observations regardless of whether the mayor runs (third and fourth columns). Observations with close elections tend to be relatively smaller and poorer, and less likely to be in the southeast (relative to the northeast). Yet, observations within the bandwidth span the whole range of these socioeconomic variables.

Table A.3: Characterization of the regression discontinuity effective sample

	Mayor runs, 15 points	Mayor runs, 10 points	All, 15 points	All, 10 points
Population (logged)	−0.032***	−0.024***	−0.010***	−0.007**
	(0.005)	(0.005)	(0.003)	(0.002)
GDP per capita (logged)	−0.038***	−0.024**	−0.020***	−0.013**
	(0.009)	(0.009)	(0.006)	(0.005)
Deaths per thousand	0.005	0.005	0.005*	0.004*
	(0.003)	(0.003)	(0.002)	(0.002)
Region fixed effects				
North	−0.038	−0.038*	−0.001	−0.006
	(0.019)	(0.019)	(0.012)	(0.011)
South	0.030	0.025	−0.021	−0.014
	(0.018)	(0.018)	(0.011)	(0.010)
Southeast	−0.087***	−0.084***	−0.042***	−0.040***
	(0.015)	(0.015)	(0.009)	(0.008)
Center-west	−0.011	−0.033	0.005	−0.008
	(0.021)	(0.021)	(0.013)	(0.012)
Constant	1.234***	0.868***	0.502***	0.351***
	(0.078)	(0.078)	(0.047)	(0.042)
Election fixed effects	Yes	Yes	Yes	Yes
Observations	10158	10158	22256	22256
R-squared	0.021	0.014	0.006	0.005

***$p < 0.001$; **$p < 0.01$; *$p < 0.05$. HC2 standard errors in brackets.

I Continuity of the forcing variable and pre-treatment covariates

First, I examine the continuity of the forcing variable, the vote margin of the strongest challenger over the incumbent. The histogram has no signs of discontinuity. This is confirmed by the formal test proposed by McCrary (2008).[80]

Figure A.5: Histogram of the forcing variable

Difference in vote share between the strongest challenger and the incumbent
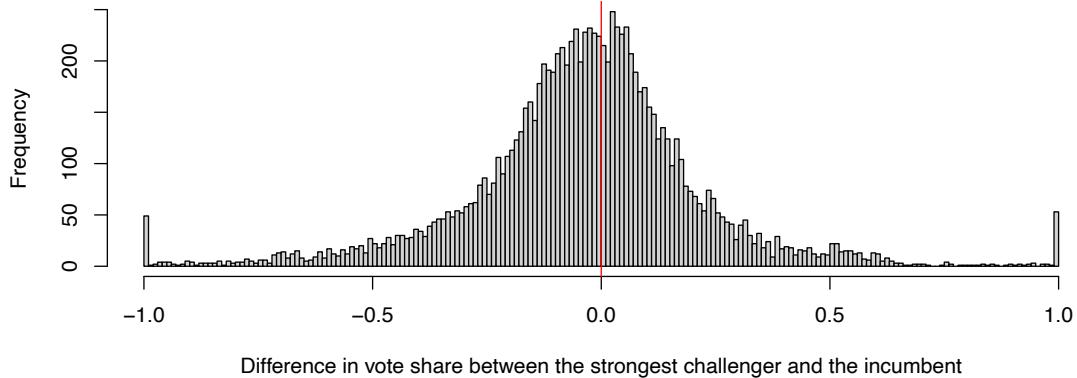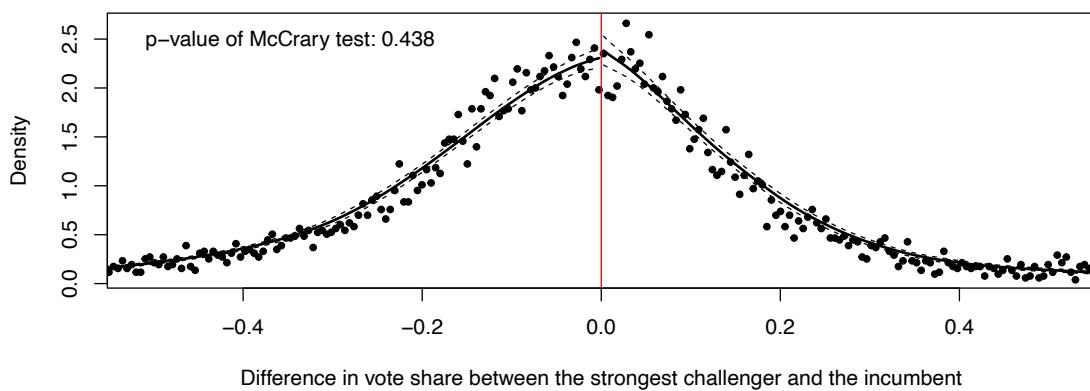
Figure A.6: Density of the forcing variable and McCrary (2008) discontinuity test

Difference in vote share between the strongest challenger and the incumbent

To check whether pre-treatment covariates are continuous around the threshold, I use them as dependent variables in the main model.

---

[80]McCrary, Justin (2008). Manipulation of the running variable in the regression discontinuity design: A density test. *Journal of Econometrics* 142(2), 698–714.

Table A.4: Effect an electoral defeat of the incumbent on pre-treatment covariates: Socioeconomics

	Population	GDP	GDP per capita	Deaths	Deaths per thousand
Incumbent defeated	0.064	0.118	0.071	0.028	-0.078
	(0.065)	(0.085)	(0.049)	(0.066)	(0.101)
Bandwidth	0.155	0.137	0.134	0.152	0.2
Observations	5990	5497	5375	5914	7029

Table A.5: Effect an electoral defeat of the incumbent on pre-treatment covariates: Bureaucracies

	Number of bureaucrats	Bureaucrats per capita	Share civil servants
Incumbent defeated	0.043	-0.001	-0.007
	(0.06)	(0.001)	(0.019)
Bandwidth	0.161	0.175	0.148
Observations	6050	6393	5721

Table A.6: Effect an electoral defeat of the incumbent on pre-treatment covariates: Elections

	Turnout	Concentration	PT	MDB	PSDB	Large	Aligned
Incumbent defeated	-0.006	0	0.001	0.021	-0.022	-0.01	0.017
	(0.009)	(0.004)	(0.018)	(0.024)	(0.021)	(0.03)	(0.02)
Bandwidth	0.136	0.16	0.166	0.146	0.168	0.181	0.175
Observations	5456	6121	6284	5765	6348	6648	6508

*p<0.05; **p<0.01; ***p<0.001. The bandwidth is determined by the algorithm of Calonico et al. (2020). Robust standard errors in parentheses. All regressions follow the specification in Equation 2; controls include election cycle fixed effects only. Measures of population (logged), GDP (logged) and GDP per capita come from IBGE and correspond to one year before the election. Measures of deaths (logged) and deaths per thousand residents are from the Ministry of Health and correspond to one year before the election. Numbers of bureaucrats (logged), bureaucrats per capita, and share of bureaucrats who are civil servants are from RAIS and correspond to the quarter before the election. Turnout is the number of valid votes divided by population. Concentration is a Herfindahl index of the concentration of votes across candidates. PT, MDB and PSDB are indicators for whether the incumbent mayor ran with that party in the previous election. Large is an indicator for whether the mayor had run with PT, MDB, PSDB or PP. Aligned corresponds to a mayor who ran with the party of Brazil's president.

J Regression tables for results shown in Figures 2 and 5

J.1 Effects of electoral turnover on bureaucratic turnover

Table A.7: Effect of an electoral defeat of the incumbent on dismissals of public employees

	Temporaries			Civil servants		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.075	0.35***	-0.038	-0.009	-0.009	-0.008
	(0.042)	(0.084)	(0.057)	(0.017)	(0.026)	(0.017)
Bandwidth	0.127	0.168	0.17	0.15	0.184	0.216
Observations	5088	6227	6217	5757	6596	7084

Table A.8: Effect of an electoral defeat of the incumbent on hires of public employees

	Temporaries			Civil servants		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.039	0.03	0.687***	-0.053	0.262***	-0.1
	(0.054)	(0.045)	(0.095)	(0.059)	(0.053)	(0.098)
Bandwidth	0.176	0.182	0.183	0.174	0.164	0.145
Observations	6419	6566	6511	6368	6142	5571

Table A.9: Effect of an electoral defeat of the incumbent on resignations of public employees

	Temporaries			Civil servants		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.018	0.289***	0.038	-0.044	0.101*	-0.031
	(0.036)	(0.056)	(0.048)	(0.033)	(0.041)	(0.039)
Bandwidth	0.186	0.127	0.137	0.182	0.186	0.217
Observations	6625	5083	5330	6549	6629	7095

*p<0.05; **p<0.01; ***p<0.001. The bandwidth is determined by the algorithm of Calonico et al. (2020). Robust standard errors in parentheses. All regressions follow the specification in Equation 2. Dependent variables are in the log scale. Q15 corresponds to the 15th quarter of a mayor's term (i.e., July through September of its last year). Q16 corresponds to the 16th and last quarter of a mayor's mandate (i.e., October through December). Q1 corresponds to the first quarter of the election winner's mandate (i.e., January through March). Elections take place on the first Sunday of October, and winners are sworn in on January 1st. Results for Q15 are placebo tests.

