Turnover: How electoral accountability disrupts the bureaucracy and service delivery*

Guillermo Toral†

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Abstract

Electoral accountability is fundamental to representative democracy. Yet, it can also be costly for governance because it causes turnover among bureaucrats (not just elected officials) and disruptions in the delivery of public services. This article advances a theory of political turnover as a process that, starting the moment election results are published, leads to bureaucratic shuffles and depresses service delivery. I demonstrate these turnover dynamics through a close-races regression discontinuity design, using administrative data on public employment and on healthcare service delivery in Brazilian municipalities. The results show that an electoral defeat of the incumbent causes increases in dismissals, hires, and resignations of bureaucrats, and declines in public service delivery in the months following the election. These findings draw attention to the political strategies of lame-duck politicians, and highlight the intense and consequential bureaucratic politics that follow elections.

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†Assistant Professor of Political Science at Vanderbilt University: guillermo.toral@vanderbilt.edu.

1 Introduction

Przeworski famously defined democracy as "a system in which parties lose elections" (1991, 10). Political turnover is often at the center of democratic theory. Theories of both retrospective (Manin, 1997) and prospective accountability (Fearon, 1999), elitist theories of democracy (Przeworski, 1999; Popper, 1962), and populist and libertarian critiques of professional politics (Kurfirst, 1996) all see political turnover as a fundamental ingredient of democracy. The recurrence of political turnover is in fact commonly taken as an empirical indicator of democratic consolidation (Schedler, 2001).

This article argues that, its many benefits notwithstanding, political turnover imposes some costs, at least in the short term, through concurrent dynamics of bureaucratic turnover and disruptions to public service delivery.[1] An electoral defeat of the incumbent causes increases in dismissals, hires, and resignations of bureaucrats in the months immediately following the election. Electoral turnover can also lead to disruptions in the delivery of public services by bureaucrats, due to these bureaucratic shuffles and to the weakening of within-government accountability in the months after the election. These effects are likely to be particularly pronounced in contexts where politicians have formal or informal discretion over the bureaucracy, and where bureaucratic norms for autonomous performance are weak.

In contrast to the standard view of political turnover as a discrete moment (i.e., the day when the election winner is sworn into office), this article advances a theory of political turnover as a process that starts when election results are published and ends only weeks or months after the winner takes office, once new management teams have been formed. So-called transition periods are ridden with intense bureaucratic politics. On one hand, lame-duck officials make strategic use of their discretion over bureaucratic appointments, in response to their unique political incentives. On the other hand, bureaucrats respond strategically to a changing political environment, either by decreasing their level of effort until the winner is sworn in, or by leaving their jobs if they anticipate conflicts with the incoming administration. As a result of these dynamics, service delivery declines immediately after elections. Contrary to received wisdom, civil service systems do not completely insulate bureaucracies from the problems surrounding political turnover.

[1] Throughout the article, I refer to the political turnover that occurs in consolidated democracies as a result of regular and generally accepted elections. Political turnover resulting from coups, revolutions, and irregular elections is likely to have more disruptive effects on bureaucracies and service delivery.

This article demonstrates the effects of electoral turnover on bureaucratic shuffles and public service delivery through a close-races regression discontinuity design (Eggers et al., 2015), leveraging data on public employment and healthcare services in Brazilian municipalities. I use this quasi-experimental design because simply comparing instances where incumbents lose and where incumbents are reelected may give us biased estimates of the effect of the election results. For instance, in places where the incumbent loses by a large margin local actors are likely to anticipate the electoral outcome, and bureaucratic turnover or declines in public service delivery may predate the election. In those cases, low levels of public service delivery may actually be more a cause than a consequence of the election result. To identify the causal effect of an electoral defeat of the incumbent, I compare outcomes in municipalities where the mayor barely loses to those where they barely win the reelection. By examining what happens in such close elections, where the outcomes are uncertain *ex ante*, we can estimate the causal effect of political turnover. I complement these causal estimates with qualitative evidence from in-depth interviews I conducted with politicians and prosecutors in several states.

Brazilian municipal governments are an ideal case to study the link between political turnover, bureaucratic turnover, and public service delivery. Municipalities in Brazil hire large numbers of bureaucrats in order to provide primary services of healthcare, education, and social assistance to over 200 million people. Mayors, who are elected in majoritarian elections, have significant discretion over the bureaucracy they oversee. Bureaucrats can be hired with civil service contracts (which have life tenure) or with temporary contracts. Elections are held simultaneously in all municipalities on the first Sunday of October every four years, and winners take office on January 1st. A final but critical advantage of the Brazilian case is the availability of administrative data on public employment and on healthcare services.

Two additional reasons motivate my focus on healthcare. First, healthcare is the policy area most salient to voters at the local level (Boas et al., 2019, 395; Reis, 2016), so if we observe effects there it is plausible that we would also find them in other areas of government activity that are less visible and/or important to citizens. Second, municipal healthcare services in Brazil have been shown to reduce child mortality (Rocha and Soares, 2010; Aquino et al., 2009), a common proxy for health outcomes in the developing world. If election results depress the delivery of these basic healthcare services it is plausible that they have impacts on human development.

I examine the effects of an electoral defeat of Brazilian mayors on three important types of bureaucratic turnover (dismissals, hires, and resignations) by contract type (temporary versus civil

service). I also measure its effects on the delivery of key services in the healthcare sector, namely home visits by community health agents, nurses, and doctors; prenatal care check-ups; and medical consultations with infants and children. Combining data for four election cycles (2004 - 2016), I examine how an electoral defeat of the incumbent affects each outcome in the last quarter of their mandate and in the first quarter of the winner's.

Regression discontinuity results show that electoral turnover unleashes a series of bureaucratic turnover dynamics in the months following the election. Under lame-duck governments there are large and significant increases in the dismissal of temporary workers and in the hiring of civil servants. Interview evidence suggests that lame-duck politicians resort to dismissals in order to improve their compliance with legal rules about hiring before leaving office; and that they sometimes hire civil servants to stack the deck against the election winner by limiting their fiscal capacity to hire their own supporters once in office. Resignations of bureaucrats also increase in the months immediately following the defeat of the incumbent. Finally, political turnover causes significant increases in the hiring of temporary workers immediately after the election winner takes office.

An electoral defeat of the incumbent also causes significant declines in healthcare services in the months immediately following the election. In particular, home visits by nurses and doctors, prenatal care check-ups, and medical consultations with infants and children all decline in the last quarter of the mayor's mandate. While bureaucratic turnover can depress public service delivery, the evidence suggests that these declines may be driven by a worsening of bureaucratic accountability under lame-duck governments, where senior and elected officials are likely less able and/or willing to monitor and motivate bureaucrats.

This study contributes to an emerging literature showing that there are important connections between political and bureaucratic turnover, in settings as diverse as the United States (Bolton et al., 2020; Doherty et al., 2019a,b), Sweden (Dahlström and Holmgren, 2019), Brazil (Colonnelli et al., 2020), India (Iyer and Mani, 2012) and Ecuador (Brassiolo et al., 2020); and that these connections may be detrimental to human development (Akhtari et al., 2020; Iyer and Mani, 2012). In contrast to previous studies, this article emphasizes the political strategies of lame-duck governments, and the role they play in bureaucratic turnover and the decline of service delivery immediately after elections. By highlighting lame ducks' strategic use of their discretion over the bureaucracy, and bureaucrats' response to a changing political environment, this study advances a novel view of transition periods, which have received scant attention in comparative politics. Further, this article shows that civil service bureaucracies are not immune to the detrimental effects of political turnover,

thereby challenging the common assumption of civil service systems as insulated from politics.

2 A theory of turnover

Counter to the common view of political turnover as a discrete moment that occurs when an election winner is sworn in, I advance a theory of political turnover as a process starting the moment election results are confirmed and ending several weeks or months into the mandate of the winner. This perspective draws attention to the strategies of lame-duck politicians and how they shape bureaucratic turnover and service delivery. Empirically, it calls for an analysis of outcome data at the monthly or quarterly level, which unlike yearly data can identify effects immediately after the election.

The dynamics of turnover are shaped by the incentives, concerns, and constraints of politicians. Turnover dynamics thus differ systematically under lame-duck government versus the new administration, and for temporary versus civil service employees. While both election losers and winners make use of their (formal and informal) discretion over bureaucratic appointments to pursue their goals, their divergent incentives and concerns lead to distinct turnover dynamics before and after the winner is sworn in. The intensity of these dynamics may be moderated by institutional constraints like legal limits on politicians' discretion over the bureaucracy, but such constraints are unlikely to completely eliminate these phenomena.[2]

The strategies of lame-duck governments are shaped by two key motivations: preparing themselves for the vulnerability that comes after losing office, and setting the bases for a return to power. Politicians who lose a reelection bid arguably become more vulnerable to prosecution and conviction, for two key reasons. First, they lose some of their ability to exert formal and informal pressures over horizontal accountability actors. Second, their opponents get access to the government's accounts and thus gain information about potential malfeasance.[3] At the same time,

[2]Recent research shows that elections lead to the turnover of bureaucrats with strong employment protections and formally insulated from politics, even in contexts of high state capacity. Examples include agency heads in Sweden (Dahlström and Holmgren, 2019), chief executive officers of state-owned firms in South Korea (Kim and Hong, 2019), and senior federal civil servants in the United States (Doherty et al., 2019a).

[3]In fact, recent research suggests that losing power increases politicians' chances of being convicted in India (Poblete-Cazenave, 2020) and Brazil (Lambais and Sigstad, 2020), despite judges' strong formal protections from political pressures in both countries. Relatedly, there is evidence that opposition politicians

politicians who lose a reelection bid are arguably concerned with maximizing their (or their political party's) chances of returning to office.

This perspective on lame-duck politicians as actors seeking to minimize their vulnerability to prosecution and to maximize their chances of returning to power suggests they may engage in two strategic uses of bureaucratic shuffles during their remaining time in office.[4] First, lame-duck governments may use dismissals as a strategy to "clean the accounts" and reduce the chances that they will be prosecuted upon leaving office. Around the world, it is common for politicians to expand the bureaucracy ahead of elections to boost their reelection chances (Cahan, 2019; Pierskalla and Sacks, 2019; Toral, 2019b). In contexts where such hiring strategies violate electoral, procedural or fiscal rules, politicians may seek to undo some of that bureaucratic expansion after the election in order to protect themselves from prosecution. I thus hypothesize that dismissals of temporary workers will increase after the incumbent loses the election (Hypothesis 1).

On the other hand, lame-duck governments may use hires in the civil service to constrain their opponent, either in policy or in fiscal terms.[5] As a strategy to constrain policy, election losers may hire senior civil servants before leaving office in order to preserve their policy legacy. This phenomenon has been observed in the United States, where some presidents "burrow" political appointees into the civil service at the end of their mandate (Lewis, 2008; Mendelson, 2003). Alternatively, election losers may use the hiring of civil servants (who have significant job security) as a strategy to reduce the fiscal capacity of the new administration to hire their own supporters. Civil service hiring is typically seen as insulated from politics because civil servants are selected after passing objective, competitive examinations. In practice, however, candidates who pass a civil service exam are often not hired automatically. Instead, at least in civil systems of the Napoleonic tradition, approved candidates are added to a ranked list, and they are hired in order of performance as personnel needs arise. In certain contexts, therefore, lame-duck governments are legally able to hire civil service bureaucrats by simply hiring pre-approved candidates. By making strategic use of their discretion over the timing of civil service hiring, election losers can reduce their opponent's ability to hire their own supporters and thus increase their own chances of getting back to power in the future. Hypothesis 2 is that lame-duck governments will increase hiring in the civil service.

in the United States are more vulnerable to prosecution (Davis and White, 2019; Gordon, 2009).

[4]While I focus on how lame ducks pursue these goals through bureaucratic shuffles, they may advance them by other means (e.g., regulation).

[5]This rationale mirrors that of so-called midnight judicial appointments (Turner, 1960) or midnight regulations (Brito and De Rugy, 2009).

By contrast, the key motivation of election winners with regards to bureaucratic shuffles is inducting political supporters into the bureaucracy. There are two distinct rationales for an incoming government to do this. One rationale is using bureaucratic appointments to reward campaign supporters (Colonnelli et al., 2020; Brassiolo et al., 2020). A different logic is to use appointments to better control public policy and implementation (Lewis, 2008; Peters and Pierre, 2004). In both cases we should expect election winners to increase hiring of temporary workers in their first few months in office (Hypothesis 3). By a similar logic, they may use dismissals in order to remove bureaucrats who they perceive will not be responsive to the new policy directions of the government and/or who may sabotage the new government's efforts (Hypothesis 4).[6]

Incumbent bureaucrats can actively respond to the political strategies of outgoing and incoming politicians, thereby shaping the turnover dynamics of transition periods. Bureaucrats may react to the changing political environment is by resigning. One possible driver of resignations is (anticipated) ideological incongruence. If bureaucrats prefer to work for organizations whose leaders have preferences aligned to theirs, or if they anticipate new leaders will mistreat them (e.g., by firing or transferring them), they may choose to leave the bureaucracy (Bolton et al., 2020; Doherty et al., 2019a). Resignations could also ensue if bureaucrats anticipate they will be dismissed by the election winner and choose to exit early to protect their long-term careers, or to signal their distancing from the election loser. In any case, we would expect to see resignations increase in the months following electoral turnover (Hypothesis 5).

