Political bureaucratic cycles: Public employment and service delivery around elections in Brazil*

Guillermo Toral†

September 12, 2022

Latest version here

Abstract

A vast literature on political cycles has shown that politicians often manipulate policy tools ahead of elections to win votes. Yet much less is known about the effects of policies designed to contain these cycles. I argue that legal constraints on politicians' discretion over inputs like spending or hiring ahead of elections simply displace –and can even exacerbate– such cycles. I demonstrate these unintended consequences using large, monthly panels of Brazilian municipalities to measure cycles in bureaucratic inputs (hires) and outputs (services). Brazilian laws ban hiring and firing bureaucrats in a 6-month period around elections, which take place at the same time throughout the country. Hiring decreases during this freeze period, but there is an uptick in hiring in the months before the ban for both temporary and civil service bureaucrats. These patterns are even more pronounced in localities that experience a randomized anti-corruption audit. Healthcare services also follow cyclical patterns: some services expand ahead of elections (at the expense of others), but services generally contract immediately before and after elections. Together, these results suggest that constraints on politicians' discretion over inputs around elections displace rather than eliminate electoral cycles, and can have other unintended consequences.

*I am indebted to Ben Ross Schneider, Lily Tsai, and Daniel Hidalgo for invaluable advice and guidance throughout the project. For helpful comments I also thank Lorena Barberia, Lucas Borba, Natália Bueno, Josh Clinton, Sergio Galaz, Malu Gatto, Mariella Gonzales, Nina McMurry, Jonathan Philips, Tesalia Rizzo, Guilherme Russo, Lukas Wolters, and Eleanor Woodhouse; seminar participants at MIT, FGV São Paulo, FGV Rio / EBAPE, King's College London, and Vanderbilt; and conference participants at LASA, MPSA, and REPAL. I gratefully acknowledge financial support from the Lemann Foundation for fieldwork. Cedric Antunes provided excellent research assistance. Any errors are my own.

†Assistant Professor of Political Science, IE University: guillermo.toral@ie.edu.

Introduction

For decades, political scientists and economists have studied how politicians' manipulation of policies in the run-up to elections creates cycles in economic outcomes or government policy. The basic insight of this literature is that incumbent politicians change policy right before elections to increase their chances of staying in office, thus leading to economically suboptimal policy choices that unsmooth government spending and economic activity (Nordhaus, 1975). This generates what are called political business cycles (related to economic output) or political budget cycles (related to government policy tools like spending).[1] Franzese (2002) and Dubois (2016) review this extensive literature.[2]

While this established research agenda has accumulated a significant body of formal models and empirical results demonstrating that politicians often manipulate policy ahead of elections – at least when they have the incentives and ability to do so (Alt and Rose, 2009)–, much less is known about the effectiveness of policies designed to contain these cycles. Politicians are often constrained by laws that seek to contain electoral cycles in policy tools like spending, debt, or hiring. For example, Colombia's electoral law forbids most private sector procurement in the 4 months leading to elections, and Peru's fiscal prudence law establishes stricter limits on spending and deficit for the first semester of an electoral year. Do these limits successfully constrain electoral cycles in policy tools? How do they affect policy outputs?[3]

I address these questions by examining *political bureaucratic cycles* –cycles in public employment and in the activities government workers perform. Focusing on the bureaucracy has three main advantages. First, public employment is one of the largest spending categories for governments around the world: on average, the government payroll comprises a quarter of government spending (International Monetary Fund, 2016). Second, the political use of public employment is ubiquitous (Grindle, 2012), and politicians can use hiring towards a variety of political objectives,

[1] I focus on cycles caused (at least partly) by politicians' actions around elections, but some electoral cycles are not driven by government actions (Block and Vaaler, 2004), and some political cycles are not driven by elections (Guo, 2009).

[2] A related, more recent literature examines increases in government activity ahead of elections, which are often interpreted as a sign of government responsiveness (Lueders, 2021; Dipoppa and Grossman, 2020; Christensen and Ejdemyr, 2020).

[3] Studies of political budget cycles in US states (Rose, 2006) and across countries (Gootjes et al., 2021) have shown that fiscal rules dampen increases in pre-electoral spending. However, these studies examine general rules that apply year after year, whereas I focus on rules specific to the electoral calendar.

including mobilizing voters, rewarding supporters, and expanding public services ahead of elections (Toral, 2020). These two features imply that electoral cycles in public employment are likely to have important effects in both the fiscal and political realms. Constraining political bureaucratic cycles may thus be particularly important for protecting fiscal prudence and fairness in electoral competition between incumbent and opposition parties. The third advantage is that focusing on the bureaucracy allows us to simultaneously examine cycles in inputs (e.g., hiring) and outputs (e.g., public services).

Empirically, I study political bureaucratic cycles in Brazilian municipalities, leveraging detailed administrative data on public employment and healthcare services over several election cycles. Brazil, like other middle-income countries, prohibits hiring and firing employees in the period from 3 months before to 3 months after elections. This policy is designed to protect fiscal discipline and level the playing field between incumbent candidates and their challengers'. I exploit the exogenous timing of elections (which are held every 4 years on the first Sunday of October) and the 6-month "freeze period" during which politicians are generally not allowed to hire or fire to identify political bureaucratic cycles. I use large, balanced panels of between $\sim$0.5 to 1 million municipality-month observations, with month fixed effects (to control for seasonality) and municipality-year fixed effects (to finely control for local conditions) to measure how public employment and service delivery systematically fluctuate around elections.

The results demonstrate that hiring decreases during the freeze period, in compliance with the legal constraints on hiring around elections. However, it expands before and after the freeze period. This is consistent with politicians responding strategically to both electoral incentives and legal constraints, and simply moving election-related hiring up rather than refraining from it. Hiring follows similar cyclical patterns for low-skilled, professional, and managerial positions. While these patterns are more pronounced for temporary hiring, I find similar patterns for civil service hires. This finding suggests that civil service hiring may not be as insulated from political influence as is commonly assumed, and draws attention to the relevance of politicians' discretion over the timing of civil service hires.