J.2 Effects of electoral turnover on public service delivery

Table A.10: Effect of an electoral defeat of the incumbent on home visits by healthcare professionals

	Home visits by CHAs			Home visits by nurses			Home visits by doctors		
	Q15	Q16	Q1	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.012	-0.095	-0.094	-0.045	-0.284***	-0.048	-0.028	-0.488***	-0.067
	(0.053)	(0.061)	(0.082)	(0.06)	(0.07)	(0.08)	(0.055)	(0.088)	(0.088)
Bandwidth	0.119	0.166	0.183	0.138	0.14	0.162	0.213	0.108	0.153
Observations	3646	4648	4955	4071	4126	4546	5343	3348	4365

Table A.11: Effect of an electoral defeat of the incumbent on prenatal care check-ups and medical consultations with infants and children

	Prenatal care check-ups			Consultations with infants			Consultations with children		
	Q15	Q16	Q1	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	-0.028	-0.145**	-0.158*	-0.083	-0.216***	0.041	-0.118*	-0.263***	0.036
	(0.055)	(0.052)	(0.073)	(0.057)	(0.06)	(0.069)	(0.058)	(0.068)	(0.064)
Bandwidth	0.166	0.219	0.157	0.147	0.166	0.161	0.144	0.139	0.197
Observations	4638	5413	4440	4274	4632	4526	4202	4090	5130

Table A.12: Effect of an electoral defeat of the incumbent on pregnant women and infants being up to date on vaccinations

	Pregnant women			Infants		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	-0.005	-0.115*	-0.122*	-0.011	-0.087	-0.103
	(0.042)	(0.047)	(0.061)	(0.046)	(0.046)	(0.06)
Bandwidth	0.132	0.167	0.151	0.122	0.183	0.178
Observations	3951	4673	4354	3724	4956	4871

*p<0.05; **p<0.01; ***p<0.001. The bandwidth is determined by the algorithm of Calonico et al. (2020). Robust standard errors in parentheses. All regressions follow the specification in Equation 2. Dependent variables are in the log scale. Q15 corresponds to the 15th quarter of a mayor's mandate (i.e., July through September of its last year). Q16 corresponds to the 16th and last quarter of a mayor's mandate (i.e., October through December). Q1 corresponds to the first quarter of the election winner's mandate (i.e., January through March). Elections take place on the first Sunday of October, and winners are sworn in on January 1st. Results for Q15 are placebo tests.

K Regression tables omitting controls

This Appendix shows results when omitting controls, i.e., the lagged dependent variable and election fixed effects.

K.1 Effects of electoral turnover on bureaucratic turnover

Table A.13: Effect an electoral defeat of the incumbent on dismissals of public employees

	Temporaries			Civil servants		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.094	0.465***	0.016	-0.007	-0.009	-0.007
	(0.061)	(0.114)	(0.066)	(0.018)	(0.026)	(0.019)
Bandwidth	0.139	0.148	0.173	0.152	0.193	0.179
Observations	5472	5715	6355	5817	6763	6523

Table A.14: Effect an electoral defeat of the incumbent on hires of public employees

	Temporaries			Civil servants		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.013	0.044	0.712***	-0.089	0.228***	-0.124
	(0.091)	(0.07)	(0.121)	(0.073)	(0.063)	(0.106)
Bandwidth	0.147	0.145	0.162	0.181	0.163	0.149
Observations	5689	5636	6091	6537	6083	5746

Table A.15: Effect an electoral defeat of the incumbent on resignations of public employees

	Temporaries			Civil servants		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.043	0.315***	0.052	-0.026	0.082	-0.023
	(0.062)	(0.072)	(0.062)	(0.045)	(0.048)	(0.052)
Bandwidth	0.148	0.141	0.135	0.187	0.207	0.172
Observations	5722	5525	5341	6656	7000	6334

*p<0.05; **p<0.01; ***p<0.001. The bandwidth is determined by the algorithm of Calonico et al. (2020). Robust standard errors in parentheses. All regressions follow the specification in Equation 2 except they omit controls. Dependent variables are in the log scale. Q15 corresponds to the 15th quarter of a mayor's mandate (i.e., July through September of its last year). Q16 corresponds to the 16th and last quarter of a mayor's mandate (i.e., October through December). Q1 corresponds to the first quarter of the election winner's mandate (i.e., January through March). Elections take place on the first Sunday of October, and winners are sworn in on January 1st. Results for Q15 are placebo tests.

K.2 Effects of electoral turnover on public service delivery

Table A.16: Effect of an electoral defeat of the incumbent on home visits by healthcare professionals

	Home visits by CHAs			Home visits by nurses			Home visits by doctors		
	Q15	Q16	Q1	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.048	-0.084	-0.099	0.075	-0.233*	-0.015	0.06	-0.373*	-0.067
	(0.134)	(0.13)	(0.126)	(0.124)	(0.107)	(0.112)	(0.119)	(0.146)	(0.116)
Bandwidth	0.148	0.179	0.206	0.148	0.223	0.21	0.175	0.132	0.201
Observations	4303	4891	5270	4296	5455	5309	4802	3923	5201

Table A.17: Effect of an electoral defeat of the incumbent on prenatal care check-ups and medical consultations with infants and children

	Prenatal care check-ups			Consultations with infants			Consultations with children		
	Q15	Q16	Q1	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.097	-0.059	-0.074	0.028	-0.172	0.053	0.009	-0.226	0.037
	(0.12)	(0.12)	(0.131)	(0.099)	(0.111)	(0.102)	(0.11)	(0.12)	(0.103)
Bandwidth	0.214	0.212	0.178	0.211	0.17	0.206	0.182	0.159	0.216
Observations	5353	5321	4853	5307	4703	5248	4907	4485	5371

Table A.18: Effect of an electoral defeat of the incumbent on pregnant women and infants being up to date on vaccinations

	Pregnant women			Infants		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.026	-0.101	-0.101	-0.015	-0.117	-0.12
	(0.095)	(0.093)	(0.099)	(0.102)	(0.095)	(0.101)
Bandwidth	0.167	0.195	0.178	0.171	0.221	0.198
Observations	4682	5127	4872	4752	5453	5171

*p<0.05; **p<0.01; ***p<0.001. The bandwidth is determined by the algorithm of Calonico et al. (2020). Robust standard errors in parentheses. All regressions follow the specification in Equation 2 except they omit controls. Dependent variables are in the log scale. Q15 corresponds to the 15th quarter of a mayor's mandate (i.e., July through September of its last year). Q16 corresponds to the 16th and last quarter of a mayor's mandate (i.e., October through December). Q1 corresponds to the first quarter of the election winner's mandate (i.e., January through March). Elections take place on the first Sunday of October, and winners are sworn in on January 1st. Results for Q15 are placebo tests.

L   Regression tables using alternative specifications of the dependent variable

The log transformation used in the main results of the paper has the advantage that coefficients can easily be interpreted as percentage changes. It has the disadvantage that it requires adding 1 (or another constant) to retain observations where the untransformed outcome equals zero. This is particularly problematic for the employment data, where zeroes are common. To address this limitation, this appendix shows results when using other specifications of the dependent variables.

L.1   Effects of electoral turnover on bureaucratic turnover

First, results are robust when using the inverse hyperbolic sine transformation on the outcome and the lagged dependent variable. This log-like transformation, $ln(y + \sqrt{y^2 + 1})$, can accommodate nonpositive values without the need for any ad hoc transformations. Results are similar in size and statistical significant to those with the log transformation.