An electoral defeat of the incumbent affects not only the composition of the bureaucracy but also the activities bureaucrats perform. I expect political turnover to cause declines in the delivery of public services in the months following the election (Hypothesis 6). One key mechanism for electoral turnover to hurt service delivery is through bureaucratic turnover. Dismissals and hires can lead to the exit of bureaucrats with job-specific experience and know-how, and the entry of other bureaucrats with less endowments of both. Turnover can lead to the selection of systematically worse bureaucrats, for example if politicians prioritize loyalty over competence, as recent research on Brazil suggests (Colonnelli et al., 2020; Akhtari et al., 2020). Turnover may also lead to the selection of systematically better bureaucrats, but even then the disruption of teams of providers may have a negative impact on public service delivery (Hanushek et al., 2016; Ronfeldt et al., 2013).[7] Renewed leadership and the inflow of new employees may well have a positive effect on

[6]US President Richard Nixon made this logic explicit in his memoirs (Nixon, 1978, 352).

[7]One key reason for this is that the effectiveness of bureaucrats often depends on the stability of the organizations and teams they are embedded in (Kraft et al., 2016).

performance, but those effects are unlikely to show in the first few months of a new administration due to the costs of policy and managerial switches as well as learning.

Political turnover can also impact public service delivery through mechanisms other than bureaucratic turnover. Procurement processes and contracts for services and goods on which bureaucrats depend to provide services may be disrupted. Critically, the ability and/or willingness of officials to monitor and motivate bureaucrats may decrease sharply once all actors know the government will change in a few weeks or months. Bureaucrats' responsiveness to senior managers and to elected officials, and their level of effort, may therefore decline under lame-duck governments.

In sum, I advance a theory of political turnover as a process starting when election results are published and ending only months after the winner is sworn in. During that period, a series of distinct but concurrent processes of bureaucratic turnover (dismissals, hires, and resignations) take place. An electoral defeat of the incumbent also causes declines in public service delivery through a variety of mechanisms, including bureaucratic turnover and the weakening of bureaucratic accountability. Contrary to received wisdom, these turnover dynamics are not caused only by the actions of the election winner, nor are they eliminated by civil service systems. Transition periods are therefore turbulent times for bureaucracies, and a valuable window through which to study bureaucratic governance.

3 Institutional setting

Brazilian local governments have a number of characteristics that make them an ideal case to examine the effects of political turnover on bureaucratic turnover and public service delivery – elections are generally competitive, bureaucracies are relatively large, and politicians have some discretion over the hiring and firing of bureaucrats.

Municipal elections take place every four years on the first Sunday of October, and consist of simultaneous elections for a mayor, who is elected through a majoritarian system,[8] and for a variable number of city councilors, who are elected though a proportional, open-list system. Mayors can run for reelection only once. Local elections are generally competitive – in the 2016 elections,

[8]In municipalities with over 200,000 inhabitants (less than 2% in 2016), there is a runoff election on the last Sunday of October if no candidate obtains an absolute majority.

almost 49% of the incumbents who ran were defeated.[9] Politicians are overseen by a network of horizontal accountability actors, including judges, auditors, and prosecutors, which have been shown to reduce rent extraction (Litschig and Zamboni, 2019; Avis et al., 2018). There are currently 5,570 municipalities,[10] most of which are small and poor.[11]

Municipal governments are responsible for providing primary services in healthcare, education, and social assistance. Therefore, the local government workforce is typically large. In average, municipal governments hired in 2016 4.9% of the local population and 38.2% of those employed in the formal labor market.[12] Despite important improvements over the past few decades in all three areas of social policy, development challenges are substantial (Castro et al., 2019). Healthcare is typically the most salient policy area for voters in municipal elections (Boas et al., 2019, 395; Reis, 2016).

Municipalities provide primary healthcare services to all residents, free of charge, under the umbrella of the Unified Health System. To do so, they maintain "basic health units" or clinics. Each clinic is led by a manager, who is typically appointed by the mayor or the secretary of healthcare (Toral, 2019a), and staffed with with doctors, nurses, and other healthcare professionals. To assist with the provision of basic healthcare services, especially preventive care and particularly in rural areas, municipalities also hire community health agents, who work in their own community promoting health, preventing diseases, and providing maternal and child services (Ministério da Saúde, 2012d). More complex healthcare, like specialist consultations and hospitalizations, are generally provided by state governments, especially for residents of small municipalities. Private healthcare provision is common in larger municipalities, but most citizens rely exclusively on the public system.[13]

Mayors and the secretaries they appoint have some discretion over the hiring and firing of bureaucrats. Such discretion differs significantly between the civil service (which makes up about two thirds of the municipal labor force) and other hiring modes with less employment protections.

[9] In fact, Brazilian mayors have an incumbency *disadvantage* (Klašnja and Titiunik, 2017).

[10] The number of municipal governments in the period I study ranges from 5,559 in 2004 to 5,569 in 2017. Brasília, the capital city, is a federal district without a municipal government or municipal elections – it has a governor instead.

[11] As per the 2010 census, the median municipality had less than 12,000 inhabitants and per capita income of less than 500 Brazilian reais (or about USD284 at the exchange rate back then).

[12] Figures are from administrative data described in Section 4.3.

[13] In 2013, 61.13% of Brazilians used the services of a public basic health unit and 20.3% of a public hospital, compared to 18.53% who used the services of a private provider (Castro et al., 2019, 5).

The Brazilian constitution mandates that all permanent staffing needs be filled with civil service contracts, where there is a competitive examination and the candidates with the best performance may be offered a position, which has tenure for life after a probationary period.[14] Critically, however, the best performers are not automatically appointed. While politicians have no discretion in the ranking of candidates, they do have discretion on the timing and numbers of civil service hires. About a third of municipal employees are hired through temporary contracts,[15] which can legally be used for hiring political appointees or for hiring regular employees to fill short-term or urgent staffing needs. Temporary contracts are in practice also used sometimes in cases where the civil service should prevail, although the practice is unconstitutional and politicians may be prosecuted for it. Temporary employees generally have 1-year contracts that can be terminated by the employer much more easily than civil service contracts.

4 Research design

To estimate the causal effect of electoral turnover on bureaucratic turnover and public service delivery I rely on a close-races regression discontinuity design, essentially comparing instances where the incumbent barely loses the election to instances where they are barely reelected.[16] This quasi-experimental design is important because simple comparisons of cases where incumbents win or lose the reelection are likely to be biased. If local actors anticipate that the incumbent will lose the reelection, bureaucratic turnover may be higher and public service delivery may be lower before the election. Descriptive data reported in Appendix C show that municipalities where the incumbent loses the election have systematically different patterns of public service delivery in the quarter *before* the election.

The regression discontinuity design allows me to identify the causal effect of an electoral defeat of the mayor on dynamics of bureaucratic turnover (fires, hires, and resignations) and healthcare

[14] Once tenured, civil servants can be dismissed only in extraordinary circumstances such as being convicted for a corruption charge.

[15] I use temporary contracts to refer to all labor contracts outside the civil service. These contracts can use a variety of labor regimes but in any case lack tenure.

[16] I focus on the electoral performance of the incumbent mayor rather than their party. Brazilian municipal politics are characterized by weak partisan attachments and pervasive party switching by politicians. It is common for incumbents to run for reelection with a party different from the one they got elected under: 30.4% mayors did it in 2008, 19.1% in 2012 and 26% in 2016 (TSE data). Examining the electoral performance of the incumbent party would therefore be misleading.

service delivery in the two quarters following the election, which interviewees suggest is the period where turnover has the most visible impacts.[17] I use quarter-level data because the hypotheses are about turnover dynamics differing under the lame-duck and the incoming government.[18]

4.1 Identification

The core of regression discontinuity designs is a forcing variable, with treatment determined sharply at a given threshold along its distribution. In this case, the forcing variable for municipality i in election cycle c, is the difference between the vote share of the strongest opposition candidate and the vote share of the incumbent: $D_{ic} = V_{ic}^{o} - V_{ic}^{g}$. Treatment is the electoral defeat of the incumbent, which is determined sharply when the forcing variable is positive: $T_{ic} = \mathbb{1}$(vote share of the strongest challenger $>$ vote share of the incumbent).[19] Intuitively, this allows us to interpret a discontinuous jump of the outcome at the threshold as the causal effect of an electoral defeat of the mayor. The goal is to identify the difference in potential outcomes under treatment (i.e. the incumbent is defeated) and under control (i.e., the incumbent wins the reelection), namely $\tau = \mathbb{E}[Y_{1ic} - Y_{0ic}]$. We can estimate the local average treatment effect (LATE) for municipalities around the threshold[20] by taking the difference between the limits from above and from below the cutoff:

$$\tau = \mathbb{E}[Y_{1ic} - Y_{0ic}|D_{ic} = 0] = \lim_{D_{ic}\downarrow 0} \mathbb{E}[Y_{1ic}|D_{ic} = 0] - \lim_{D_{ic}\uparrow 0} \mathbb{E}[Y_{0ic}|D_{ic} = 0] \tag{1}$$

The key assumption of this design is that potential outcomes are continuous around the threshold. While this assumption is empirically untestable, we can examine some of its observable implications. Appendix D shows that the forcing variable has a roughly normal distribution and no signs of sorting or discontinuity around the threshold, as confirmed by the test proposed by McCrary (2008). Reassuringly, pre-treatment covariates are continuous around the threshold (Appendix E).

[17] See Appendix A for details about the interviews.

[18] Results using month-level data (available from the author) are of similar substantive and statistical significance.

[19] Conversely, if that difference is negative, the incumbent wins the election and there is no change of mayor on January 1st.

[20] That is, municipalities where the mayor runs and their vote share is close to that of the strongest challenger. See Appendix I for a characterization of municipalities with close elections.

4.2 Estimation and inference

I follow the standard practice of using local linear regression with a triangular kernel smoother (Cattaneo et al., 2019),[21] and apply it to the following estimating equation:

$$Y_{ic} = \alpha + \beta_1 T_{ic} + \beta_2 D_{ic} + \beta_3 T_{ic} D_{ic} + \gamma_c + \delta \tilde{Y}_{ic} + \varepsilon_{ic} \tag{2}$$

Y_{ic} is the outcome of interest (e.g., dismissals of temporary workers in the last quarter of the mayor's mandate) for municipality i in the electoral cycle c. Since the outcomes are count variables with skewed distributions, I add one and take the natural log, such that effects can be interpreted as percentage changes. T_{ic} is the treatment indicator. D_{ic} is the forcing variable. γ_c is an electoral cycle fixed effect and $\tilde{Y}_{ic}$ is a measure of the outcome in the quarter before the election, which I include for efficiency (Calonico et al., 2019). ε_{ic} is the error term. If potential outcomes are continuous around the threshold, β_1 in Equation 2 identifies the LATE. For inference I use the robust bias-corrected procedure (Cattaneo et al., 2019). To choose the optimal bandwidth I use the algorithm proposed by Calonico et al. (2020), and then show the sensitivity of the results to many alternative bandwidths.

4.3 Data

I leverage administrative data on elections, public employment, and healthcare service delivery. To measure the performance of incumbents and their challengers I use candidate-level data from Brazil's Supreme Electoral Court (TSE, *Tribunal Supremo Eleitoral*) for the four election cycles between 2004 and 2016. To measure the effects of election results on the turnover of public employees I leverage the Ministry of the Economy's RAIS dataset (*Relação Anual de Informações Sociais*) between 2004 and 2017. RAIS covers the universe of formal labor market contracts (including all municipal employees), and reports the dates of start and end of the contract, the contract's type, the salary, the reason for its termination, and the job's professional category, among other variables.[22] I generate counts of dismissals, hires, and resignations, by type of contract, for each

[21] Results are similar using quadratic or cubic polynomials, and using uniform or Epanechnikov kernels. Results with those alternative specifications are available from the author.

[22] Additional details of the dataset are reported in Appendix B.

municipality in each quarter around elections.[23]

To measure the effects on public service delivery I use data from the Ministry of Healthcare'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.[24] I use SIAB to generate counts of a number of healthcare services for each municipality in each quarter around elections.First, I use data on the number of home visits done by community health agents, nurses, and doctors, who are the main healthcare professionals in Brazilian municipalities. Home visits are an important component of Brazil's primary healthcare system; they help provide care to people with reduced mobility (including people in rural areas) and complement services provided in healthcare facilities (Ministério da Saúde, 2012b). Second, I use data on the number of prenatal care check-ups, medical consultations with infants (less than 1 year old), and medical consultations with small children (older than 1 and younger than 5 years old). Prenatal and child healthcare are frequently seen as central to lifelong health (Forrest and Riley, 2004) and used as proxies for the overall quality of healthcare systems.[25] Another advantage of examining prenatal and child care is that they are prescribed rather than elective, so they are less subject to variation in citizen demand.[26]

5 Results

Regression discontinuity results demonstrate that an electoral defeat of the incumbent causes increases in dismissals, hires, and resignations, as well as declines in the delivery of healthcare services, both before and after the election winner is sworn in.