Heterogeneity analyses show that hiring cycles have intensified over time (as rules have become stricter and their enforcement has strengthened), and that municipalities randomly exposed to federal anti-corruption audits (which increase the salience and improve the enforcement of rules) further boost these employment cycles. Together, these results suggest that, rather than eliminating cycles, legal constraints on policy tools displace–and even exacerbate–them.

I also detect cycles in public service delivery. Some healthcare services (such as medical consultations or household visits by community health agents) expand before elections, which is consistent with politicians using service delivery to signal their policy priorities or competence to voters. Other services (like household visits by doctors), however, contract during the same period, and all of them tend to decrease starting 1 month before the election. These patterns suggest that there are important trade-offs (between government services, and across time) in election-driven government responsiveness.

This paper makes three main contributions to the literature on electoral cycles. First, it advances our understanding of the promises and pitfalls of policies designed to contain them by constraining politicians' discretion around elections – a topic that previous studies have generally overlooked. By demonstrating that these constraints displace –rather than eliminate– cycles, this paper draws attention to politicians' strategic responses to anti-cyclical policies and the unintended consequences of constraints. In a second contribution, by leveraging month-level panels and uncovering detailed patterns of expansion and contraction in outcomes during the electoral calendar, this paper draws attention to the month-to-month temporal dynamics of electoral cycles, which year- or quarter-level analyses tend to obscure.[4] Third, by examining randomly assigned anti-corruption audits, this paper identifies the causal effect of context on cycles, thus improving on previous studies of heterogeneity in cycles, which tend to rely on splitting the sample or interacting time periods with endogenous covariates (De Haan and Klomp, 2013).[5]

Theory

I argue that legal constraints that limit politicians' discretion over public employment near elections displace, rather than eliminate, political bureaucratic cycles. These cycles result from the strategic behavior of politicians who are office-motivated yet have their choices constrained (significantly but not completely) by legal and fiscal limits.

Politicians' incentives to expand public employment ahead of elections are likely to be particu-

[4] Labonne (2016) uses both yearly and quarterly data to show that the more aggregated data can hide important fluctuations around elections.

[5] In a separate paper, I use a regression discontinuity design to examine another key source of heterogeneity in political bureaucratic cycles – whether the incumbent wins or loses their bid for re-election (Toral, 2022).

larly high in low- and middle-income contexts. In less developed contexts, which have fewer private sector job opportunities than wealthier contexts, public jobs constitute a valuable political currency. Governments in less developed contexts also have less state capacity to distribute other benefits (such as human development services or infrastructure works) that citizens may value but require more planning, capacity, and coordination with other actors such as higher levels of government or private firms. Government jobs are particularly useful ahead of elections because they are targetable and (when temporary) reversible (Robinson and Verdier, 2013), which helps solve the double credibility issue of clientelistic exchanges (Stokes et al., 2013). However, expanding public employment entails not only distributing income to beneficiaries but also expanding the government's labor force, and thus its ability to distribute public goods and services in a more programmatic manner.

For cycles in public employment to occur, politicians must have some discretion over hiring. They have less –but often some– discretion in relation to civil service hiring: while politicians may not be able to choose *who* gets a job, they can often determine *how many* civil servants are hired, and when. This counters the common assumption that civil service hiring is insulated from political influence.

Given the political value of public employment and politicians' discretion over hiring and firing, some countries have established strict rules limiting their discretion in this area (Table 1).[6] These constraints typically establish a time window before and after elections during which politicians are not allowed to hire, dismiss, and/or transfer bureaucrats. The rationale of these laws is often to protect fiscal discipline or candidates' equality of opportunity. This mirrors other constraints that countries have established on other policy tools such as government spending, public debt, or deficits.

Table 1: Legal constraints on hiring around elections

Country	Limit on hiring around elections	Period	Legal instrument
Brazil	No hiring, firing, or transfers	Last 6 months of mandate	Law 9504 (1997)
Colombia	No hiring or firing	4 months before the election	Law 996 (2005)
Philippines	No hiring, promotion, or salary increases	45 days before the election	Election Code (1985)
Uruguay	No hiring of civil servants	Last 12 months of mandate	Law 16127 (1990)

I argue that these temporal limits on politicians' discretion over policy tools around elections

[6]In other cases, pre-election constraints on hiring are not codified into law. For example, the Electoral Commission of Pakistan temporarily banned hiring ahead of the 2018 elections. The ban was challenged in court and later lifted.

displace, rather than eliminate, the cycles they seek to contain. Where electoral incentives are strong enough, politicians will respond to these constraints by anticipating the expansion in hiring. Moreover, I argue that by limiting human resources management, these constraints can generate unintended consequences in terms of bureaucratic outputs.

Previous empirical research on political cycles in public employment has found mixed results. Some studies have identified a pre-election expansion of public employment in settings as diverse as Indonesian municipalities (Pierskalla and Sacks, 2019), US states (Cahan, 2019), Greek municipalities (Chortareas et al., 2017), Philippine municipalities (Labonne, 2016) and Finnish and Swedish municipalities (Dahlberg and Mörk, 2011). By contrast, Drazen and Eslava (2010) find that Colombian municipalities reduce payments to temporary workers in election years. Similarly, Tavares (2017) finds that non-tenure public employment and personnel expenditures fall in electoral years in Brazilian municipalities. This apparent contradiction is arguably driven by the fact that both Brazil and Colombia impose constraints on hiring around elections. In these settings, cycles are likely to be characterized by a sequence of expansion and then contraction of hiring in the pre-election period.

I focus on political bureaucratic cycles in both inputs (hires) and outputs (public services). I argue that the constraints on public employment around elections can depress public service delivery by limiting senior officials' ability to manage human resources at a time when delivering services may be particularly important for incumbents. At the same time, expansion in some services (plausibly those that are more visible to and/or valued by voters) may go hand in hand with a contraction in other services provided by the same bureaucrats.

The idea that policies that impose temporal constraints on politicians' discretion over policy tools can have unintended consequences builds on an insight from the early formal literature on electoral cycles. Rogoff noted that "efforts to curtail the cycle can easily reduce welfare, either by impeding the transmission of information or by inducing politicians to select more socially costly ways of signaling" (1990, 22).[7] Rogoff goes on to argue that "in practice, an incumbent has a wide array of fiscal actions with which he can signal, and it is not realistically possible to constrain him in all dimensions. If this is the case, then attempts to block signaling in one set of fiscal policy instruments will tend to exacerbate distortion in others. Indeed, attempts to suppress the political budget cycle may actually reduce the welfare of the representative citizen by inducing competent types to signal inefficiently" (Rogoff, 1990, 31).