Table A.19: Effect of an electoral defeat of the incumbent on bureaucratic turnover in the quarter after the election (Q16), using the inverse hyperbolic sine transformation

	Temporaries			Civil servants		
	Dismissals	Hires	Resignations	Dismissals	Hires	Resignations
Incumbent defeated	0.403***	0.044	0.34***	-0.01	0.317***	0.121*
	(0.097)	(0.057)	(0.066)	(0.031)	(0.064)	(0.048)
Bandwidth	0.167	0.169	0.128	0.179	0.163	0.193
Observations	6205	6242	5129	6482	6108	6766
Control mean (untransformed)	23.342	5.09	5.456	0.664	2.49	2.301

*$p<0.05$; **$p<0.01$; ***$p<0.001$. Dependent variables are in the inverse hyperbolic sine scale. See notes under Table 1.*

Second, results for employment outcomes, where zeroes are more common, are also robust to a binary specification where the dependent variables are dummies for whether the outcome (e.g., dismissals of temporaries in Q16) is larger than zero, such that the LATE estimates can be interpreted as increases in the probability that bureaucratic turnover (e.g., dismissals of temporaries) will occur. This specification severely reduces the variance of the outcome and hence the statistical power of the tests. Results are nonetheless still large and statistically significant.

Table A.20: Effect of an electoral defeat of the incumbent on bureaucratic turnover in the quarter after the election (Q16), using binary dependent variables

	Temporaries			Civil servants		
	Dismissals	Hires	Resignations	Dismissals	Hires	Resignations
Incumbent defeated	0.075**	0.014	0.091**	-0.014	0.069**	0.032
	(0.028)	(0.03)	(0.028)	(0.017)	(0.025)	(0.027)
Bandwidth	0.15	0.136	0.132	0.147	0.194	0.15
Observations	5754	5346	5238	5688	6785	5754
Control mean (untransformed)	21.858	4.961	5.401	0.644	2.444	2.263

*$p<0.05$; **$p<0.01$; ***$p<0.001$. Dependent variables are an indicator for whether the count is larger than zero. See notes under Table 1.

Finally, results are also robust to simply dropping observations where the outcome equals zero, taking the log of the dependent variable, and using the IHS transformation for the lagged dependent variable. These specifications are problematic in that some observations are being excluded from analyses. The share of observations dropped is very large in some cases, for example when examining effects on the dismissals of civil servants. Still, results for the lame-duck period are comparable in size and statistical significance to those with the $log(y + 1)$ specification.

Table A.21: Effect of an electoral defeat of the incumbent on bureaucratic turnover in the quarter after the election (Q16), omitting observations where the untransformed dependent variable equals zero

|	Temporaries			Civil servants		
	Dismissals	Hires	Resignations	Dismissals	Hires	Resignations
Incumbent defeated	0.55***	0.041	0.479***	0.072	0.457***	0.24*
	(0.127)	(0.086)	(0.121)	(0.221)	(0.114)	(0.104)
Bandwidth	0.185	0.154	0.141	0.176	0.151	0.16
Observations	2953	2865	2122	487	2147	2104
Control mean (untransformed)	38.341	8.738	11.046	0.731	4.866	6.755

*$p<0.05$; **$p<0.01$; ***$p<0.001$. Dependent variables are logged, and lagged dependent variables are in the inverse hyperbolic sine scale. See notes under Table 1.

L.2   Effects of electoral turnover on public service delivery

For healthcare data results are also robust to using the inverse hyperbolic sine transformation, and to dropping observations where the outcome equals zero. Again, results are comparable to those

22

with the $log(y+1)$ specification in the main body of the paper. Since zeroes are a lot less common in this data and means are larger, results with a binary specification are not statistically significant.

Table A.22: Effect of an electoral defeat of the incumbent on healthcare service delivery in the quarter after the election (Q16), using the inverse hyperbolic sine transformation

	Home visits			Prenatal	Medical consultations		Vaccines up to date	
	CHAs	Nurses	Doctors	Check-ups	Infants	Children	Pregnancies	Infants
Incumbent defeated	-0.099	-0.298***	-0.535***	-0.154**	-0.232***	-0.276***	-0.125*	-0.092
	(0.064)	(0.075)	(0.097)	(0.057)	(0.066)	(0.074)	(0.05)	(0.049)
Bandwidth	0.165	0.138	0.105	0.22	0.163	0.137	0.165	0.179
Observations	4642	4071	3286	5417	4574	4046	4635	4902
Control mean (untransformed)	13064.13	376.2	182.426	365.615	139.318	287.617	277.385	628.94

*p<0.05; **p<0.01; ***p<0.001. Dependent variables are in the inverse hyperbolic sine scale. *See notes under Table 1.*

Table A.23: Effect of an electoral defeat of the incumbent on healthcare service delivery in the quarter after the election (Q16), omitting observations where the untransformed dependent variable equals zero
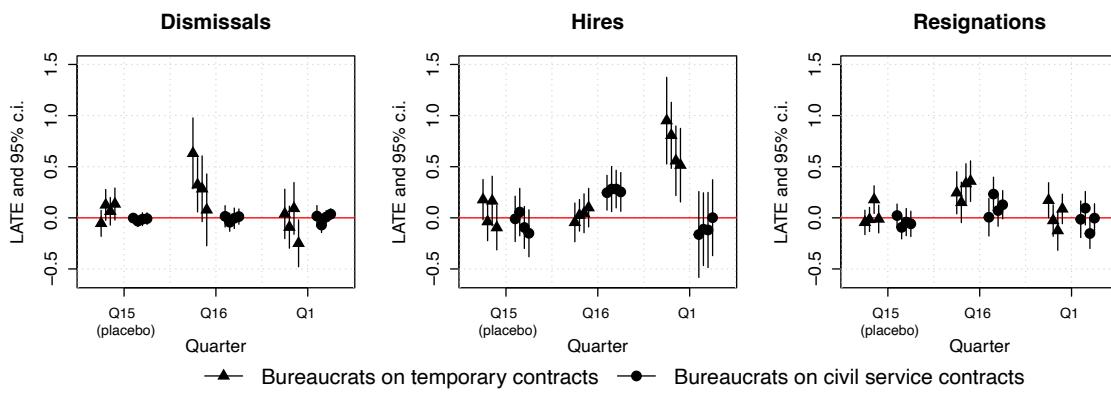
	Home visits			Prenatal	Medical consultations		Vaccines up to date	
	CHAs	Nurses	Doctors	Check-ups	Infants	Children	Pregnancies	Infants
Incumbent defeated	-0.066	-0.248***	-0.37***	-0.121*	-0.175**	-0.227***	-0.101*	-0.082*
	(0.044)	(0.059)	(0.073)	(0.051)	(0.054)	(0.059)	(0.044)	(0.04)
Bandwidth	0.173	0.166	0.126	0.188	0.19	0.139	0.16	0.177
Observations	4612	4352	3452	4574	4664	3811	4353	4694
Control mean (untransformed)	13633.004	376.828	198.656	372.554	143.382	296.241	286.015	642.512

*p<0.05; **p<0.01; ***p<0.001. Dependent variables are logged, and lagged dependent variables are in the inverse hyperbolic sine scale. *See notes under Table 1.*

M   Effects separated by election cycle
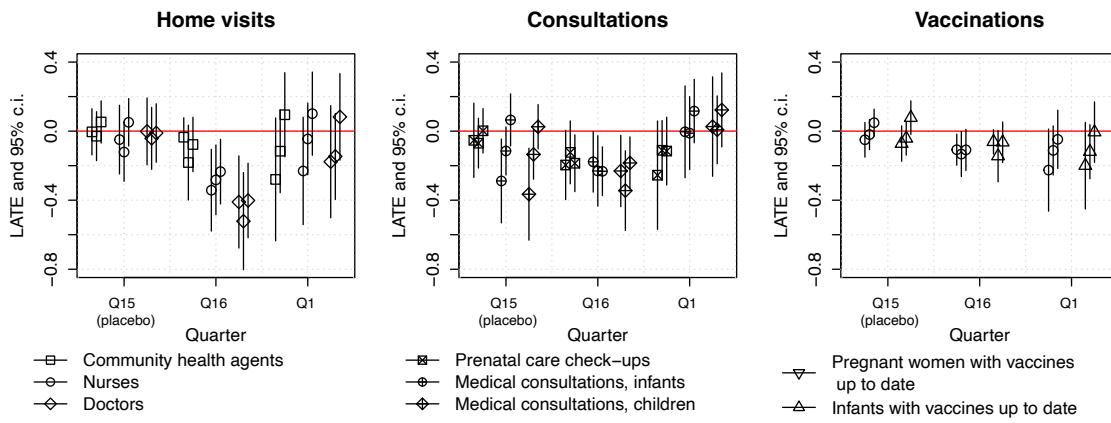
The analyses presented in the main body of the article pool data of between 3 and 4 election cycles. This Appendix presents the results disaggregating by election cycle. As can be expected with smaller sample sizes, the uncertainty around these election-specific estimates is wider than in the pooled results. While there are differences in the estimates across election cycles, these differences are not statistically significant.