[23] I count as dismissals only contract terminations initiated by the employer (*exonerações a iniciativa do empregador*), and as resignations only terminations initiated by the employee (*exonerações a pedido*).

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

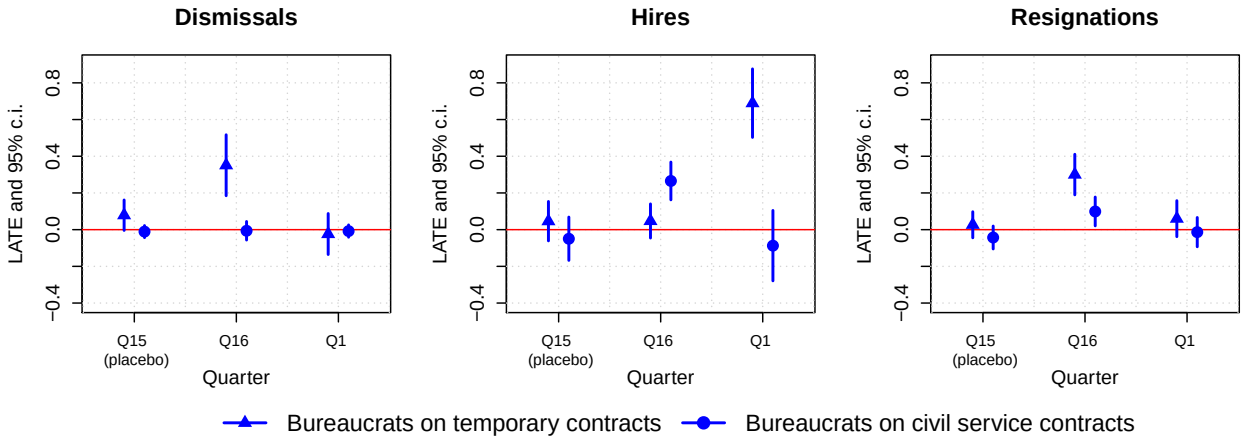
[25] For example, the United Nations' Millenium Development Goals included the reduction of child mortality and the improvement of maternal health as two among eight major development goals.

[26] For example, Brazil's Ministry of Health recommends at least 6 prenatal check-ups (Ministério da Saúde, 2012a) and at least 7 medical consultations for children in their first year of life (Ministério da Saúde, 2012c).

5.1 Effects of electoral turnover on bureaucratic turnover

Figure 1 shows the effects of electoral turnover on dismissals, hires, and resignations, for temporary and civil service employees.[27] Each panel shows three sets of results. On the left, the effect of an electoral defeat of the incumbent on a given outcome during the three months before the election (July through September, or the fifteenth quarter of a mayor's mandate). Reassuringly, all these placebo tests return statistically insignificant effects. In the center, each panel reports the effect of an electoral defeat of the incumbent on bureaucratic turnover during the three months between the election and the date winners are sworn in (October through December, or the sixteenth and last quarter of the incumbent's mandate). On the right, each panel shows the effects of the mayor losing the election on outcomes in the first quarter of the winner's mandate (January through March).

Figure 1: Effect of an electoral defeat of the incumbent on bureaucratic turnover



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 natural-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 (October through December). Q1 corresponds to the first quarter of the election winner's mandate (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.

[27] Regression tables, with and without covariate adjustment, and discontinuity plots are included in Appendices F, G and H, respectively. Without covariate adjustment, all but two results on healthcare services remain statistically significant. Results are also robust to a broad spectrum of bandwidths (Appendix J). Placebo tests moving the discontinuity threshold generally return insignificant results (Appendix K).

Dismissals

In line with Hypothesis 1, an electoral defeat of the incumbent leads to a large and statistically significant increase in the dismissal of temporary workers, as shown in the left-hand panel of Figure 1. Incumbents who lose the election increase dismissals of temporaries by 42% in the last three months of their mandate,[28] when compared to incumbents who win the reelection ($p < 0.001$). For reference, there are in average 26.2 dismissals of temporaries in the last quarter of an electoral year in municipalities where the incumbent wins. Election results do not have an effect on dismissals of civil servants, which are uncommon because of the legal protections these bureaucrats enjoy.[29] Contrary to Hypothesis 4, there is no increase in the dismissal of temporary employees under the new administration.

In-depth interviews with prosecutors and politicians suggest that dismissals of temporary workers immediately after the defeat of the incumbent are intended to balance the accounts before handing the government over to the winner.[30] A municipal secretary of administration (in charge of human resources) in the northeastern state of Rio Grande do Norte said the following, when asked about the transition period before his mandate: "There were cuts in personnel to hand the accounts cleaner, with resources in the account. Expenses were cut to hand over a more balanced city hall. [...] If there is no political turnover expenses do not drop."[31] Horizontal accountability actors also point to this phenomenon. A prosecutor in the southeastern state of São Paulo said that "it is common for an electoral defeat to lead to the dismissal of political appointees."[32] When asked about the decisions taken by lame-duck governments, a prosecutor in Rio Grande do Norte said: "When a mayor loses the election, they try to save money and they try not to hand out the accounts in a bad state. [...] Once the mayor is out of office they are not able to afford equally good lawyers, and they know that [legal problems] can arrive later."[33]

Brazilian media provide additional qualitative evidence on the effect of election results on

[28]Since outcomes are in the log scale, coefficients are to be interpreted as follows: the local average treatment effect of an electoral defeat of the mayor is a change in the outcome by $100 \times e^{\hat{\beta}_1} - 100\%$.

[29]In the average municipality where the incumbent wins, 0.53 civil servants are dismissed in the last three months of an electoral year.

[30]Consistent with this interpretation, an electoral defeat of the incumbent causes a larger increase in dismissals among high-pay bureaucrats (with mean salary above the median) than among low-pay bureaucrats, although the difference is not statistically significant (see Appendix L).

[31]Municipal secretary of administration interviewed in the state of Rio Grande do Norte in June 2018.

[32]State prosecutor interviewed in the state of São Paulo in September 2018.

[33]State prosecutor interviewed in the state of Rio Grande do Norte in June 2018.

the dismissal of temporary workers. News reports about two municipalities in the central state of Tocantins are illustrative. The local government of Porto Nacional was reported to dismiss large numbers of employees immediately after an electoral defeat. The mayor argued this was necessary to adjust public expenses before leaving office (G1, 2016b). In Miracema, about 150 municipal employees were reportedly dismissed by the mayor after she lost the reelection, alleging the municipality was going through financial hardship (G1, 2016a). Media reports about this phenomenon are common in other states as well. For example, dismissals were reported following an electoral defeat of the mayor in multiple municipalities in the northern state of Amazonas (A Crítica, 2016) and the southern state of Rio Grande do Sul (G1, 2012). A recurrent theme in all these news reports is the negative impact of dismissals on the delivery of education and healthcare services.

Hires

Results in the central panel of Figure 1 show that hiring also increases as a result of the incumbent losing the election. First, consistent with Hypothesis 3, hires of temporaries increase in average by 99.2% in the first quarter of a post-electoral year in municipalities where there is a new mayor, when compared to municipalities where the incumbent is reelected ($p < 0.001$). Municipalities without turnover hire in average 105.7 bureaucrats in the first quarter of the post-election year. These results are in line with previous research showing that in Brazil election winners use bureaucratic appointments to reward their supporters (Colonnelli et al., 2020; Barbosa and Ferreira, 2019). Similarly to other horizontal accountability actors I interviewed, a prosecutor in the northeastern state of Ceará said that temporary contracts are often used as "political currency."[34]

Results also show that lame-duck governments take advantage of their last few months in office to hire civil servants, in agreement with Hypothesis 2. In average, municipalities where the incumbent loses see an increase of 30.3% in the hiring of civil servants, when compared to municipalities without electoral turnover ($p < 0.001$). For reference, 3.6 civil servants are hired in the typical municipality with no electoral turnover in the last quarter of an electoral year.

Interviews suggests that these increases respond to a strategy of hiring civil service employees in order to decrease the opponent's leeway for hiring their own supporters upon taking office, and thus facilitate their return to power.[35] Another secretary of administration in the state of Rio Grande

[34]State prosecutor interviewed in the state of Ceará in August of 2017.

[35]50.75% (49.2%) of the mayors who lost their reelection in 2008 (2012) by less than 10 points ran again four years later.

do Norte illustrated this with a report about the previous administration: "The previous mayor hired many people [who had previously passed the civil service exam], especially after they lost the election, to make things harder for the new administration."[36] To test whether this result is driven by politicians seeking to protect their policy legacy before leaving office (Lewis, 2008; Mendelson, 2003), I examine how this effect differs when the incumbent belongs to a large programmatic party and thus can be expected to have stronger policy concerns. Results reported in Appendix M show that in those cases an electoral defeat of the incumbent does not cause an increase in the hiring of civil servants in the last quarter of the election year. This, together with the interviews, suggests that these hires are driven by a strategy to constrain opponents in fiscal rather than policy terms.

This finding goes against the common view of civil service systems as politically neutral. Whereas civil service systems dramatically reduce (or eliminate) politicians' discretion on *who* to hire, they do not eliminate discretion on *how many* people to hire or *when* to do so. The quantity and timing of hires are important dimensions of human resources management in any organization, and these results suggest that politicians can make strategic use of them for political gain.

Resignations

Electoral turnover also causes resignations of municipal employees immediately after the election, as shown in the right-hand panel of Figure 1. This lends support to Hypothesis 5. In average, an electoral defeat of the incumbent causes an increase of 35% in resignations among temporary employees ($p < 0.001$) and an increase of 10.4% in resignations among civil servants ($p < 0.05$) in the quarter following the election. For reference, in localities where the incumbent wins the reelection we observe, in average, 6.3 resignations of temporaries and 3.2 resignations of civil servants in that period. This increase in resignations is plausibly due to strategic exit by bureaucrats who anticipate conflicts with the incoming government (Bolton et al., 2020).[37] In any case, a key implication of the effect of election results on resignations is that incumbent bureaucrats are not passive spectators of the political strategies of election losers and winners. Instead, they sometimes actively respond to this changing political environment, thereby shaping the bureaucratic politics of transition periods.

[36] Municipal secretary of administration interviewed in the state of Rio Grande do Norte in June 2018.

[37] Consistent with this interpretation, resignations by high-pay employees appear to increase more after an electoral defeat than resignations among low-pay bureaucrats, although the difference is not statistically significant (Appendix L).

5.2 Effects of electoral turnover on public service delivery

Interviewees sometimes pointed to the negative effects of an electoral defeat on public service delivery, and associated them to dismissals. The logic was illustrated well by a municipal secretary of healthcare in the northeastern state of Ceará: "A change in government stops everything, because of the transition... The population suffers as a result. For example, we were a reference municipality in the fight against dengue, but because of that transition dengue cases have increased by over 500%. Pregnant women who used to do prenatal check-ups regularly stopped, which led to fetal deaths, infant deaths, etc. [...] Workers stop working. Those who are in temporary contracts are dismissed, and contracts for example for transportation are canceled. The outgoing mayor does not want to have any more expenses. [...] Tenured professionals stay but with no conditions to do their job, with no materials."[38]

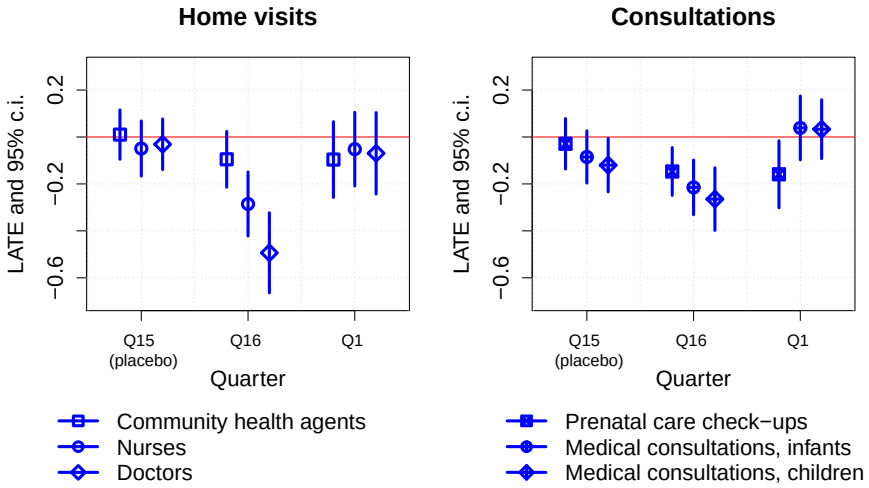
Regression discontinuity results shown in Figure 2 demonstrate that electoral turnover has large, negative effects on the delivery of healthcare services in the months following the election, in line with Hypothesis 6.[39] An electoral defeat of the incumbent causes declines in home visits of healthcare professionals, as shown in the left-hand panel. Visits by nurses and by doctors decline by 24.9% and 39%, respectively, as a result of the mayor losing the reelection ($p < 0.001$). The decline in home visits done by community health agents is not statistically significant. For reference, municipalities with no electoral turnover deliver in average 416.9 home visits by nurses and 217.1 home visits by doctors in the last quarter of the election year. These declines are not compensated by increases in the first quarter of the new administration.