[7] Tufte (1978, 149) put forward a similar idea.

Institutional setting

Brazilian local governments are an ideal setting in which to examine political bureaucratic cycles. Elections are held on a fixed schedule, bureaucracies are relatively large and responsible for delivering major public services (including education, healthcare, and social assistance), politicians have some discretion over public employment, and multiple laws constrain their use of this discretion around elections.

Brazilian municipalities hold elections every 4 years on the first Sunday of October.[8] State and federal elections are held every 4 years on a separate calendar, 2 years before and after municipal elections. Mayors are elected through a majoritarian system,[9] and city councilors are elected though a proportional, open-list system. Since 1997, mayors can run for reelection only once. Local elections are generally competitive – almost half (about 49%) of the incumbents who ran in 2016 were defeated. There are currently 5,570 municipalities,[10] most of which are small and poor.[11]

Municipal governments have a relatively large workforce because they are responsible for providing primary services in healthcare, education, and social assistance. In 2016, the average municipal government hired 4.9% of the local population and 38.2% of those employed in the formal labor market. Municipal employees enjoy a wage premium relative to the private sector (Colonnelli et al., 2019, 3090), as in other developing contexts (Finan et al., 2017). Mayors and the secretaries they appoint have some discretion over the hiring and firing of bureaucrats in all policy areas. Such discretion differs significantly between the civil service and other hiring modes with fewer employment protections.

Civil servants make up about two-thirds of the municipal labor force. The federal constitution requires all permanent staffing needs to be filled with civil service contracts. Candidates with the best performance on competitive examinations are eligible for a position, which has lifetime

[8]The rule was established in 1997, and has applied to all elections between 2000 and 2019. The 2020 elections were postponed until mid-November because of the COVID-19 pandemic.

[9]Municipalities with over 200,000 inhabitants (fewer than 2% in 2016) hold a runoff election on the last Sunday of October if no candidate obtains an absolute majority.

[10]The number of municipal governments ranges from 5,507 in 2000 to 5,569 in 2019. Brasília, the capital city, is a federal district that holds state rather than municipal elections.

[11]According to the 2010 census, the median municipality had fewer than 12,000 inhabitants and a per capita income of less than 500 Brazilian reais (∼USD284 at the time). According to administrative data described in the next section, the median municipality had 446 employees in 2010.

tenure after a probationary period.[12] Critically, however, the best performers are not automatically appointed. While politicians have no discretion over candidates' ranking, they can decide on the timing and number of civil service hires.

About a third of municipal employees are hired on temporary contracts,[13] which can legally be used to hire political appointees or fill short-term or urgent staffing needs. Temporary employees generally have 1-year contracts that the employer can terminate much more easily than civil service contracts. In practice, temporary contracts are sometimes used where civil service contracts should be signed instead. Yet this practice is unconstitutional and politicians may be prosecuted for it.

Healthcare is typically the most salient local policy issue for voters (Boas et al., 2019, 395; Reis, 2016). Municipalities provide free primary healthcare services to all residents under the umbrella of the federal Unified Health System. They maintain clinics staffed with doctors, nurses, and other healthcare professionals, and hire community health agents (CHAs) to help provide basic healthcare services, especially preventive care and particularly in rural areas (Ministério da Saúde, 2012d). State governments generally provide more complex services, like specialist consultations and hospitalizations, especially for residents of small municipalities. Private healthcare provision is common in larger municipalities, but most citizens rely exclusively on the public system (Castro et al., 2019, 5).

Three Brazilian laws limit the hiring and firing of bureaucrats around elections, creating a "freeze period" starting 3 months before the election and lasting until the end of the mayor's term (Figure 1).[14] The 1997 Electoral Law forbids hiring, firing, or transferring bureaucrats 3 months before and after anelection.[15] to protect candidates' equality of opportunity. The 2000 Fiscal Responsibility Law prohibits personnel expenses from increasing during the 180 days before the end of a government's mandate, i.e., roughly 3 months before and after an election. This provision has the goal of limiting the fiscal impact of governments' electioneering through public employment. Finally, the 1990 Ineligibilities Law prevents public employees from running for office; candidates must take paid leave (if they are tenured) or leave their job (if non-tenured) 3 months before the

[12] Tenured civil servants can only be dismissed in extraordinary circumstances such as being convicted of corruption.

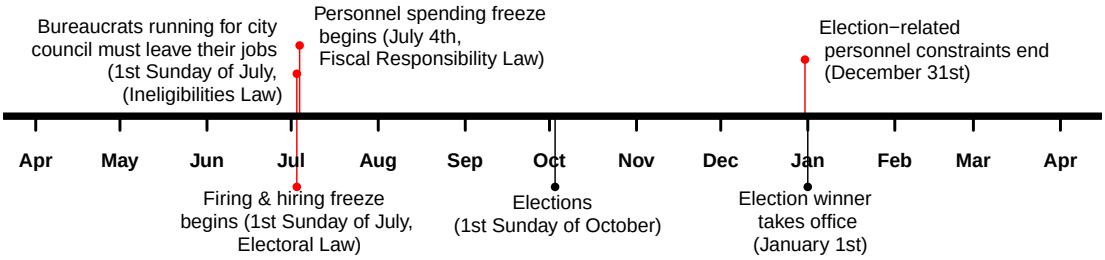
[13] I use the term temporary contracts to refer to all non-civil-service contracts. These contracts use a variety of labor regimes, all without tenure.

[14] See Appendix A for additional details on legal constraints.