Figure A.7: Effect of an electoral defeat of the incumbent on bureaucratic turnover, by election cycle

For each dependent variable, estimates are ordered from earlier to later elections (i.e., 2004, 2008, 2012, 2016), from left to right. See notes under Figure 2.

Figure A.8: Effect of an electoral defeat of the incumbent on healthcare service delivery, by election cycle

For each dependent variable, estimates are ordered from earlier to later elections (i.e., 2004, 2008, 2012), from left to right. See notes under Figure 2.

N   Placebo tests with fake thresholds

As an additional robustness test, I run placebo tests where I change the regression discontinuity threshold to different points in the distribution of the forcing variable away from zero. Only 3 of these 66 placebo tests returns statistically significant results, which is within what we would expect with $\alpha = 0.05$.

Figure A.9: Placebo tests varying the RD threshold for the main results in Figure 2
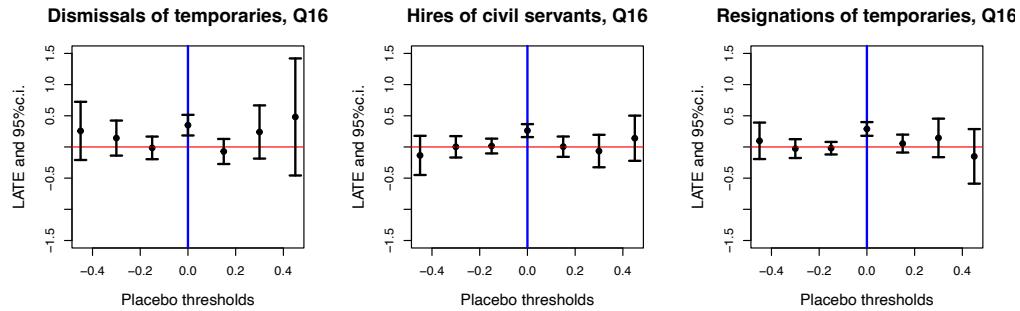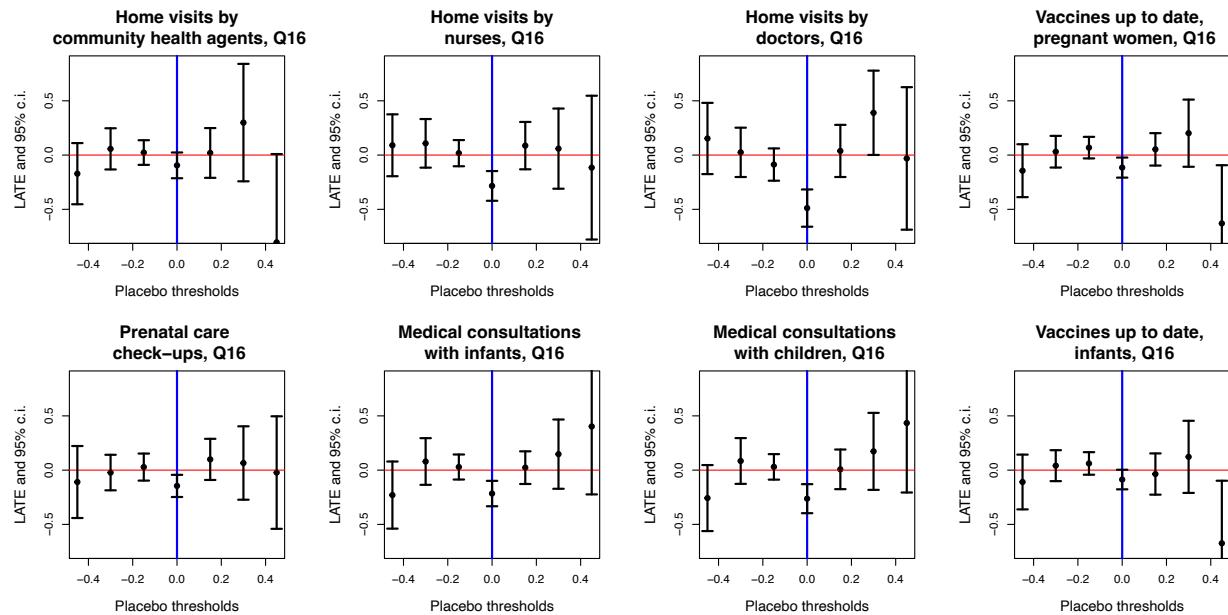
Figure A.10: Placebo tests varying the RD threshold for the main results in Figure 5

Vertical lines indicate the actual RD threshold

O   Effects on the turnover of managers and non-managers

This Appendix examines effects on the turnover of employees in management positions, as identified through occupational identifiers in RAIS, and all other employees. The percentage of municipal contracts in with an occupation code corresponding to a management position ranges from 7.2% in 2004 to 8.6% in 2017.

Figure A.11: Effect of an electoral defeat of the incumbent on bureaucratic turnover among workers in management positions
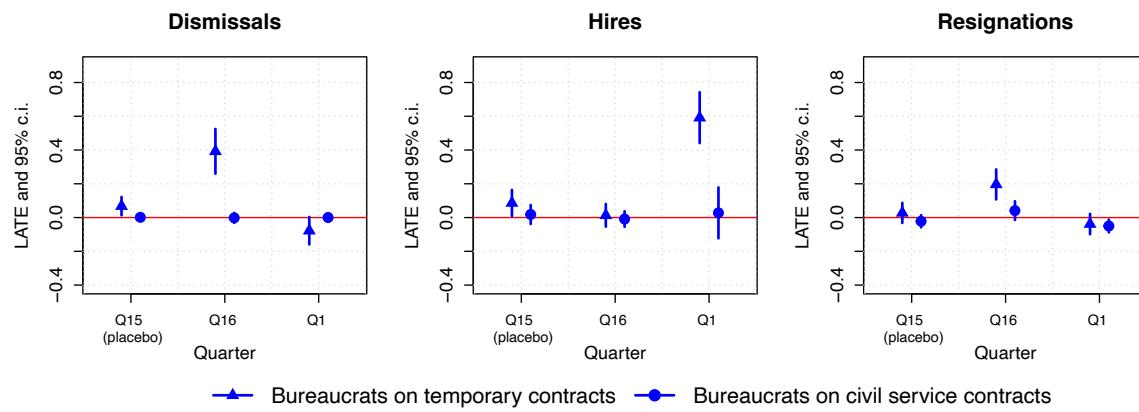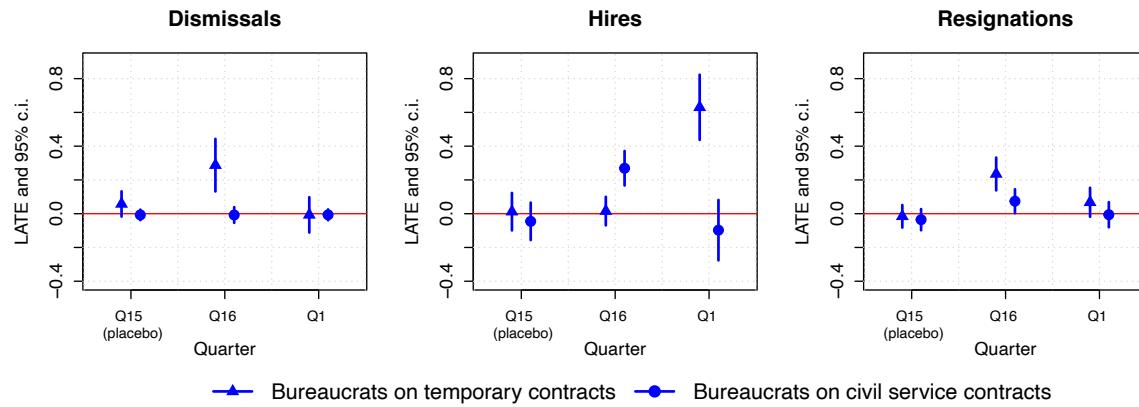
Figure A.12: Effect of an electoral defeat of the incumbent on bureaucratic turnover among workers in non-management positions
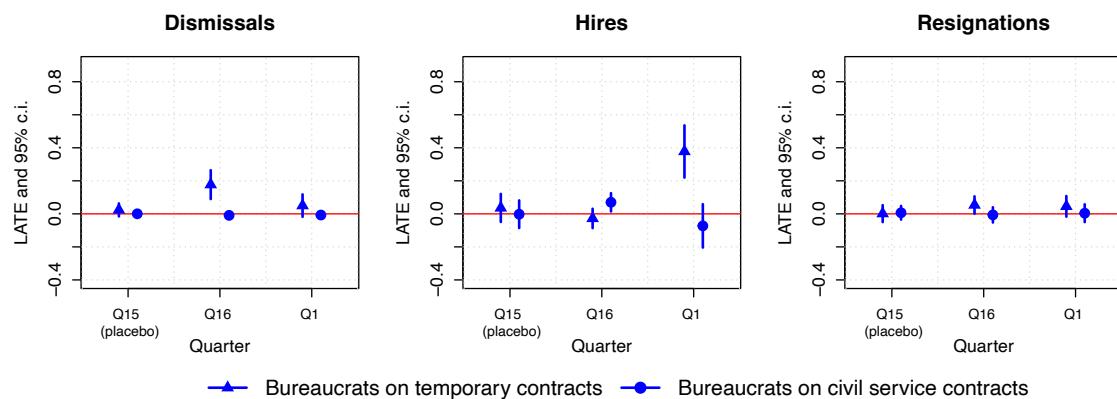
Each point and its robust bias-corrected confidence interval comes from a separate local linear regression discontinuity model, as per Equation 2. The dependent variable is in the log scale. Q15 corresponds to the 15th quarter of a mayor's mandate (i.e., July to September of its last year). Q16 corresponds to the 16th and last quarter of a mayor's mandate (i.e., October to December). Q1 corresponds to the first quarter of the election winner's mandate (i.e., January to March). Elections take place on the first Sunday of October, and winners are sworn in on January 1st. Results for Q15 are placebo tests.