Electoral turnover also causes declines of maternal and child healthcare services, as shown in the right-hand panel of Figure 2. Prenatal care check-ups go down by 13.7% in the last quarter of the mayor's mandate as a result of their electoral defeat ($p < 0.01$). This effect persists into the first quarter of the new administration, where we observe 14.7% less prenatal care check-ups than in municipalities where the mayor wins the election ($p < 0.05$). Municipalities with no turnover perform in average 392.9 and 415.3 prenatal care check-ups in the two quarters following elections, respectively. Medical consultations with both infants and children decline as a result of the mayor losing the election, by 19.3% and 23.3% percent respectively ($p < 0.001$). A typical municipality where the incumbent is reelected delivers 168.3 and 329.3 medical consultations to infants and to

[38]Municipal secretary of healthcare interviewed in the state of Ceará in August of 2017.

[39]Placebo tests using healthcare services in the quarter before the election all return null effects, with the exception of the one for medical consultations with children, which has a p-value of 0.04.

Figure 2: Effect of an electoral defeat of the incumbent on the delivery of healthcare services



See notes under Figure 1.

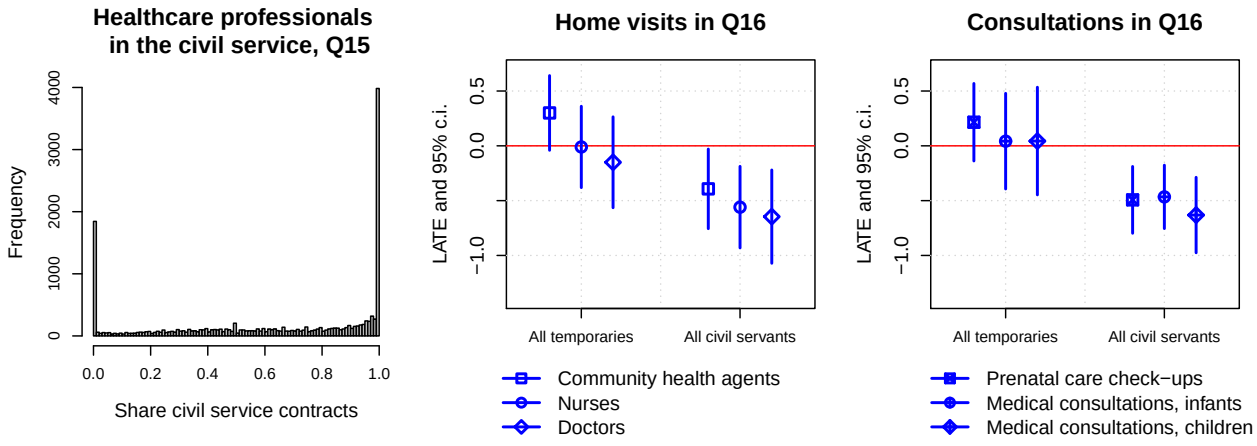
children during the last quarter of an electoral year. Like with home visits, these declines are not compensated by increases in service delivery when the election winner takes office.

These declines in the delivery of primary healthcare services may be driven by a variety of factors, including the turnover of healthcare employees, other changes that could make it harder for them to work (like the lack of transportation to rural areas), and declines in bureaucratic effort and accountability to senior officials. An electoral defeat of the incumbent does cause turnover among specialized healthcare workers (like doctors, nurses, and community health agents) similar to those shown for all bureaucrats in Figure 1 – although less pronounced (see Appendix N). Yet, the fact that effects generally disappear when election winners are sworn in suggests they may be driven by lame-duck politicians and senior officials being less able and/or less willing to monitor and exert pressure over bureaucrats. Two additional pieces of evidence are consistent with this interpretation. First, as shown in Figure 3, the effect of an electoral defeat for the incumbent on the delivery of healthcare services is large and significant in the subset of municipalities where all specialized healthcare workers in the payroll during the quarter before the election have civil service contracts (and thus are protected from dismissal), whereas it is not significant in localities where all specialized healthcare employees have temporary contracts.[40] Second, municipalities that are wealthier experience comparable effects on bureaucratic turnover but smaller and often statistically insignificant declines in healthcare service delivery (see Appendix P). This suggests that

[40]See Appendix O for a characterization of these municipalities.

mechanisms other than dismissals are important to explain the decline in healthcare service delivery. While not definitive, the evidence is consistent with declines in healthcare services being caused by the worsening of within-government accountability in the months following an electoral defeat of the incumbent.

Figure 3: Effect of an electoral defeat of the incumbent on the delivery of healthcare services, in municipalities where specialized healthcare workers in the payroll before the election are all civil servants or all temporaries



See notes under Figure 1.

6 Conclusion

Political turnover is central to the theory and practice of representative democracy. This article argues that, despite its many benefits, political turnover also has costs, at least in the short term, as it leads to bureaucratic turnover and disruptions to public service delivery. I demonstrate these turnover dynamics using a close-races regression discontinuity design and administrative data on public employment and healthcare service delivery in Brazilian municipalities.

To summarize, results show that an electoral defeat of the incumbent causes increases in fires, hires, and resignations of bureaucrats, as well as declines in the delivery of public services in healthcare, which is the most salient policy area at the local level for citizens. In particular, a defeat of the mayor causes an increase in dismissals of temporaries, hires of civil servants, and resignations of both types of employees during the lame-duck government period; and an increase in the hiring of

temporaries during the first quarter of the new government's mandate. Additionally, home visits by nurses and doctors, prenatal care check-ups, and medical consultations with infants and children all decline as a result of the mayor losing the election. These declines are not compensated by increases in healthcare services shortly after the election winner is sworn in. While bureaucratic turnover may contribute to the decline of service delivery, the evidence suggests part of these declines is driven by a worsening of bureaucratic accountability under lame-duck government.

These findings have important implications for how we think about political turnover and lame-duck governments. Rather than a discrete moment, political turnover may best be seen as process that starts when the uncertainty characteristic of competitive elections turns into the certainty of the incumbent's electoral defeat and the ensuing transition of power. Contrary to received wisdom, the resulting lame-duck government, in office from election day until winners are sworn in, is not limited to mere administration. Despite formal and informal rules limiting what lame-ducks can do, in practice these governments use their remaining time in office to exercise their discretion over the bureaucracy in unequivocally political strategies. Bureaucrats also behave strategically in response to a changing political environment. This study therefore suggests that the bureaucratic politics of transition periods deserve more attention than they have received in comparative politics to date.

A second key implication is that the fear of being prosecuted after leaving office can have powerful impacts over the behavior of lame-duck politicians during their remaining time in office. This implies that there is an incumbency advantage in the control of information about government irregularities, even in contexts with strong anti-corruption institutions, and that the prospect of losing that advantage can lead to disruptive decisions in the months before the election winner takes office.

A third important implication of the results is that public employment in the civil service is not as insulated from political influence as is typically assumed. Whereas the targeting of civil service jobs is generally protected from political influence through competitive examinations, politicians often retain discretion over the scale and the timing of civil service hiring. Lame-ducks can mobilize this discretion strategically by hiring civil servants before leaving office and thus reduce their opponents' fiscal capacity to hire their own supporters once in office.

Finally, the findings presented in this article suggest that the dynamics of political turnover can have an impact on state effectiveness. If political turnover depresses service delivery in a policy area that is both salient to voters and consequential for human development, it is plausible that it

disrupts many other areas of government activity. From a policy standpoint, this study suggests that shortening the transition period between the date of the election and the date winners are sworn in can enhance citizen welfare.[41] While there may be good administrative reasons to allow some time between the two dates, longer transition periods may carry significant costs in terms of bureaucratic turnover and standstill.

[41]Transition periods vary significantly in length around the world. For example, the latest national elections that led to political turnover in Mexico, the United States, and India had transition periods of about 5 months, 10 weeks, and 10 days, respectively.

References

A Crítica, (2016). Após eleição, prefeituras começam demissão em massa de servidores. November 15, 2016. https://www.acritica.com/channels/cotidiano/news/apos-eleicao-prefeituras-comecam-demissao-em-massa-de-servidores (last accessed on December 1, 2020).

Akhtari, Mitra, Diana Moreira, and Laura Trucco (2020). Political Turnover, Bureaucratic Turnover, and the Quality of Public Services. Working paper, available at https://dianamoreira.com (last accessed on December 1, 2020).

Aquino, Rosana, Nelson F De Oliveira, and Mauricio L Barreto (2009). Impact of the family health program on infant mortality in Brazilian municipalities. *American Journal of Public Health 99*(1), 87–93.

Avis, Eric, Claudio Ferraz, and Frederico Finan (2018). Do government audits reduce corruption? Estimating the impacts of exposing corrupt politicians. *Journal of Political Economy 126*(5), 1912–1964.

Barbosa, Klenio and Fernando V Ferreira (2019). Occupy government: Democracy and the dynamics of personnel decisions and public finances. NBER Working paper, available at https://www.nber.org/papers/w25501.pdf (last accessed on December 1, 2020).

Boas, Taylor C, F Daniel Hidalgo, and Marcus André Melo (2019). Norms versus action: Why voters fail to sanction malfeasance in brazil. *American Journal of Political Science 63*(2), 385–400.

Bolton, Alexander, John M De Figueiredo, and David E Lewis (2020). Elections, ideology, and turnover in the US federal government. *Journal of Public Administration Research and Theory, Forthcoming*.

Brassiolo, Pablo, Ricardo Estrada, and Gustavo Fajardo (2020). My (running) mate, the mayor: Political ties and access to public sector jobs in Ecuador. *Journal of Public Economics 191*, 104286.

Brito, Jerry and Veronique De Rugy (2009). Midnight regulations and regulatory review. *Administrative Law Review 61*, 163.

Cahan, Dodge (2019). Electoral cycles in government employment: Evidence from US gubernatorial elections. *European Economic Review 111*, 122–138.

Calonico, Sebastian, Matias D Cattaneo, and Max H Farrell (2020). Optimal bandwidth choice for robust bias-corrected inference in regression discontinuity designs. *The Econometrics Journal 23*(2), 192–210.

Calonico, Sebastian, Matias D Cattaneo, Max H Farrell, and Rocio Titiunik (2019). Regression discontinuity designs using covariates. *Review of Economics and Statistics 101*(3), 442–451.

Castro, Marcia C, Adriano Massuda, Gisele Almeida, Naercio Aquino Menezes-Filho, Monica Viegas Andrade, Kenya Valéria Micaela de Souza Noronha, Rudi Rocha, James Macinko, Thomas Hone, Renato Tasca, et al. (2019). Brazil's unified health system: The first 30 years and prospects for the future. *The Lancet 394*(10195), 345–356.

Cattaneo, Matias D, Nicolás Idrobo, and Rocío Titiunik (2019). *A practical introduction to regression discontinuity designs: Foundations*. Cambridge University Press.

Colonnelli, Emanuele, Mounu Prem, and Edoardo Teso (2020). Patronage and selection in public sector organizations. *American Economic Review 110*(10), 3071–99.

Dahlström, Carl and Mikael Holmgren (2019). The political dynamics of bureaucratic turnover. *British Journal of Political Science 49*, 823–836.

Davis, Lewis and KR White (2019). Is justice blind? Evidence from federal corruption convictions. *Public Choice*, 1–33.

Doherty, Kathleen M, David E Lewis, and Scott Limbocker (2019a). Executive control and turnover in the senior executive service. *Journal of Public Administration Research and Theory 29*(2), 159–174.

Doherty, Kathleen M, David E Lewis, and Scott Limbocker (2019b). Presidential control and turnover in regulatory personnel. *Administration & Society 51*(10), 1606–1630.

Eggers, Andrew C, Anthony Fowler, Jens Hainmueller, Andrew B Hall, and James M Snyder Jr (2015). On the validity of the regression discontinuity design for estimating electoral effects: New evidence from over 40,000 close races. *American Journal of Political Science 59*(1), 259–274.

Fearon, James D (1999). *Electoral accountability and the control of politicians: Selecting good types versus sanctioning poor performance*. Cambridge University Press.

Forrest, Christopher B and Anne W Riley (2004). Childhood origins of adult health: A basis for life-course health policy. *Health Affairs 23*(5), 155–164.

G1, (2012). Após as eleições, prefeituras demitem funcionários no RS. October 18, 2012. http://g1.globo.com/rs/rio-grande-do-sul/eleicoes/2012/noticia/2012/10/apos-eleicoes-prefeituras-demitem-funcionarios-no-rs.html (last accessed on December 1, 2020).