[15] The law allows for hiring, firing or transferring of positions of trust, and the hiring of civil servants who had previously passed competitive exams. It also forbids salary adjustments exceeding inflation for the whole election year.

election.[16]

Figure 1: Timeline of election cycles in Brazil



These laws establish tough penalties for violating the rules constraining incumbents around elections, sometimes referring to penalties in other pieces of legislation.[17] For example, mayors who do not comply with the constraints on hiring around elections are subject to 1-4 years in prison, losing their post, and being disqualified from running for election for 5 years. Regular courts, state audit courts, state prosecutor's offices, and other accountability institutions hold mayors and other local officials accountable. Ample anecdotal evidence suggests that these laws are enforced.[18]

One of the institutions overseeing municipal governments is Brazil's federal comptroller's office (CGU, *Controladoria-Geral da União*). The CGU has long targeted its audits through randomized lotteries: a team of federal auditors visits randomly selected municipalities to review how the local government has spent federal transfers. The CGU releases the results of the audits to the media and to other accountability actors like the federal prosecutor's office, the state audit court, the federal police, and the municipal legislative chamber. These randomized audits have been found to decrease corruption and increase the chances that mayors will be prosecuted for corruption (Avis et al., 2018).

[16]For some positions, they are required to exit 6 months before the election.

[17]Including a decree from 1967, the Penal Code, the 1992 Administrative Dishonesty Law, and the 2002 Fiscal Crimes Law.

[18]For example, the former mayor of Chupinguaia in the northern state of Rondônia was condemned in July 2017 to 18 months in prison for increasing personnel expenses during the last 180 days of his term. The former mayor of Marília in the southeastern state of São Paulo, was also recently condemned for increasing personnel expenses towards the end of his mandate. As a result, his political rights were suspended for 8 years, he was stripped of any public jobs he may have held, he was forbidden from contracting with public governments for 5 years, and he was fined an amount equivalent to twice the financial loss to the municipality resulting from the increases in personnel. The mayor of Maragogipe in the northeastern state of Bahia was fined BRL 53,000 (about USD 16,000) in October 2017 for dismissing 104 temporary workers shortly after the election.

Research design

To identify political bureaucratic cycles in Brazilian municipalities, I exploit the exogenous timing of local elections, which are held every 4 years on the first Sunday of October. By examining long panels of municipality-month data, covering multiple election cycles, and using thousands of fixed effects to finely control for municipality-specific seasonality, I estimate how bureaucratic inputs and outputs vary in the months before and after elections compared to those same months in non-election years.

In baseline specifications I use linear regression on a balanced panel of municipality-month observations, using the following estimating equation:

$$Y_{iym} = \alpha_{iy} + \theta_m + \sum_{p=-6}^{5} \beta^p D_{iym}^p + \gamma Y_{iym-1} + \varepsilon_{iym} \tag{1}$$

Y_{iym} is a given outcome (for example, the number of hires or the number of medical consultations) corresponding to municipality i in year y in month m. Since outcomes are right-skewed count variables,[19] I use the log on both the dependent variable and its lag, after adding 1 to keep observations with zeroes. α_{iy} are municipality $\times$ year fixed effects, which flexibly control for municipality- and year-specific characteristics (e.g., municipal income, social development, or political party in office). θ_m is a set of month fixed effects, which control for monthly shocks common to all municipalities and thus account for underlying seasonality in public employment (for example, due to fiscal-year trends). D_{iym}^p is an indicator for whether observation iym is p months away from a municipal election, where p ranges from -6 (corresponding to April of an election year) to 5 (March of a post-election year). β^p are the coefficients corresponding to those 12 electoral cycle periods. Y_{iym-1} is a lag of the dependent variable. Finally, ε_{iym} is an idiosyncratic error term. I cluster standard errors at the municipality level to allow for arbitrary serial correlation and heteroskedasticity.

In Appendix J, I show that my results are robust to alternative specifications, including using different transformations of the dependent variable (dropping observations where the unlogged outcome equals zero, taking the inverse hyperbolic sine transformation, or transforming employment outcomes into a binary measure of whether the count is larger than zero), omitting the lagged dependent variable, using two-way fixed effects instead of interactive fixed effects, using unbalanced

[19] Appendix D reports descriptive statistics of the outcomes by month.

panels, and omitting years in which federal and state elections were held.

To identify heterogeneity in political bureaucratic cycles, I expand Equation 1 by adding a binary covariate and interacting it with month fixed effects and with the election cycle period indicators, using the following equation:

$$Y_{iym} = \alpha_i + \lambda_y + \theta_m + \sum_{p=-6}^{5} \beta^p D_{iym}^p + \left(\zeta + \phi_m + \sum_{p=-6}^{5} \delta^p D_{iym}^p\right) K_{iy} + \gamma Y_{iym-1} + \varepsilon_{iym} \quad (2)$$

K_{iy} is an indicator for whether municipality i belongs to a subgroup of interest (e.g., those exposed to a federal anti-corruption audit) in year y. Where K_{iy} is exogenously assigned (as in the case of the audits), the δ^p coefficients identify the heterogeneity in the cycles caused by that covariate. Where K_{iy} is not exogenous (e.g., decade), the δ^p coefficients simply describe how the cycles differ, descriptively, between the two groups. This specification uses two-way rather than interactive fixed effects because K_{iy} only varies at the municipality-year level.

Data

I leverage administrative data on public employment, healthcare service delivery, and anti-corruption audits in Brazilian municipalities. I focus on monthly variation to identify political bureaucratic cycles with a high level of granularity.

To measure how the electoral calendar shapes public employment, I use the federal government's Annual Social Information Reports (RAIS, *Relação Anual de Informações Sociais*) from 2000 to 2019 (a 20-year period covering 5 elections). Municipal governments –like all employers in the formal sector– are legally required to report all their contracts to the Ministry of the Economy every year.[20] RAIS therefore contains data on the universe of municipal employees, including contract type, start and end dates, salary, reason for termination, and professional category, among other

[20] Appendix B reports additional details of the labor dataset.

variables.[21] Using RAIS, I generate counts of hires, dismissals,[22] and other employment outcomes, by type of contract, for each municipality and each month.