# P   Effects on the turnover of specialized healthcare workers
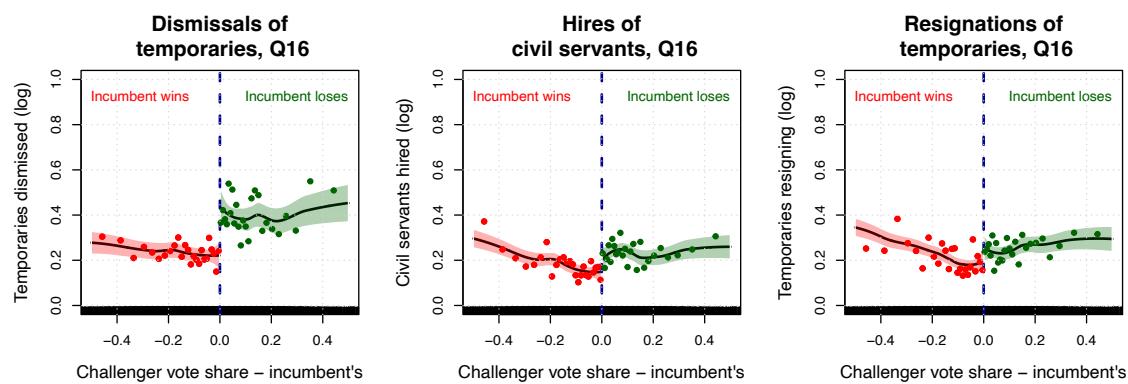
This Appendix examines effects on the turnover of specialized healthcare workers, as identified through the occupational identifiers in RAIS. These include occupations like doctors, nurses, or community health agents, but do not include many workers in the healthcare sector that have more generic occupation codes, such as receptionists, cleaners, or drivers. The percentage of municipal contracts with an occupation code corresponding to specialized healthcare jobs ranges from 12% in 2004 to 16% in 2017.

Figure A.13: Effect of an electoral defeat of the incumbent on bureaucratic turnover among specialized healthcare workers

See notes under Figure A.12.

Figure A.14: Regression discontinuity plots for the main results in Figure A.13
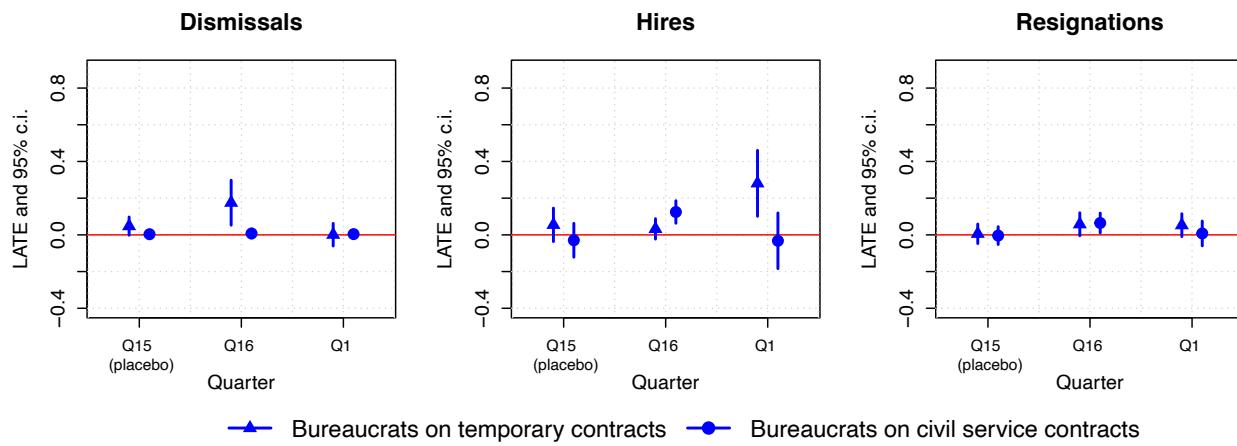
Colored dots are local averages for equally-sized bins. Lines are loess regression lines estimated at both sides of the threshold with no controls. Shaded regions denote 95% confidence intervals.

Q   Effects on the turnover of specialized education workers

This Appendix examines effects on the turnover of specialized education workers, as identified through the occupational identifiers in RAIS. These include teachers and other education occupations like school inspectors, but do not include many workers in the education sector that have more generic occupation codes, such as receptionists, cleaners, or drivers. The percentage of municipal contracts with an occupation code corresponding to specialized education jobs ranges from 27% in 2008 to 30% in 2017.

Figure A.15: Effect of an electoral defeat of the incumbent on bureaucratic turnover among specialized education workers

See notes under Figure A.12.

R   Effects on the turnover of low- versus high-pay bureaucrats

This Appendix shows the results when considering only bureaucrats whose mean salary is below or above the median of municipal employee salaries for a given year. The point estimate for the dismissal of temporaries in the last quarter of the mayor's mandate is almost twice as large for high-pay than for low-pay employees, although the difference is not statistically significant.