G1, (2016a). Prefeita demite funcionários e reduz ano letivo após não se reeleger no TO. October 18, 2016. http://g1.globo.com/to/tocantins/noticia/2016/10/prefeita-demite-funcionarios-e-reduz-ano-letivo-apos-nao-se-reeleger-no.html (last accessed on December 1, 2020).

G1, (2016b). Prefeitura de Porto Nacional faz demissão de funcionários em massa. October 4, 2016. http://g1.globo.com/to/tocantins/noticia/2016/10/prefeitura-de-porto-nacional-faz-demissao-de-funcionarios-em-massa.html (last accessed on December 1, 2020).

Gordon, Sanford C (2009). Assessing partisan bias in federal public corruption prosecutions. *American Political Science Review*, 534–554.

Hanushek, Eric A, Steven G Rivkin, and Jeffrey C Schiman (2016). Dynamic effects of teacher turnover on the quality of instruction. *Economics of Education Review 55*, 132–148.

Iyer, Lakshmi and Anandi Mani (2012). Traveling agents: political change and bureaucratic turnover in India. *Review of Economics and Statistics 94*(3), 723–739.

Kim, Bong Hwan and Sounman Hong (2019). Political change and turnovers: How do political principals consider organizational, individual, and performance information? *Public Choice 181*(3-4), 291–308.

Klašnja, Marko and Rocio Titiunik (2017). The incumbency curse: Weak parties, term limits, and unfulfilled accountability. *American Political Science Review 111*(1), 129–148.

Kraft, Matthew A, William H Marinell, and Darrick Shen-Wei Yee (2016). School organizational contexts, teacher turnover, and student achievement: Evidence from panel data. *American Educational Research Journal 53*(5), 1411–1449.

Kurfirst, Robert (1996). Term-limit logic: paradigms and paradoxes. *Polity 29*(1), 119–140.

Lambais, Guilherme and Henrik Sigstad (2020). Judicial subversion: The effects of political power on court outcomes. Working paper, available at https://gbrlambais.github.io (last accessed on December 1, 2020).

Lewis, David E (2008). *The politics of presidential appointments: Political control and bureaucratic performance*. Princeton University Press.

Litschig, Stephan and Yves Zamboni (2019). Judicial presence and rent extraction. Working paper, available at https://ideas.repec.org/p/ngi/dpaper/19-20.html (December 1, 2020).

Manin, Bernard (1997). *The principles of representative government*. Cambridge University Press.

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

Mendelson, Nina A (2003). Agency burrowing: Entrenching policies and personnel before a new president arrives. *New York University Law Review 78*, 557.

Ministério da Saúde, (2012a). *Atenção ao pré-natal de baixo risco*. Brasília: Governo Federal.

Ministério da Saúde, (2012b). *Caderno de atenção domiciliar*. Brasília: Governo Federal.

Ministério da Saúde, (2012c). *Cadernos da atenção básica: Saúde da criança*. Brasília: Governo Federal.

Ministério da Saúde, (2012d). *Política nacional de atenção básica*. Brasília: Governo Federal.

Nixon, Richard M (1978). *RN: The Memoirs of Richard Nixon*. New York: Grosset and Dunlap.

Peters, B Guy and Jon Pierre (2004). *The politicization of the civil service in comparative perspective: A quest for control*. Routledge.

Pierskalla, Jan H and Audrey Sacks (2019). Personnel politics: Elections, clientelistic competition and teacher hiring in indonesia. *British Journal of Political Science*, 1–23.

Poblete-Cazenave, Rubén (2020). Crime and punishment: Do politicians in power receive special treatment in courts? Evidence from India. Working paper, available at https://www.poblete-cazenave.com/research (last accessed on December 1, 2020).

Popper, Karl R (1962). *The Open Society And Its Enemies*. Princeton University Press.

Przeworski, Adam (1991). *Democracy and the market: Political and economic reforms in Eastern Europe and Latin America*. Cambridge University Press.

Przeworski, Adam (1999). Minimalist conception of democracy: A defense. In Ian Shapiro, Casiano Hacker-Cordón, et al. (Eds.), *Democracy's value*. Cambridge University Press Cambridge.

Reis, Thiago (2016). Saúde é o principal problema citado em todas as capitais, aponta Ibope. Globo. September 4, 2016. http://g1.globo.com/politica/eleicoes/2016/blog/eleicao-2016-em-numeros/post/saude-e-o-principal-problema-citado-em-todas-capitais-aponta-ibope.html (last accessed on December 1, 2020).

Rocha, Romero and Rodrigo R Soares (2010). Evaluating the impact of community-based health interventions: Evidence from Brazil's Family Health Program. *Health Economics 19*(S1), 126–158.

Ronfeldt, Matthew, Susanna Loeb, and James Wyckoff (2013). How teacher turnover harms student achievement. *American Educational Research Journal 50*(1), 4–36.

Schedler, Andreas (2001). Measuring democratic consolidation. *Studies in Comparative International Development 36*(1), 66–92.

Toral, Guillermo (2019a). The benefits of patronage: How the political appointment of bureaucrats can enhance accountability and effectiveness. Working paper, available at http://www.guillermotoral.com (last accessed on December 1, 2020).

Toral, Guillermo (2019b). Political bureaucratic cycles: How politicians manipulate employment ahead of elections, and why it matters for human development. Working paper, available at https://www.guillermotoral.com (last accessed on December 1, 2020).

Turner, Kathryn (1960). Midnight judges. *University of Pennsylvania Law Review 109*, 494.

Appendices

A 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 done between January of 2016 and June of 2019 I conduced 121 in-depth, semi-structured interviews with municipal bureaucrats and politicians, and with state-level horizontal accountability actors (like auditors and prosecutors).[42] I conducted these interviews in Portuguese, face-to-face, at the office of the interviewee, and with no audio recording device. 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.[43] Interviews were done in 45 municipalities in 7 states across 3 different regions of Brazil.[44] Interview locations were chosen to ensure variation in the political and socioeconomic contexts of fieldwork.

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.[45] 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.

[42] In-depth interviews were approved by MIT's Committee on the Use of Humans as Experimental Subjects under protocols 170593389 and 1806407144.

[43] 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.

[44] 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).

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

B 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.[46] Descriptive statistics for the data on municipal employees are reported in Table B.1. 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.[47] 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.

Table B.1: 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	99.16	6.60	0.67
2016	5480	98.40	6.42	0.67
2013	5499	98.74	6.50	0.64
2012	5513	99.08	6.09	0.65
2009	5497	98.80	5.61	0.64
2008	5481	98.51	5.33	0.65
2005	5459	98.13	4.41	0.66
2004	5387	96.91	4.06	0.69

Municipal governments (like all formal employers) are legally required[48] to report data for all its employees[49] to the Ministry of the Economy through the RAIS system. Yet, a minority of them (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.

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

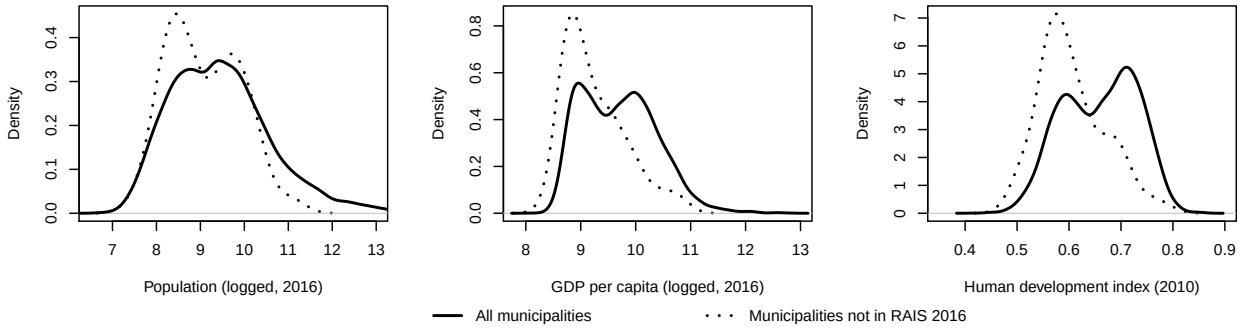
[47] This share is the same in the data about municipal employees collected through government surveys by the Brazilian Institute of Geography and Statistics (IBGE, *Instituto Brasileiro de Geografia e Estatística*).

[48] 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.

[49] Elected officials, interns, and very transitory workers (*eventuais*) are not considered employees for the purposes of RAIS.

To understand the kind of municipalities that are not reporting employment data to RAIS, I examine the 89 municipalities that do not show up in the data in 2016,[50] and compare them to all 5,569 municipalities.[51] As can be seen in Figure B.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 (Colonnelli et al., 2020; Barbosa and Ferreira, 2019), 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 B.1: Socioeconomic characteristics of municipalities not reporting employment data in 2016



[50]Results are similar when analyzing the municipalities not reporting data in 2004.
[51]I exclude Brasília because it does not have a municipal government.

C Raw outcome means, by whether the mayor wins the reelection

Mean of employment and healthcare outcomes, by whether the incumbent wins or loses the reelection, regardless of their vote margin.

Figure C.2: Outcome means on bureaucratic turnover, by whether the mayor wins the reelection

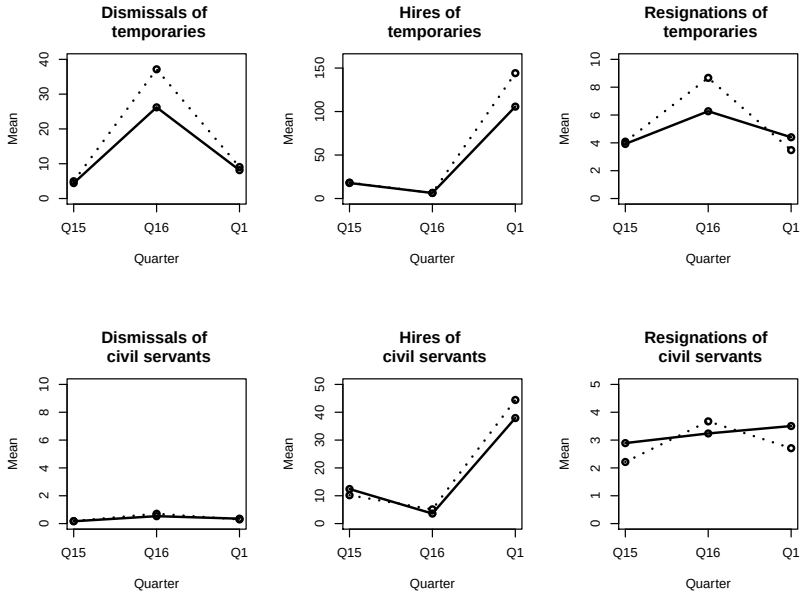
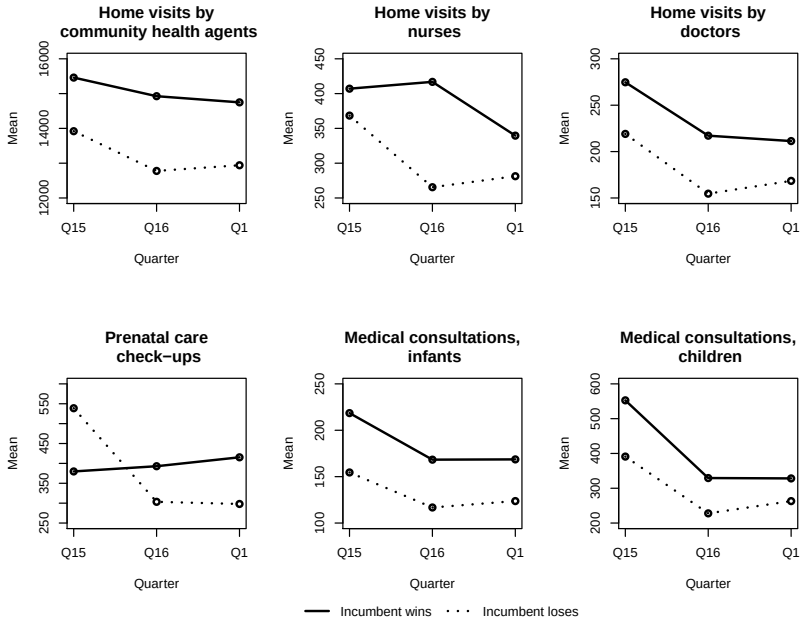


Figure C.3: Outcome means on healthcare service delivery, by whether the mayor wins the reelection