To measure cycles in public service delivery, I use data from the Ministry of Health's Basic Healthcare Information System (SIAB, *Sistema de Informação da Atenção Básica*).[23] These 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 2014 (a 11-year period covering 3 elections).[24] I use SIAB data to generate counts of a number of healthcare services for each municipality in each quarter around elections: home visits done by community health agents, nurses, and doctors, and medical consultations with patients within different age brackets.[25]

I focus on these dimensions of healthcare service delivery for three main reasons. First, these activities are at the core of Brazil's municipal healthcare system; studies that evaluate the system's effectiveness typically include these variables as outcomes (Bhalotra et al., 2020; Castro et al., 2019; Aquino et al., 2009). Second, these activities are substantively important, since they help keep the local population alive and healthy. Medical consultations are critical for monitoring the health of infants and children, and for diagnosing and treating diseases across all age groups. Prenatal and child healthcare are critical for lifelong health (Forrest and Riley, 2004) and are frequently used to proxy for the quality of healthcare systems.[26] Home visits help provide care to people with reduced mobility (including those in rural areas) and complement services provided in healthcare facilities (Ministério da Saúde, 2012b).[27] The third reason I focus on these dimensions is that

[21] As shown in Appendix B, during my study period a small number of municipalities (between 1 and 10 percent) do not report having any employees in a given year. Municipalities that fail to report employment data to the Ministry of Labor are generally smaller, poorer, and less developed. The analyses presented in this paper are therefore not representative of the whole country but of municipalities that reported data to RAIS every year from 2000 to 2019. This selection plausibly biases the results towards zero, since poorer and less developed municipalities –where the clientelistic use of public employment is more common, and bureaucracies are smaller and less professionalized– are likely to experience more pronounced cycles.

[22] I consider dismissals to be contract terminations initiated by the employer (*exonerações a iniciativa do empregador*); resignations are terminations initiated by the employee (*exonerações a pedido*).

[23] Appendix C reports additional details of the healthcare services dataset.

[24] From 2015 onwards the Ministry of Healthcare uses a different data system producing data that are not comparable.

[25] SIAB reports counts of medical consultations with patients aged 0-1, 1-4, 5-9, 10-14, 15-19, 20-39, 40-49, 50-59, and 60+.

[26] For example, reducing child mortality and improving maternal health are two of the eight main United Nations Millennium Development Goals.

[27] For example, home visits allow healthcare providers to encourage lifestyle changes to prevent diseases and improve health outcomes. These at-home interventions are particularly important in rural and less

these healthcare services (except medical consultations with patients over 5) are mandated rather than elective, so they are less subject to variation in citizen demand and sociodemographics than other healthcare services. Brazil's Ministry of Health recommends at least 1 monthly visit to every registered household (Ministério da Saúde, 2012b), 6 prenatal check-ups during pregnancies (Ministério da Saúde, 2012a), 7 medical consultations for children in their first year of life and at least 1 medical consultation per year for children over 1 (Ministério da Saúde, 2012c).

To examine whether the increased salience and enforcement of rules shapes cycles, I leverage data from the CGU on the randomly assigned audits conducted between 2006 and 2015.[28] I define municipalities as exposed to an audit from the year they were selected until 3 years later, i.e. for a 4-year period (the length of a mayoral term).[29] Given the salience and stakes of federal audits (Avis et al., 2018), it is reasonable to assume that incumbent politicians as well as opposition leaders and bureaucrats place a higher weight on compliance with the law after an audit.

Results

The regression results demonstrate that bureaucratic inputs (hires) and outputs (healthcare services) fluctuate around elections in a manner that is consistent with cycles being caused by both electoral incentives and the laws constraining political discretion during the 6-month window around elections.

Public employment

Figure 2 depicts how the hiring of municipal employees fluctuates in the months around elections, compared to the same months in non-election years. These results, detailed in Table 2, are consistent with hiring cycles being shaped by both electoral incentives and the legal rules designed to limit the use of public employment around elections. These cycles are not only driven by the hiring of bureaucrats who work closely with politicians, such as managers, advisors, or assistants. Similar patterns are observed for low-skilled employees and professionals (Appendix E).

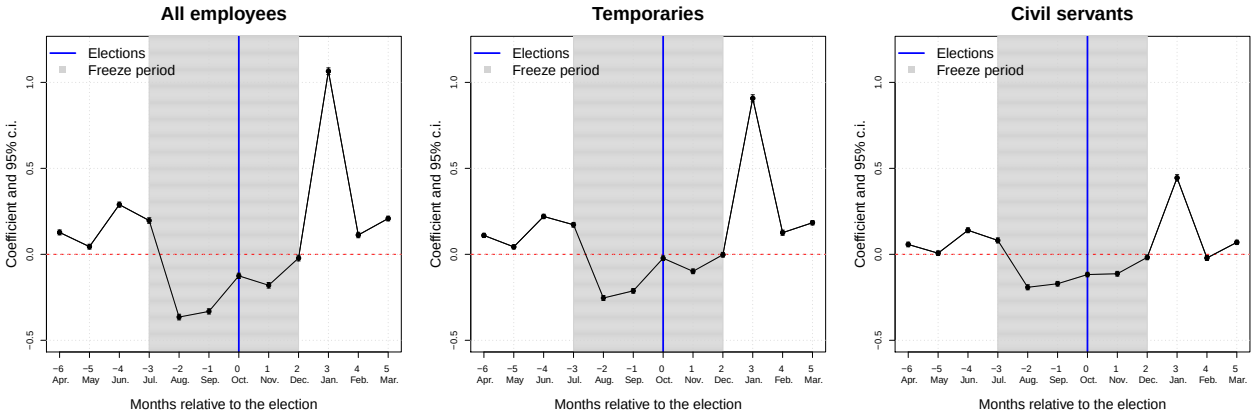
developed areas.

[28] In 2016 the CGU started targeting some audits by criteria other than audit; it does not report which municipalities were selected via lottery and which were not.

[29] The results are similar if I consider them exposed to an audit for 8 years, or for the whole period since they were selected via lottery.

Hiring increases in the pre-freeze period, compared to the same period in non-election years. For example, in June of an election year, the hiring of employees is 33.5% higher than in June of a non-election year ($p < 0.001$).[30] Hires on July 1 are not covered by the freeze period unless the day falls on a Sunday. That is arguably why we observe that the expansion of hiring persists in July, with 21.71% more hires than in July in a non-election year ($p < 0.001$).[31] The expansion of hiring before the freeze period is consistent with politicians anticipating the legal constraints limiting their hiring and firing discretion.