Figure A.16: Effect of an electoral defeat of the incumbent on bureaucratic turnover among low-pay bureaucrats
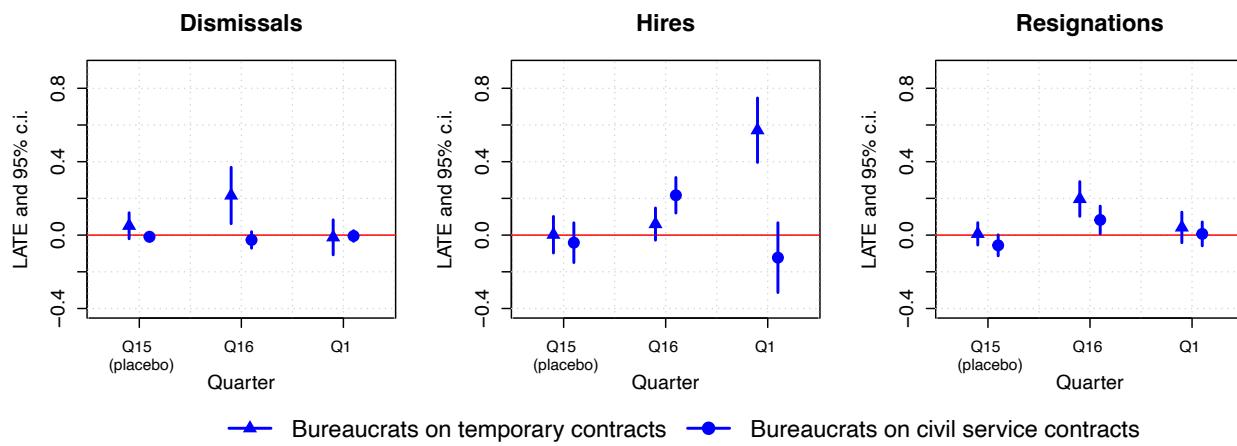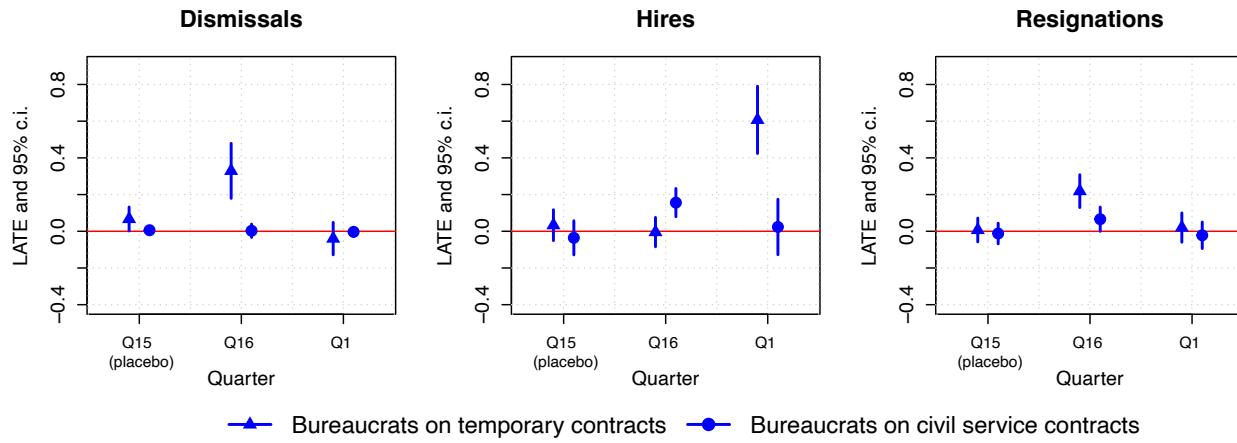
Figure A.17: Effect of an electoral defeat of the incumbent on bureaucratic turnover among high-pay bureaucrats
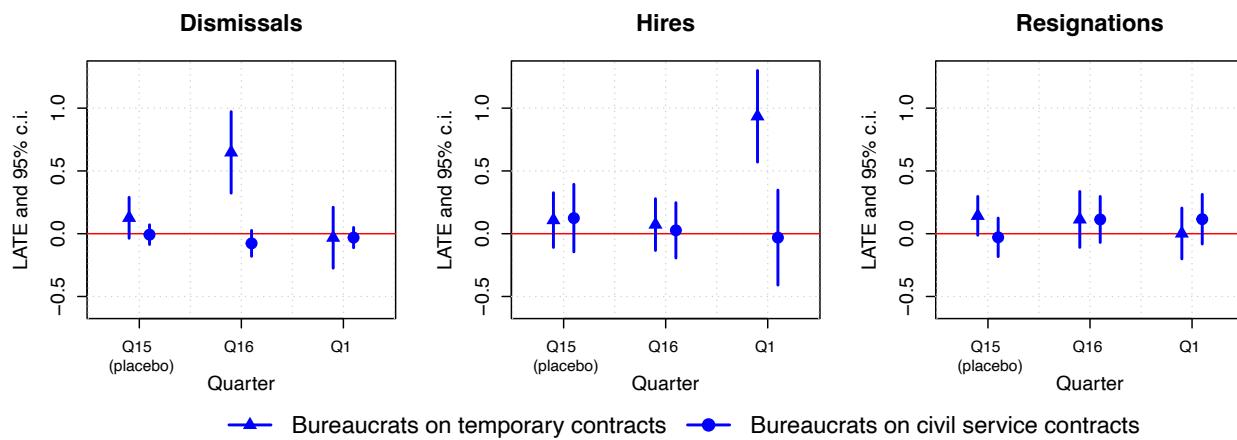

See notes under Figure A.12.

S Effects on bureaucratic turnover when the incumbent mayor belongs to a large programmatic party

This Appendix examines effects on the turnover in cases where the incumbent was elected under the label of one of the two large programmatic parties in Brazil during the 2004-2016 period, PT and PSDB. The results show that in these cases electoral turnover does not lead to an increase in the hiring of civil service employees under the lame-duck government. All other results are similar to those in Figure 2, except for the larger confidence intervals resulting from a smaller sample.[81] This suggests that increases in civil service hiring after an electoral defeat are unlikely to be motivated by policy concerns. Still, these heterogeneity analyses need to be taken with caution – the partisanship of the mayor could be correlated with both observable and unobservable characteristics of the municipality and the incumbent which could explain this variation.

Figure A.18: Effect of an electoral defeat of the incumbent on bureaucratic turnover in municipalities where the incumbent belongs to a large programmatic party

See notes under Figure A.12.

---

[81]23% of the cases where the mayor runs for reelection have a mayor who was elected in a PT or a PSDB ticket.

T   Civil service hires and political support

A potential concern with the increase in civil service hiring during the lame-duck period is that election losers are fraudulently targeting those hires to their own political supporters. Alternatively, they might be seeking the political support of those civil service hires in the future, creating a sense that they owe them their job. The evidence does not suggest this is the case. If we compare the civil servants hired during the last quarter of the election year, under lame-duck government and under a re-elected mayor, we see no significant difference in the share who are still in their post four years later, the share who run for city councilor in the previous election, or the share who run for city councilor in the following election.[82] Regression discontinuity estimates are statistically insignificant and have signs opposite to what we would observe if lame-ducks targeted or mobilized these hires. Running for city councilor is a good proxy for political support in this context, where elections are held on an open-list, proportional representation system (Colonnelli et al. 2020).

Table A.24: Effect of an electoral defeat of the incumbent on the behavior of civil servants hired during the last quarter of the election year

	Share of Q16 civil service hires who		
	Are in post 4 years later	Ran in the election	Run in next election
Incumbent defeated	0.056	-0.025	-0.021
	(0.033)	(0.02)	(0.019)
Bandwidth	0.147	0.176	0.189
Observations	2106	2399	1817
Control mean (untransformed)	0.441	0.08	0.062

*p<0.05; **p<0.01; ***p<0.001. The bandwidth is determined by the algorithm of Calonico et al. (2020). Robust standard errors in parentheses. All regressions follow the specification in Equation 2.
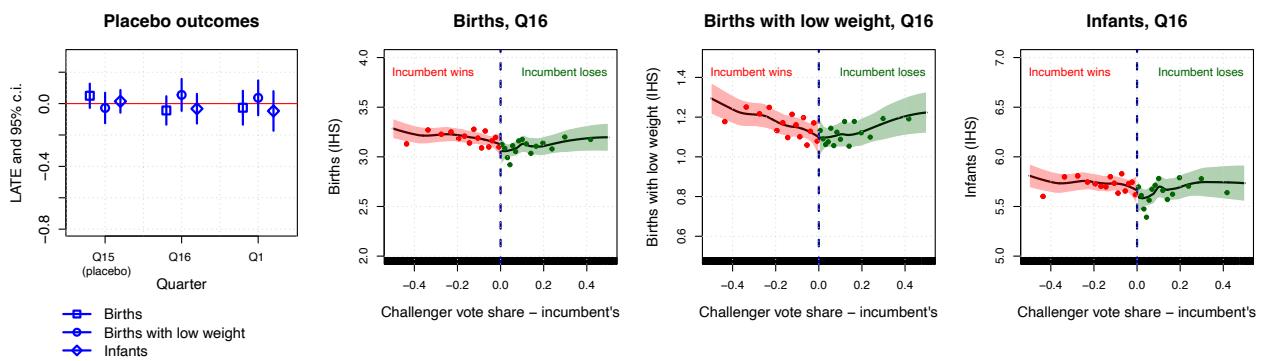
Note that the analyses reported in this Appendix require using the restricted-access, identified version of the RAIS dataset, which reports workers' unique identifiers. Therefore, only the code and not the dataset required for replicating this Appendix will be made available in the replication package.

---

[82]Results for the following election exclude data for 2016, since the unique identifiers of candidates for the 2020 elections have not yet been released.

U   Effects on placebo outcomes measured in DATASUS

Effects identified on the delivery of healthcare services might in theory be driven not by a decline in services but a decline in bureaucrats' diligence registering such services. To assuage concerns about this, I replicate the main analyses with three placebo outcomes for which we would not expect the electoral defeat of the incumbent to have an impact in the short term: the number of births, the number of births with low weight at birth (below 2,500 grams) and the number of infants. As can be seen below, estimates for these outcomes are small and statistically insignificant.