D Continuity of the forcing variable

Figure D.4: Histogram of the forcing variable

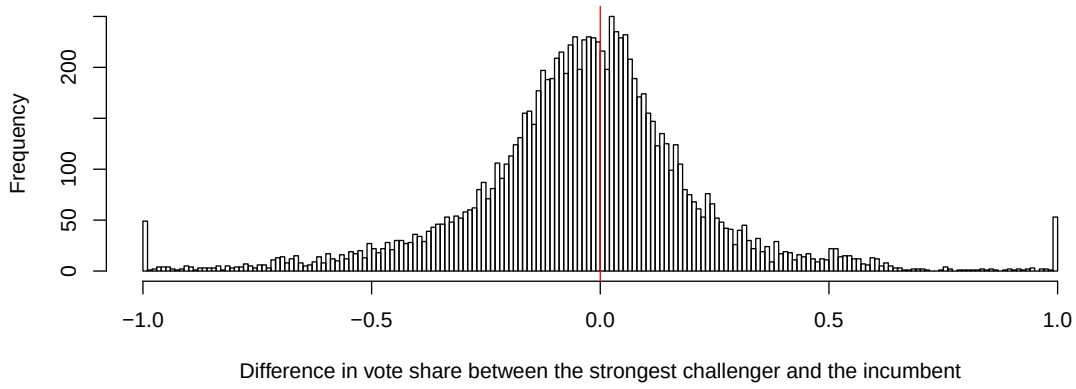
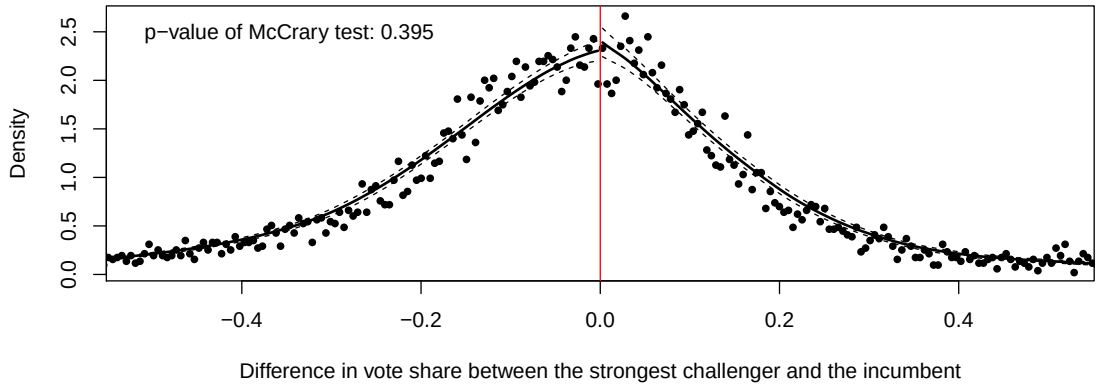


Figure D.5: Density of the forcing variable and McCrary (2008) discontinuity test



E Continuity of pre-treatment covariates

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

Table E.2: Effect an electoral defeat of the incumbent on pre-treatment covariates: Socioeconomics

	Population	GDP	GDP per capita	Deaths	Deaths per thousand
Incumbent defeated	0.078	0.126	0.07	0.049	-0.036
	(0.067)	(0.088)	(0.05)	(0.07)	(0.093)
Bandwidth	0.154	0.135	0.136	0.148	0.217
Observations	5952	5442	5458	5822	7291

Table E.3: Effect an electoral defeat of the incumbent on pre-treatment covariates: Bureaucracies

	Number of bureaucrats	Bureaucrats per capita	Share civil servants
Incumbent defeated	0.058	-0.001	-0.006
	(0.062)	(0.001)	(0.019)
Bandwidth	0.156	0.192	0.153
Observations	5911	6750	5827

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

	Turnout	Concentration	PT	MDB	PSDB	Large	Aligned
Incumbent defeated	-0.006	0	0.002	0.019	-0.021	-0.004	0.016
	(0.008)	(0.004)	(0.018)	(0.025)	(0.021)	(0.029)	(0.02)
Bandwidth	0.135	0.165	0.166	0.146	0.168	0.186	0.179
Observations	5418	6268	6298	5777	6347	6764	6608

*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 Healthcare 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. Incumbent party is the party the mayor ran with in the previous election, as reported by TSE. Large corresponds to a mayor who belongs to either PT, MDB, or PSDB. Aligned corresponds to a mayor who belongs to the party of Brazil's president.

F Regression tables for results shown in Figures 1 and 2

F.1 Effects of electoral turnover on bureaucratic turnover

Table F.5: Effect an electoral defeat of the incumbent on dismissals of public employees

	Temporaries			Civil servants		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.079	0.351***	-0.024	-0.011	-0.006	-0.008
	(0.042)	(0.085)	(0.057)	(0.017)	(0.026)	(0.017)
Bandwidth	0.127	0.166	0.176	0.146	0.187	0.215
Observations	5096	6191	6377	5652	6649	7079

Table F.6: Effect an electoral defeat of the incumbent on hires of public employees

	Temporaries			Civil servants		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.046	0.047	0.689***	-0.049	0.265***	-0.087
	(0.055)	(0.047)	(0.095)	(0.06)	(0.052)	(0.098)
Bandwidth	0.172	0.164	0.183	0.169	0.168	0.145
Observations	6319	6137	6519	6264	6236	5595

Table F.7: Effect an electoral defeat of the incumbent on resignations of public employees

	Temporaries			Civil servants		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.027	0.3***	0.06	-0.043	0.099*	-0.013
	(0.036)	(0.056)	(0.05)	(0.032)	(0.04)	(0.041)
Bandwidth	0.187	0.124	0.124	0.19	0.197	0.192
Observations	6649	5008	4953	6714	6852	6695

*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 natural-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.

F.2 Effects of electoral turnover on public service delivery

Table F.8: Effect an electoral defeat of the incumbent on home visits by community health agents (CHAs) and by nurses

	Home visits by CHAs			Home visits by nurses		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.01	-0.095	-0.096	-0.049	-0.286***	-0.052
	(0.054)	(0.061)	(0.082)	(0.06)	(0.07)	(0.08)
Bandwidth	0.119	0.165	0.182	0.138	0.14	0.161
Observations	3664	4648	4953	4072	4130	4535

Table F.9: Effect an electoral defeat of the incumbent on home visits by doctors and prenatal care check-ups

	Home visits by doctors			Prenatal care check-ups		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	-0.031	-0.494***	-0.07	-0.029	-0.147**	-0.159*
	(0.055)	(0.087)	(0.088)	(0.055)	(0.052)	(0.073)
Bandwidth	0.213	0.106	0.152	0.167	0.22	0.158
Observations	5338	3320	4357	4660	5424	4461

Table F.10: Effect an electoral defeat of the incumbent on medical consultations

	Consultations with infants			Consultations with children		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	-0.085	-0.215***	0.039	-0.12*	-0.265***	0.033
	(0.057)	(0.059)	(0.069)	(0.058)	(0.068)	(0.064)
Bandwidth	0.148	0.168	0.16	0.145	0.139	0.197
Observations	4284	4681	4494	4209	4094	5146

*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 natural-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.

G Regression tables omitting controls

G.1 Effects of electoral turnover on bureaucratic turnover, omitting controls

Table G.11: Effect an electoral defeat of the incumbent on dismissals of public employees

	Temporaries			Civil servants		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.112	0.487***	0.04	-0.008	-0.006	-0.006
	(0.063)	(0.117)	(0.07)	(0.018)	(0.026)	(0.019)
Bandwidth	0.137	0.145	0.161	0.148	0.197	0.176
Observations	5405	5625	6063	5723	6857	6456

Table G.12: Effect an electoral defeat of the incumbent on hires of public employees

	Temporaries			Civil servants		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.039	0.068	0.733***	-0.073	0.236***	-0.096
	(0.094)	(0.073)	(0.122)	(0.08)	(0.062)	(0.104)
Bandwidth	0.144	0.139	0.16	0.167	0.172	0.158
Observations	5612	5461	6024	6223	6331	5991

Table G.13: Effect an electoral defeat of the incumbent on resignations of public employees

	Temporaries			Civil servants		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.076	0.352***	0.09	0	0.11*	0.012
	(0.064)	(0.075)	(0.064)	(0.049)	(0.051)	(0.057)
Bandwidth	0.142	0.128	0.127	0.171	0.178	0.137
Observations	5537	5131	5111	6315	6478	5414

*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 but omit controls. Dependent variables are in the natural-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.

G.2 Effects of electoral turnover on public service delivery

Table G.14: Effect of an electoral defeat of the incumbent on home visits by community health agents (CHAs) and by nurses

	Home visits by CHAs			Home visits by nurses		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.035	-0.094	-0.107	0.062	-0.248*	-0.03
	(0.137)	(0.132)	(0.129)	(0.125)	(0.107)	(0.115)
Bandwidth	0.146	0.176	0.196	0.146	0.223	0.203
Observations	4256	4837	5150	4256	5459	5238

Table G.15: Effect of an electoral defeat of the incumbent on home visits by doctors and prenatal care

	Home visits by doctors			Prenatal care check-ups		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.05	-0.388**	-0.068	0.078	-0.068	-0.078
	(0.118)	(0.145)	(0.119)	(0.124)	(0.119)	(0.129)
Bandwidth	0.177	0.132	0.193	0.2	0.218	0.183
Observations	4852	3928	5080	5205	5402	4946

Table G.16: Effect of an electoral defeat of the incumbent on medical consultations

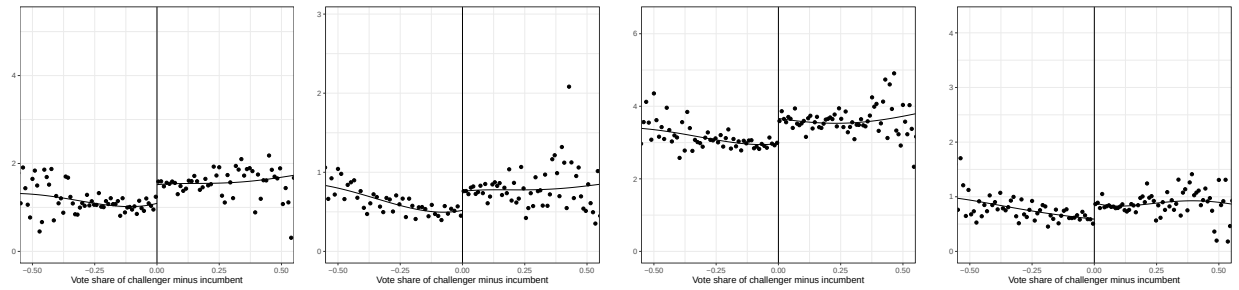
	Consultations with infants			Consultations with children		
	Q15	Q16	Q1	Q15	Q16	Q1
Incumbent defeated	0.023	-0.179	0.05	0.002	-0.237*	0.031
	(0.103)	(0.11)	(0.105)	(0.111)	(0.119)	(0.107)
Bandwidth	0.194	0.173	0.194	0.179	0.162	0.199
Observations	5103	4766	5095	4869	4555	5177

*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 but omit controls. Dependent variables are in the natural-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.

H Regression discontinuity plots for the main results

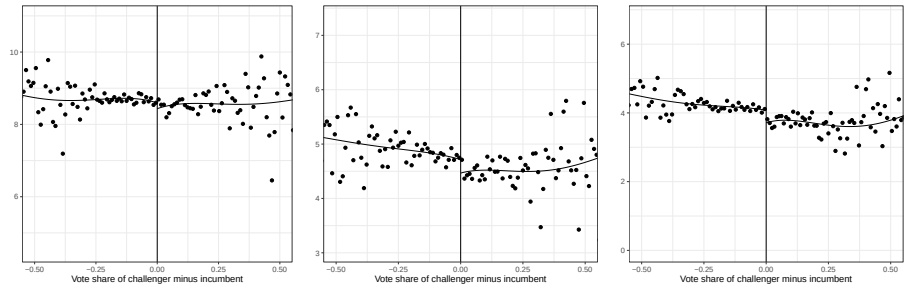
This Appendix presents the regression discontinuity plots (without covariate adjustment) for the main results. Plots for all other outcomes are available from the author.