Figure 2: Political bureaucratic cycles in hires, by contract type



Points and their confidence intervals (c.i.) correspond to the $\hat{\beta}$ coefficients in Equation 1.

Hiring decreases during the freeze period, which is consistent with politicians responding to the legal constraints on hiring around elections. For example, hires are 30.5% less common in August of an election year, compared to a non-election year ($p < 0.001$).[32] This decline is more pronounced before an election, and less pronounced in the last quarter of the year, when the incidence of hiring is generally lower.[33]

Hiring expands significantly after the election-related constraints on hiring are lifted. The effect is most pronounced in January, once the freeze is over: we observe 190% more hires compared to a January that does not follow local elections ($p < 0.001$). This effect is particularly pronounced considering that in January of a non-electoral year hires are quite common (41.59 in the average

[30] On average, there are 12.09 hires in the month of June in a non-electoral year.
[31] On average, there are 14.03 hires in the month of July in a non-electoral year.
[32] On average, there are 16.63 hires in August in a non-electoral year.
[33] For instance, hiring in November after an election declines by 16.48% ($p < 0.001$). In non-election years we observe on average 6.97 hires on that month.

municipality), since many temporary contracts start in that month. The post-election expansion in the bureaucracy continues after January. For example, there are 23.12% more hires in March after an election than in the same month in non-election years.[34] This expansion after the freeze period is likely driven by two mechanisms that happen at the same time: the end of the freeze period and the beginning of a new political mandate.

Table 2: Political bureaucratic cycles in hires, by contract type

	Total	Temporaries	Civil servants
	(1)	(2)	(3)
April	0.127***	0.110***	0.057***
	(0.007)	(0.006)	(0.007)
May	0.044***	0.043***	0.007
	(0.007)	(0.006)	(0.007)
June	0.289***	0.220***	0.140***
	(0.008)	(0.007)	(0.007)
July	0.196***	0.172***	0.081***
	(0.008)	(0.007)	(0.007)
August	-0.365***	-0.254***	-0.192***
	(0.008)	(0.007)	(0.007)
September	-0.332***	-0.213***	-0.171***
	(0.008)	(0.007)	(0.007)
October	-0.125***	-0.023***	-0.118***
	(0.008)	(0.007)	(0.007)
November	-0.180***	-0.099***	-0.113***
	(0.008)	(0.007)	(0.007)
December	-0.022**	-0.002	-0.018**
	(0.008)	(0.007)	(0.007)
January	1.07***	0.907***	0.445***
	(0.010)	(0.011)	(0.009)
February	0.112***	0.126***	-0.021***
	(0.008)	(0.008)	(0.007)
March	0.208***	0.184***	0.070***
	(0.007)	(0.007)	(0.006)
Observations	998,640	998,640	998,640
Municipalities	4,161	4,161	4,161
R^2	0.702	0.727	0.628

All models include municipality-year fixed effects, month fixed effects, and a lag of the dependent variable. Municipality-clustered standard errors in brackets. *p<0.05; **p<0.01; ***p<0.001.

The panels in the center and right of Figure 2 (and the corresponding columns in Table 2) demonstrate that there is significant heterogeneity in the intensity of the cycles by contract type. Unsurprisingly, the cycles are more pronounced for temporary contracts, over which politicians have

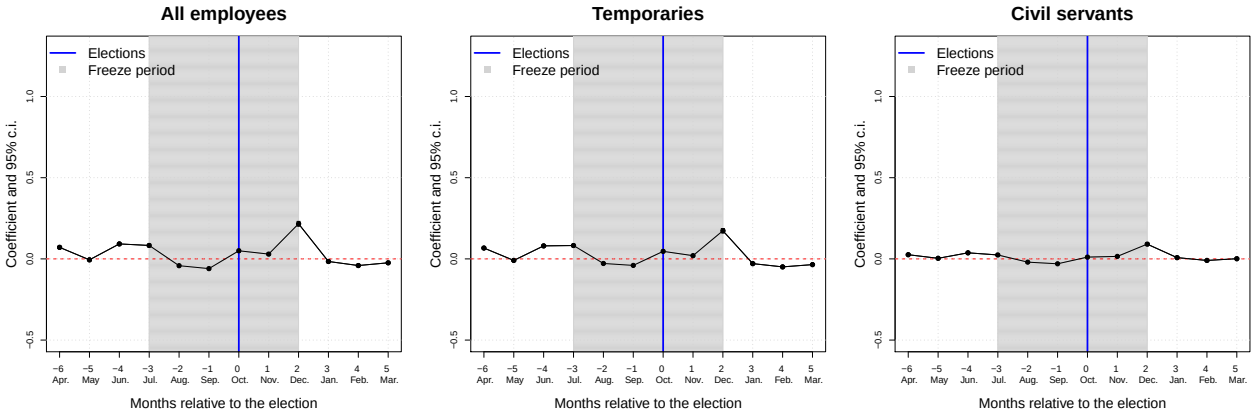
[34]There are on average 31.33 hires in March in non-election years.

more discretion. However, there are also cycles in the hiring of civil servants. For example, civil service hiring is 15.01% greater in June, 17.45% lower in August, and 55.98% higher in January around an election compared to the same months in a regular year ($p < 0.001$).[35]

The existence of political cycles in the hiring of civil servants has important research and policy implications. In cases like Brazil, the civil service limits (or removes) politicians' discretion in the targeting of jobs, but it does not eliminate their power over the quantity and timing of hires. As the results in Figure 2 demonstrate, that discretion can be mobilized strategically ahead of elections. While some studies of cycles treat civil service hiring as a placebo outcome (Pierskalla and Sacks, 2020), in many contexts it may be important to empirically examine whether such hiring is as insulated from political influence as is typically assumed.

The pre-freeze period is also characterized by an uptick in resignations, as shown in Figure 3 and Table 3. For example, resignations are 9.65% higher in June of an election year than they are in a non-election year ($p < 0.001$).[36] This increase in resignations is likely due to the legal requirement that bureaucrats who are running for office resign 3 or 6 months before the October election, depending on their post. These outflows of experienced bureaucrats, while small, may drive part of the increase in hires documented in Figure 2.

Figure 3: Political bureaucratic cycles in resignations, by contract type



Points and their confidence intervals (c.i.) corresponds to the $\hat{\beta}$ coefficients in Equation 1.