Figure A.19: Effect of an electoral defeat of the incumbent on births, low-weight births, and infants

See notes under Figure 2.

Table A.25: Effect of an electoral defeat of the incumbent on placebo outcomes (Q16)

|	Births	Births with low weight	Infants
Incumbent defeated	-0.044	0.055	-0.032
	(0.046)	(0.052)	(0.048)
Bandwidth	0.168	0.166	0.16
Observations	4685	4644	4527
Control mean (untransformed)	48.763	4.815	643.403
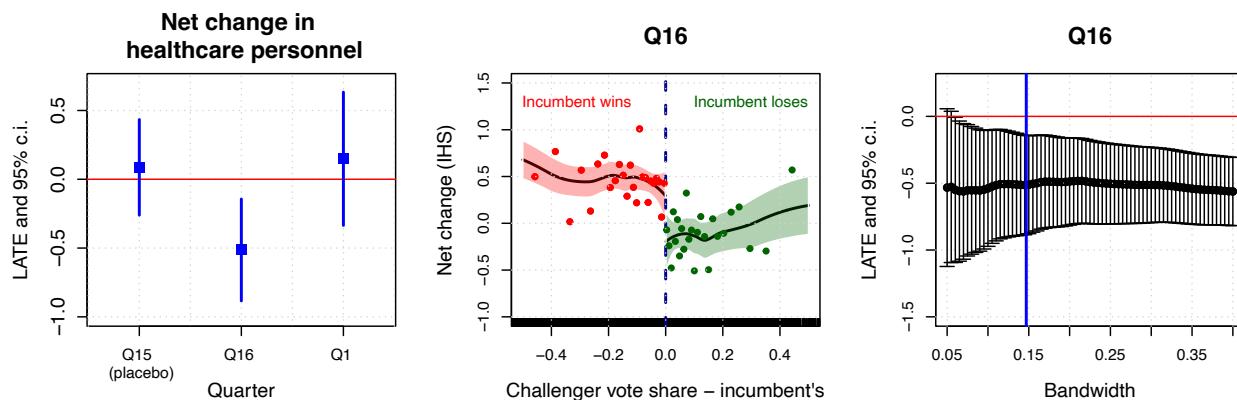
See notes under Table 2.

V Effects on the net turnover of healthcare professionals, as measured in CNES

To further examine the role that bureaucratic turnover plays in disruptions to the delivery of healthcare services, I use data from the Ministry of Health's National Registry of Health Establishments (CNES, *Cadastro Nacional de Estabelecimentos de Saúde*), which is collected through the same system as SIAB. CNES reports the total number of healthcare personnel working for each municipality in each month since 2007.[83] I use these data on stocks to measure the net change (from one quarter to the next) in the total number of healthcare professionals working for a municipality's healthcare system. Unlike RAIS, CNES does not allow us to identify hires, dismissals, and resignations, only net changes in the stock of healthcare personnel. Since this variable can take positive or negative values, I use the inverse hyperbolic sine transformation.

These effects on net changes provide additional evidence that an electoral defeat of the incumbent causes bureaucratic turnover, thus complementing the results with RAIS dataset.

Figure A.20: Effect of an electoral defeat of the incumbent on net changes in the stock of healthcare personnel

See notes under Figure 2.

[83]Therefore, the election cycles of 2008, 2012 and 2016 are included in these analyses.

W Characterization of municipalities by share of healthcare professionals in the civil service

The table below characterizes the set of municipality-election observations by the share of healthcare professionals who, in the quarter before the election, are in the civil service. Figure 8 shows that municipalities where all specialized healthcare workers are (not) in the civil service do (not) experience significant declines in the delivery of healthcare services. Examining those two extreme types of municipalities is useful because it allows us to rule out the hypothesis that declines are driven purely by bureaucratic turnover. Yet, these municipalities tend to be smaller. Moreover, municipalities where all healthcare professionals are (not) in the civil service are poorer (wealthier) and have lower (higher) mortality rates.
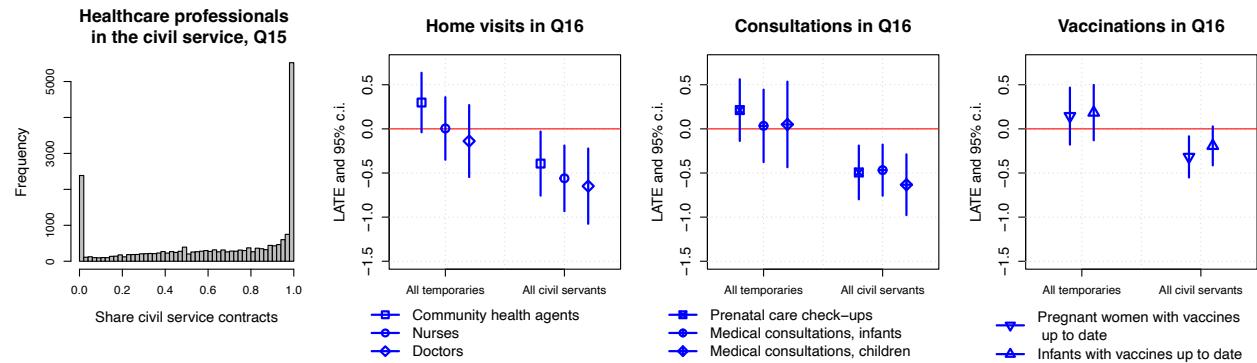
Table A.26: Characterization of municipalities by their share of healthcare professionals in the civil service

	All civil servants	All temporaries	Share civil servants
Population (logged)	-0.039^{***}	-0.015^{***}	-0.006^{**}
	(0.003)	(0.002)	(0.002)
GDP per capita (logged)	-0.058^{***}	0.041^{***}	-0.052^{**}
	(0.005)	(0.004)	(0.004)
Deaths per thousand	-0.007^{***}	0.006^{***}	-0.004^{**}
	(0.002)	(0.001)	(0.001)
Region fixed effects			
North	-0.109^{***}	0.024^{**}	-0.071^{**}
	(0.012)	(0.009)	(0.008)
South	-0.032^{**}	-0.058^{***}	0.059^{**}
	(0.011)	(0.008)	(0.007)
Southeast	-0.100^{***}	0.051^{***}	-0.076^{**}
	(0.009)	(0.007)	(0.006)
Center-west	0.011	-0.101^{***}	0.059^{**}
	(0.013)	(0.010)	(0.009)
Constant	1.302^{***}	-0.100^{**}	1.245^{*}
	(0.045)	(0.034)	(0.032)
Election cycle fixed effects	Yes	Yes	Yes
Observations	20702	20702	21857
R-squared	0.065	0.038	0.046

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$. See Appendix E for variable definitions and sources. HC2 standard errors in brackets.

X Heterogeneity of effects by whether all or none of the healthcare professionals are on civil service contracts

Figure A.21: Effect of an electoral defeat of the incumbent on bureaucratic turnover and healthcare service delivery, by whether the municipality's healthcare personnel before the election are all in temporary contracts or civil service contracts