Figure H.6: RD plots for the main results in Figure 1

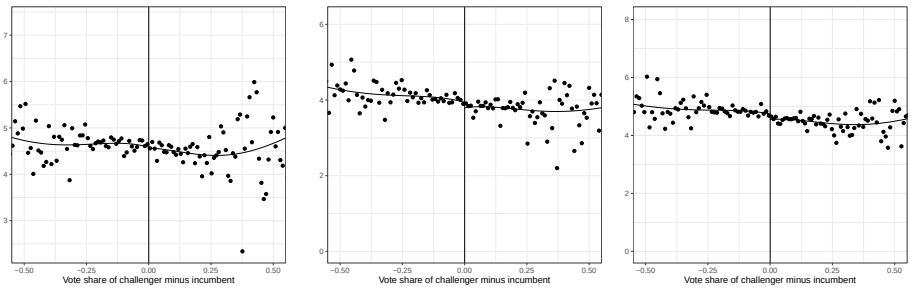


(a) Dismissals of temporaries in Q16 (b) Hires of civil servants in Q16 (c) Hires of temporaries in Q1 (d) Resignations of temporaries in Q16

Figure H.7: RD plots for the main results in Figure 2



(a) Home visits by health agents in Q16 (b) Home visits by nurses in Q16 (c) Home visits by doctors in Q16



(d) Prenatal care check-ups in Q16 (e) Medical consultations, infants in Q16 (f) Medical consultations, children in Q16

Dependent variables are in the natural log scale

I 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 I.17: Characterization of the regression discontinuity effective sample

	Mayor runs, 15 points	Mayor runs, 10 points	All, 15 points	All, 10 points
Population (logged)	-0.033^{***}	-0.022^{***}	-0.010^{***}	-0.007^{**}
	(0.004)	(0.005)	(0.003)	(0.002)
GDP per capita (logged)	-0.032^{***}	-0.018	-0.017^{**}	-0.010^{*}
	(0.009)	(0.009)	(0.006)	(0.005)
Deaths per capita	4.593	5.991	3.346	3.688^{*}
	(3.152)	(3.160)	(1.928)	(1.729)
Region fixed effects				
North	-0.042^{*}	-0.040^{*}	-0.004	-0.008
	(0.019)	(0.020)	(0.012)	(0.011)
South	0.023	0.016	-0.024^{*}	-0.018
	(0.018)	(0.019)	(0.011)	(0.010)
Southeast	-0.090^{***}	-0.089^{***}	-0.043^{***}	-0.043^{***}
	(0.015)	(0.015)	(0.009)	(0.008)
Center-west	-0.018	-0.039	0.002	-0.011
	(0.021)	(0.021)	(0.013)	(0.012)
Constant	1.189^{***}	0.799^{***}	0.482^{***}	0.320^{***}
	(0.077)	(0.077)	(0.047)	(0.042)
Election fixed effects	Yes	Yes	Yes	Yes
Observations	10169	10169	21903	21903
R-squared	0.020	0.013	0.006	0.005

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

J Robustness of the main results to alternative bandwidths

To check the robustness of the results to alternative bandwidths, I replicate the results using as estimation bandwidth values from 0.05 to 0.4 (at intervals of 0.005).[52] I focus here on the most relevant findings, but results for all other outcomes are available from the author.

Figure J.8: Robustness of the main results in Figure 1 to alternative bandwidths

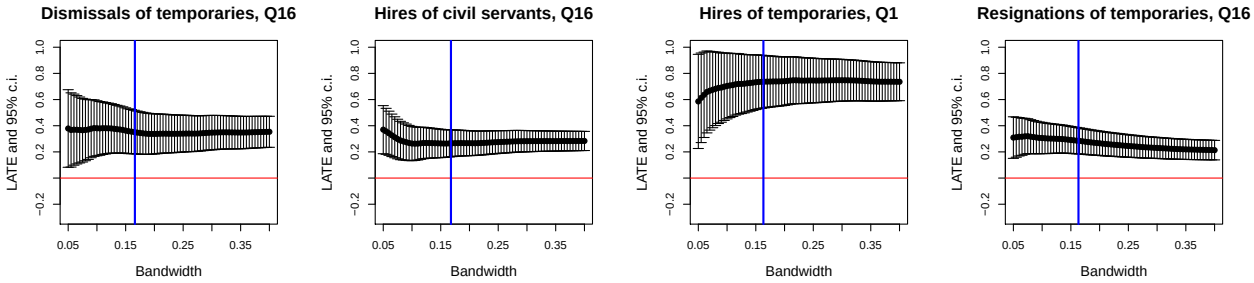
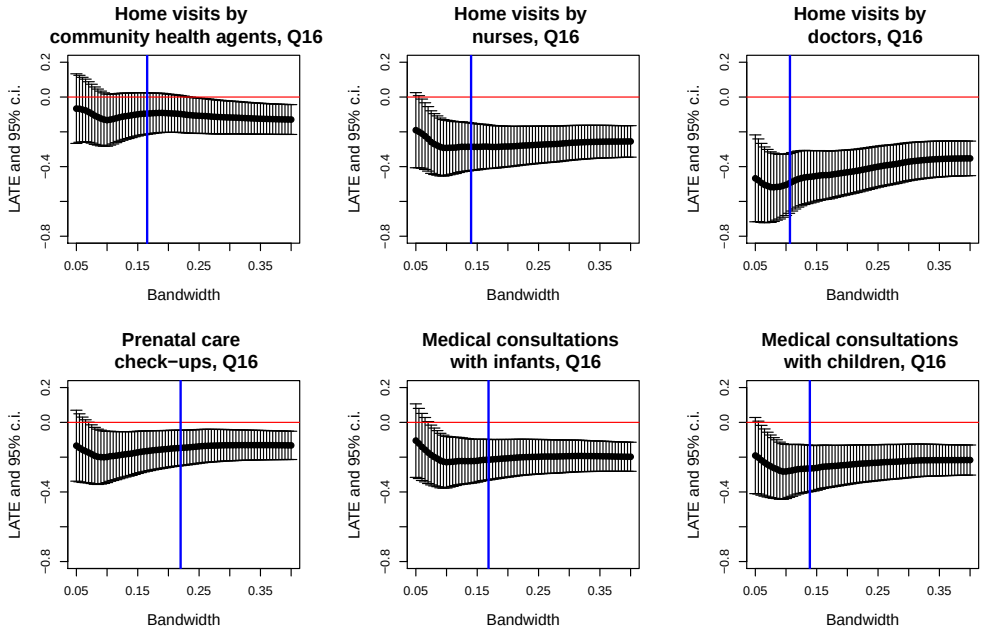


Figure J.9: Robustness of the main results in Figure 2 to alternative bandwidths



Vertical blue lines indicate the optimal bandwidth

[52]The robust bias-corrected estimation of Cattaneo et al. (2019) uses two bandwidths: an estimation bandwidth, and a bias-correction bandwidth. For this exercise, I use a bias-correction bandwidth equal to the chosen estimation bandwidth multiplied by the ratio of the estimation bandwidth to the bias-correction bandwidth in the main model where both are determined by the algorithm.

K 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 1 of 60 placebo tests returns statistically significant results, which is within what we would expect with $\alpha = 0.05$.

Figure K.10: Placebo tests varying the RD threshold for the main results in Figure 1

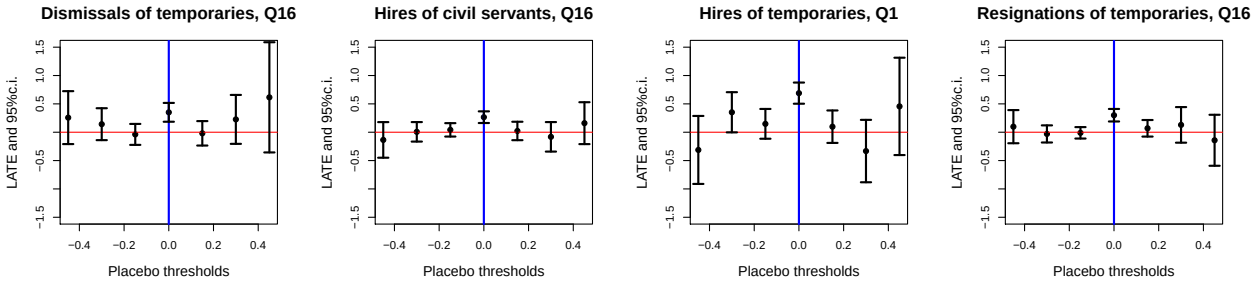
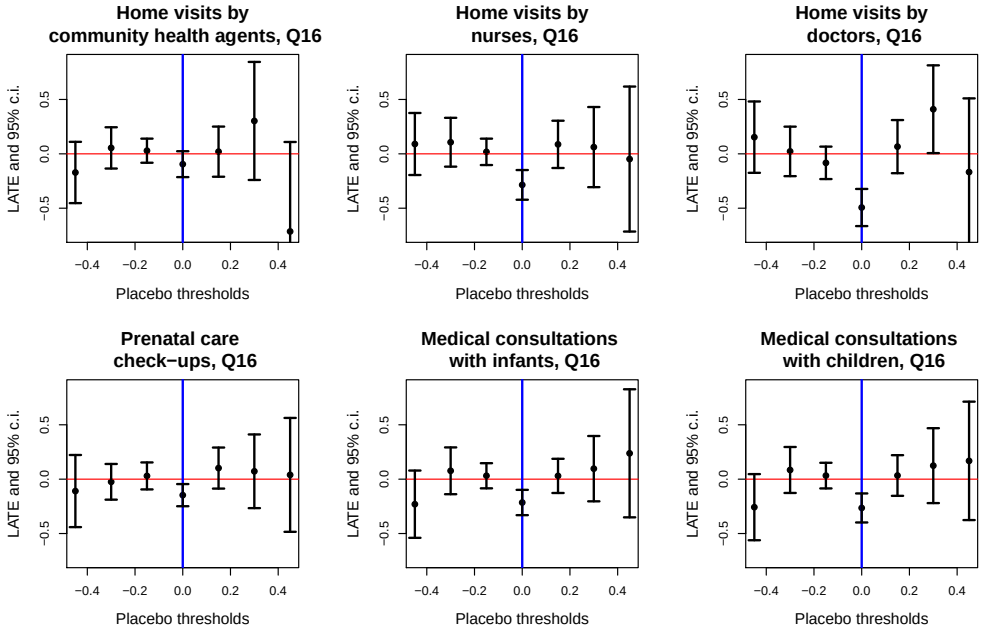


Figure K.11: Placebo tests varying the RD threshold for the main results in Figure 2



Vertical blue lines indicate the actual RD threshold

L 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 L.12: Effect of an electoral defeat of the incumbent on bureaucratic turnover among low-pay bureaucrats

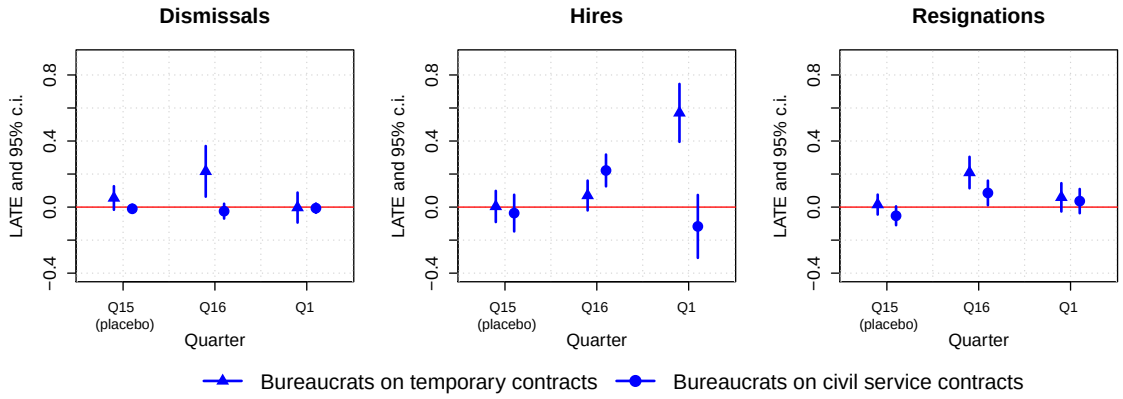
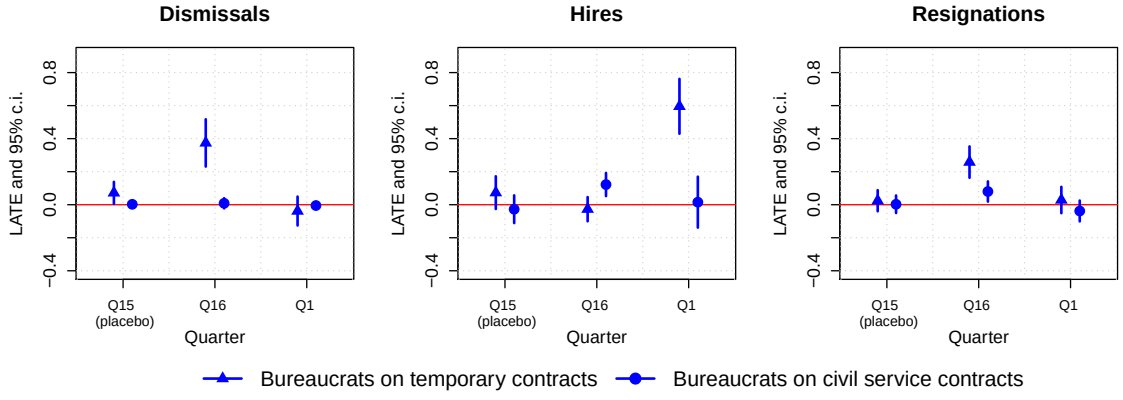


Figure L.13: Effect of an electoral defeat of the incumbent on bureaucratic turnover among high-pay bureaucrats

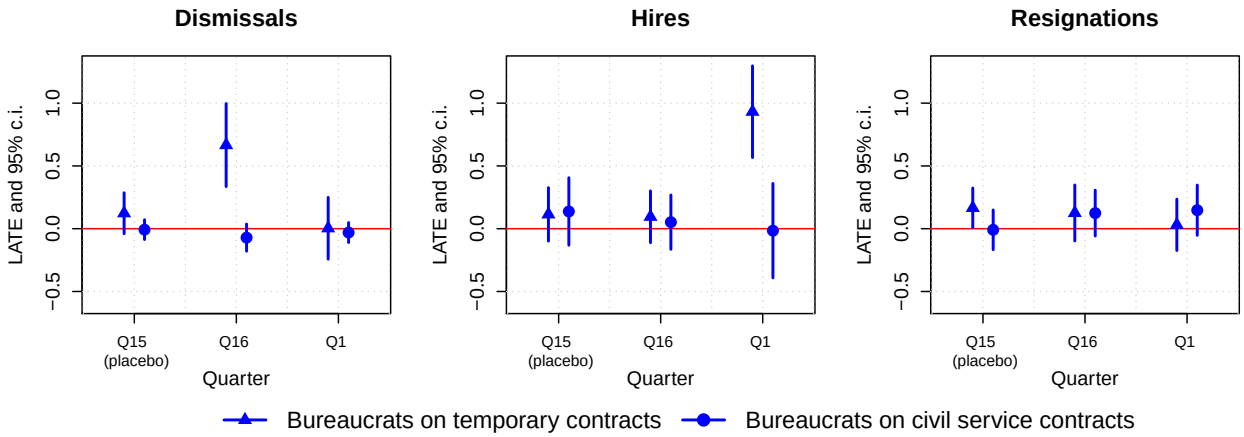


Each point and its robust bias-corrected confidence interval comes from a separate local linear regression discontinuity model, as per Equation 2. The dependent variable is in the natural-log scale. Q15 corresponds to the 15th quarter of a mayor's mandate (i.e., July through September of its last year). 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.