As a placebo test, I examine whether there are cycles in two outcomes that are reported in

[35] Civil service hiring is much less common. On average, there are 4.09, 5.57, and 10.9 civil service hires in June, August, and January in non-election years.

[36] Resignations are rare. In June of a non-electoral year, there are on average 0.57 resignations.

Table 3: Political bureaucratic cycles in resignations, by contract type

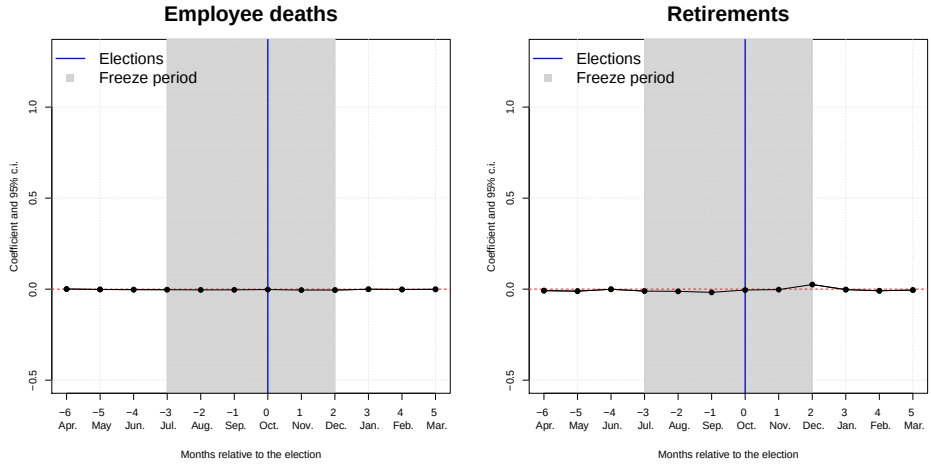
	Total	Temporaries	Civil servants
	(1)	(2)	(3)
April	0.071***	0.067***	0.026***
	(0.004)	(0.004)	(0.003)
May	-0.006	-0.009***	0.003
	(0.004)	(0.004)	(0.003)
June	0.092***	0.080***	0.037***
	(0.004)	(0.004)	(0.003)
July	0.083***	0.082***	0.024***
	(0.005)	(0.004)	(0.004)
August	-0.042***	-0.028***	-0.020***
	(0.004)	(0.004)	(0.003)
September	-0.060***	-0.040***	-0.030***
	(0.004)	(0.004)	(0.003)
October	0.050***	0.046***	0.011***
	(0.005)	(0.004)	(0.004)
November	0.030***	0.020***	0.015***
	(0.005)	(0.004)	(0.003)
December	0.216***	0.173***	0.091***
	(0.008)	(0.007)	(0.005)
January	-0.016***	-0.029***	0.008**
	(0.005)	(0.004)	(0.003)
February	-0.041***	-0.049***	-0.010***
	(0.004)	(0.004)	(0.003)
March	-0.024***	-0.035***	0.001
	(0.004)	(0.003)	(0.003)
Observations	998,640	998,640	998,640
Municipalities	4,161	4,161	4,161
R^2	0.735	0.705	0.700

All models include municipality-year fixed effects, month fixed effects, and a lag of the dependent variable. Municipality-clustered standard errors in brackets. *p<0.05; **p<0.01; ***p<0.001.

RAIS–deaths of employees and retirements. As shown in Figure 4, these two variables barely oscillate around elections compared to the same months in non-election years. While some coefficients are statistically significant, especially for retirements which may be strategically delayed in some cases until after the election, the size of these associations is very small compared to those in Figures 2 and 3.

Two additional pieces of evidence lend support to the hypothesis that the shape of the cycles (an expansion of hiring before the freeze period, a contraction during the freeze, and an expansion again after the freeze) is driven by the combination of electoral incentives and the legal constraints on hiring around elections. First, political bureaucratic cycles in hiring have intensified over time.

Figure 4: Political bureaucratic cycles in placebo outcomes: Employee deaths and retirements



All models include municipality-year fixed effects, month fixed effects, and a lag of the dependent variable. Municipality-clustered standard errors in brackets. *p<0.05; **p<0.01; ***p<0.001. Regression details are in Appendix F

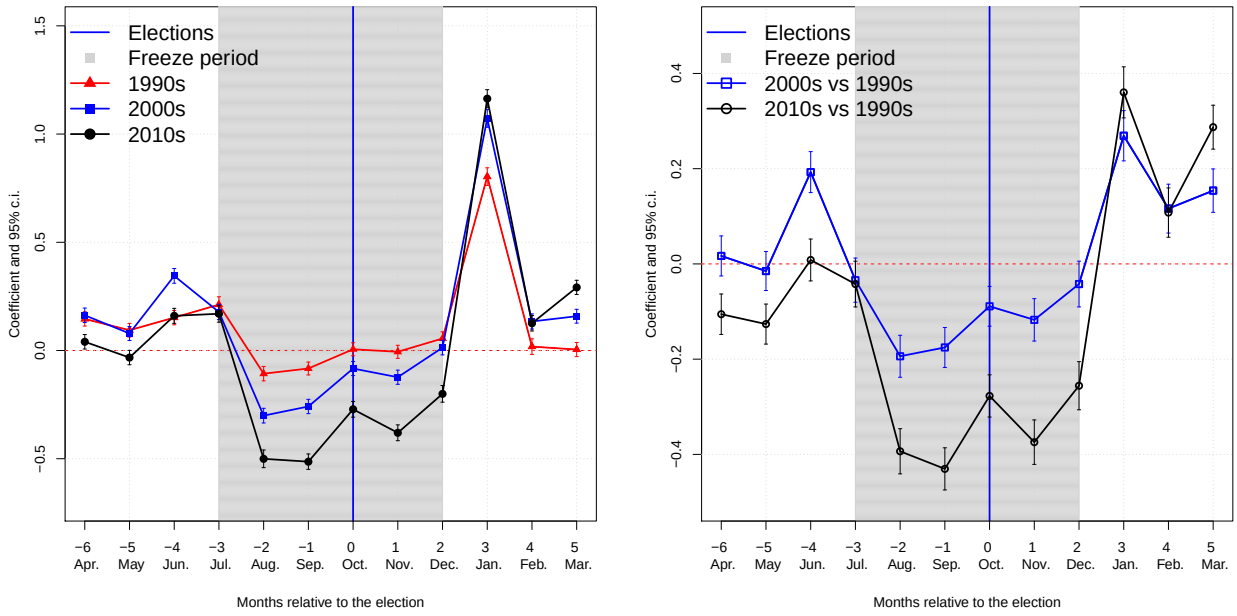
Figure 5 describes how cycles vary by decade. For this analysis I include observations since 1995, at the expense of having a smaller balanced panel since compliance with RAIS was lower in the 1990s. The 1996 elections[37] were held before the 2000 Fiscal Responsibility Law and the 1997 Electoral Law were passed, and at a time when both monitoring and enforcement of rules was weaker.[38] Consistent with this, the depression of hiring during the freeze period is significantly weaker when considering only the 1995–1999 period, as are the expansions of hiring before and after the freeze period. In the 2000s and 2010s, when the salience and enforcement of these rules increased, we observe more intense cycles in hiring.