See notes under Figure 2.
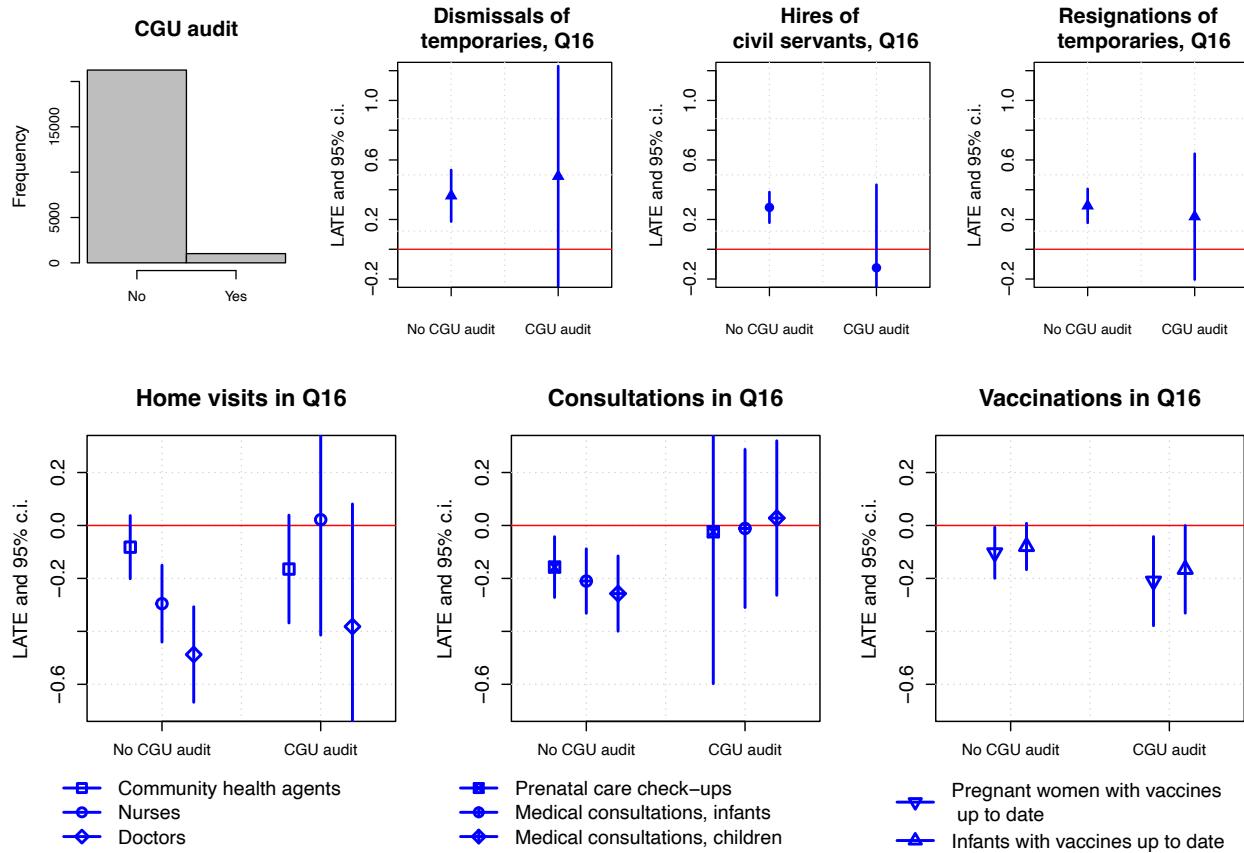
Y   Heterogeneity of effects by randomized anti-corruption audits

This Appendix explores how results in Figures 2 and 5 differ by whether the municipality experiences a random federal audit during the first three years of the incumbent's mandate. Brazil's federal comptroller's office (CGU, *Controladoria-Geral da União*) has long targeted its audits through randomized lotteries. The CGU releases the results of the audits to the media and to other accountability actors like the federal prosecutor's office, the audit court, and the police, as well as to the municipal legislative chamber.[84] These randomized audits have been found to to decrease corruption and increase the chances that mayors will be prosecuted for corruption charges (Avis et al., 2018).

As shown in Figure A.22, there is no significant heterogeneity by random audits (likely due to the audits being relatively rare). If anything, randomized audits appear to increase the effect of an incumbent defeat on the dismissal of temporaries and to reduce its effect on the hiring of civil servants in the last quarter of the mayor's mandate. This is consistent with those effects being motivated by a desire to "clean the accounts" before leaving office, on the one hand, and to use the civil service to constrain the opponent's hiring discretion, on the other. These differences are however not statistically significant. The randomized audits do not generally seem to alter the effect of an electoral defeat of the incumbent on the delivery of healthcare services. On the one hand, the effects of turnover on household visits by nurses, prenatal care check-ups, and medical consultations appear to be dampened by audits, whereas effects on vaccinations appear to be intensified. Again, these differences are not statistically significant, likely due to audits being rare.

---

[84]I focus on audits assigned during the first three years of the mayor's mandate because there is a substantial lag between the date of the lottery, the dates of auditors' field visit to the municipality, and the date when the audit report is published. Results are similar however when including lotteries done in the year of the election. Details of these randomized audits are described by Avis et al. (2018).

Figure A.22: Effect of an electoral defeat of the incumbent on bureaucratic turnover and healthcare service delivery, by whether the municipality is audited by the CGU during the incumbent's mandate
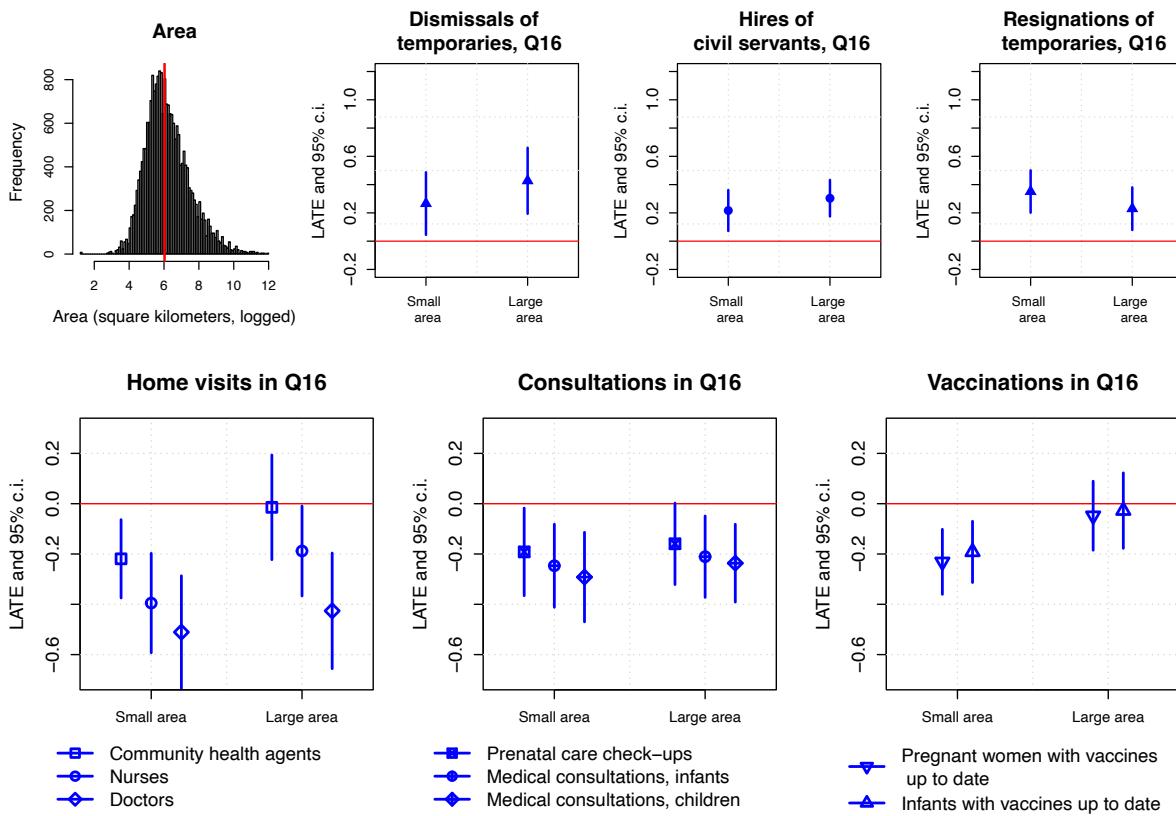
Each point and its robust bias-corrected confidence interval comes from a separate local linear regression discontinuity model, as per Equation 2. The dependent variable is in the log scale. Q16 corresponds to the 16th and last quarter of a mayor's mandate (i.e., October through December). Q1 corresponds to the first quarter of the election winner's mandate (i.e., January through March). Elections take place on the first Sunday of October, and winners are sworn in on January 1st. The red line on the histogram marks the median.

Z   Heterogeneity of effects by municipality area

This Appendix explores how results in Figure 5 differ by whether the municipality's surface is small or large, and in particular by whether its area is below or above the median. Results below show that smaller and larger municipalities see similar declines in public service delivery, with the exception of home visits by community health agents and immunizations, which see a decline in smaller municipalities but not in larger ones. These results suggest that disruptions to transportation are not the main mechanism driving the connection between electoral turnover and the declines in public service delivery.

Figure A.23: Effect of an electoral defeat of the incumbent on bureaucratic turnover and healthcare service delivery, by whether the municipality's geographic area is below or above the median

Each point and its robust bias-corrected confidence interval comes from a separate local linear regression discontinuity model, as per Equation 2. The dependent variable is in the log scale. Q16 corresponds to the 16th and last quarter of a mayor's mandate (i.e., October through December). Q1 corresponds to the first quarter of the election winner's mandate (i.e., January through March). Elections take place on the first Sunday of October, and winners are sworn in on January 1st. The red line on the histogram marks the median.