M 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 1, except for the larger confidence intervals resulting from a smaller sample.[53] 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 M.14: Effect of an electoral defeat of the incumbent on bureaucratic turnover in municipalities where the incumbent belongs to a large programmatic party



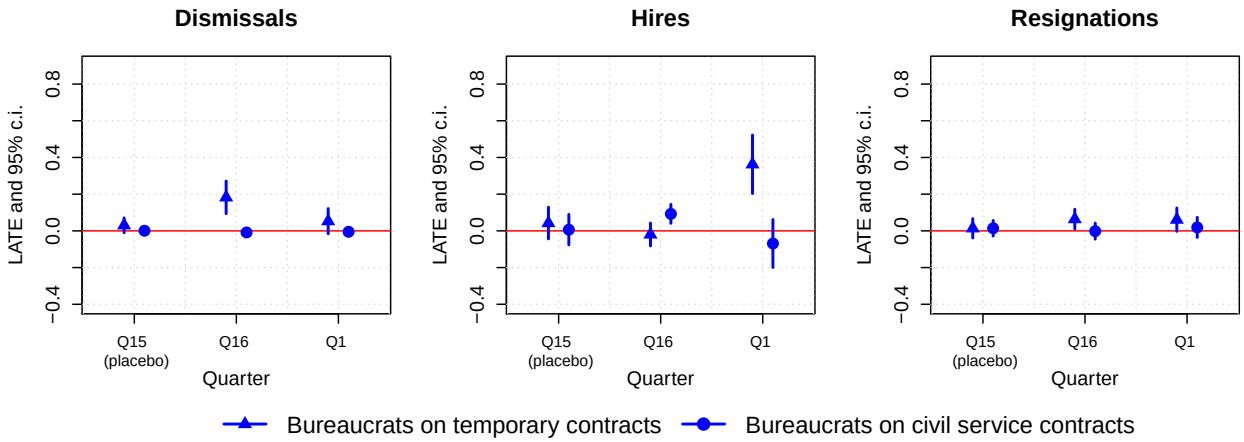
Each point and its robust bias-corrected confidence interval comes from a separate local linear regression discontinuity model, as per Equation 2. The dependent variable is in the natural-log scale. Q15 corresponds to the 15th quarter of a mayor's mandate (i.e., July through September of its last year). 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.

[53] 23% of the cases where the mayor runs for reelection have a mayor who was elected in a PT or a PSDB ticket.

N 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 employees with an occupation code corresponding to specialized healthcare jobs ranges from 12% in 2004 to 16% in 2017.

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



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 natural-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.

Among employees identified as healthcare professionals, the effects of an electoral defeat of the incumbent appear less pronounced than among the whole set of bureaucrats. In particular, electoral turnover leads to an increase of 19.7% in the dismissal of temporary workers in the last quarter of the loser's mandate ($p < 0.001$), an increase of 9.6% in the hiring of civil servants in that same quarter ($p < 0.001$), and an increase of 43.9% in the hiring of temporaries in the first quarter of the winner's ($p < 0.001$). All other effects are statistically insignificant.

O 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 3 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 O.18: 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^{***}	-0.002^{**}
	(0.003)	(0.002)	(0.002)
GDP per capita (logged)	-0.058^{***}	0.041^{***}	-0.033^{**}
	(0.005)	(0.004)	(0.005)
Deaths per capita	-7.487^{***}	5.905^{***}	-2.959
	(1.815)	(1.351)	(1.526)
Region fixed effects			
North	-0.109^{***}	0.024^{**}	-0.109^{*}
	(0.012)	(0.009)	(0.010)
South	-0.032^{**}	-0.058^{***}	-0.024^{**}
	(0.011)	(0.008)	(0.009)
Southeast	-0.100^{***}	0.051^{***}	-0.140^{**}
	(0.009)	(0.007)	(0.007)
Center-west	0.011	-0.101^{***}	0.061^{*}
	(0.013)	(0.010)	(0.011)
Constant	1.302^{***}	-0.100^{**}	1.015^{*}
	(0.045)	(0.034)	(0.038)
Election cycle fixed effects	Yes	Yes	Yes
Observations	20699	20699	20699
R-squared	0.065	0.038	0.050

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

P Heterogeneity of effects by GDP per capita

This Appendix explores how results in Figures 1 and 2 differ by municipality wealth, an in particular by whether the local GDP per capita is above or below the median for a given year. Results below show that wealthier municipalities experience similar dynamics of bureaucratic turnover (in fact they appear to see more dismissals in the last quarter of the election year as a result of the election), yet moderated or insignificant declines in healthcare service delivery.

Figure P.16: Effect of an electoral defeat of the incumbent on bureaucratic turnover, by whether the municipality's GDP per capita is below or above the median for that year

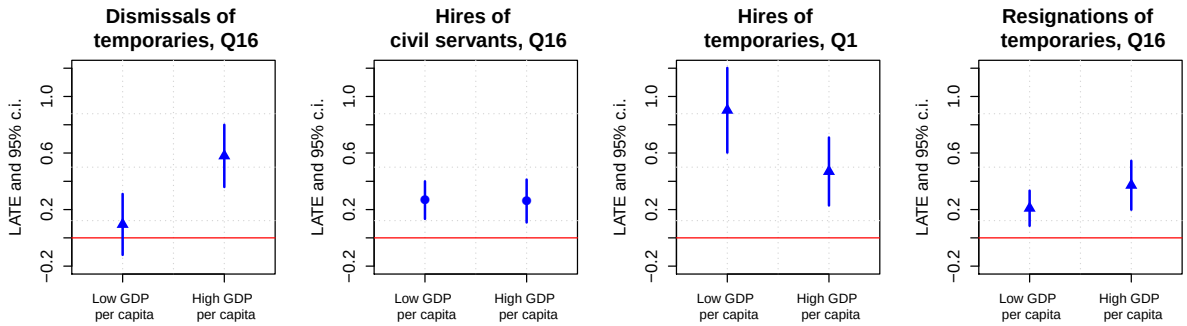
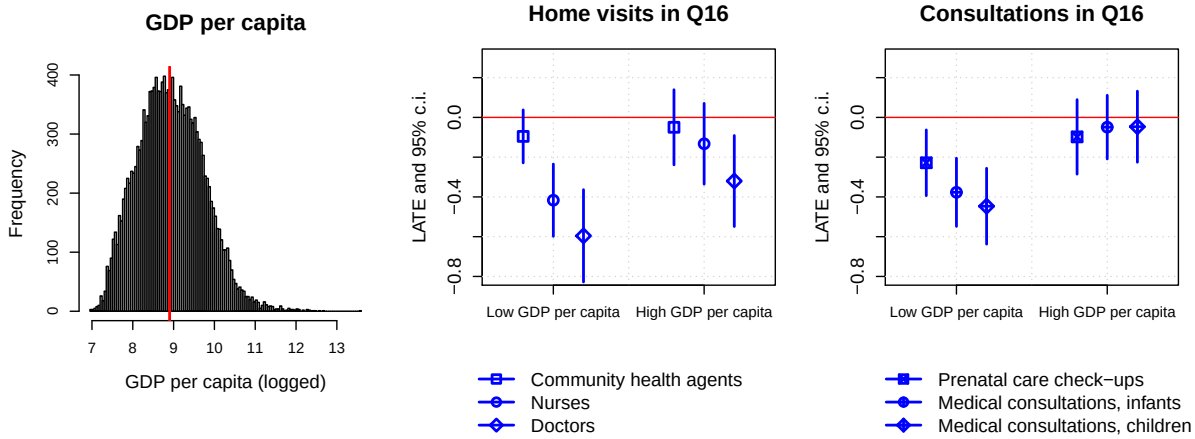


Figure P.17: Effect of an electoral defeat of the incumbent on the delivery of healthcare services, by whether the municipality's GDP per capita is below or above the median for that year



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 natural-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.

Q Heterogeneity of effects by population

In contrast to GDP per capita, there is no discernible heterogeneity by population: observations below and above the median municipality population for a given year experience remarkably similar effects.

Figure Q.18: Effect of an electoral defeat of the incumbent on bureaucratic turnover, by whether the municipality's population is below or above the median for that year

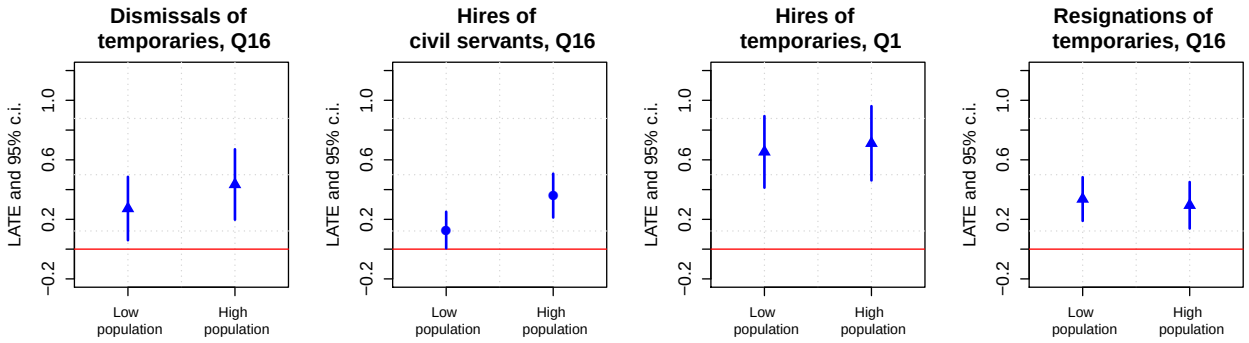
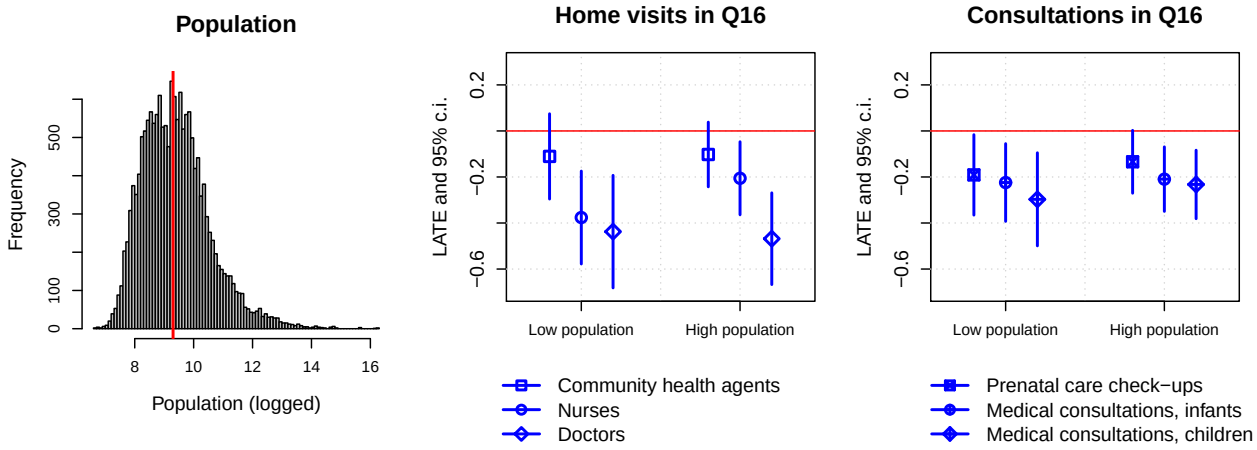


Figure Q.19: Effect of an electoral defeat of the incumbent on the delivery of healthcare services, by whether the municipality's population is below or above the median for that year



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 natural-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.