Additional evidence comes from examining how political bureaucratic cycles in hiring vary in municipalities exposed to a CGU anti-corruption audit. While rules apply homogenously to all municipalities de jure, their enforcement likely varies with oversight. The randomized federal government audits can be seen as an enforcement shock that not only uncovers potential irregularities

[37]The 1996 municipal elections, which were held before the constitutional amendment that mandated elections to be held on the first Sunday of October, were held on Thursday, October 3.

[38]Although a 1974 law, approved during the military dictatorship, made it illegal to hire or dismiss employees in the 6-month window around elections, the law that the democratic Congress passed in 1995 to regulate the 1996 elections did not mention any limits on hiring. In any case, monitoring and enforcement were arguably much weaker in that election cycle, before the high-profile Electoral Law and Fiscal Responsibility Law, and before other more recent laws increased the penalties.

Figure 5: Political bureaucratic cycles in total hires, by decade (1995-2019)

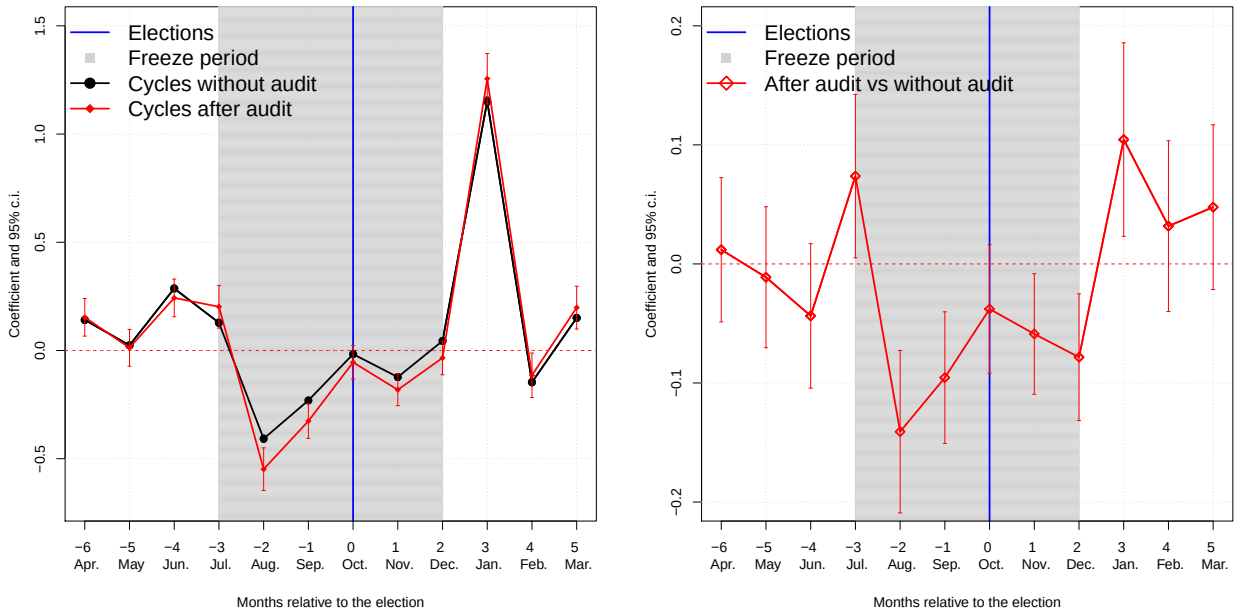


In the plot on the left, points and their confidence intervals (c.i.) correspond to $\hat{\beta}$ coefficients (dots) and to the linear combination of $\hat{\beta}$ and $\hat{\delta}$ coefficients (squares and triangles) in Equation 2. In the plot on the right, points and their c.i. correspond to $\hat{\delta}$ coefficients in Equation 2. Regression details are in Appendix H.

in the use of public funds, but also provides information and incentives that strengthen the work of other accountability actors (including the local opposition, the media, the prosecutors' office, etc.). Figure 6 shows that randomized anti-corruption audits intensify political bureaucratic cycles in hiring – with more pronounced increases in hiring before and after the freeze period, and more pronounced decreases during the freeze period. For example, audits trigger 7.65% more hires in June of an electoral year compared to municipalities not exposed to an audit ($p < 0.05$), and lead to a 13.14% larger decrease in hiring during the freeze period ($p < 0.001$). In January, after the freeze, hiring expands 11% more in audited than in unaudited municipalities ($p < 0.05$). These patterns are consistent with the legal constraints on hiring around elections (and their enforcement) displacing and shaping –rather than eliminating– political bureaucratic cycles.

All in all, these results demonstrate that in Brazilian municipalities, hiring follows marked cyclical patterns around elections: it decreases in the 6-month window around elections and increases both before and after this period, compared to the same months in non-election years. These

Figure 6: Political bureaucratic cycles in total hires, by exposure to an anti-corruption audit



In the plot on the left, points and their confidence intervals (c.i.) correspond to $\hat{\beta}$ coefficients (dots) and to the linear combination of $\hat{\beta}$ and $\hat{\delta}$ coefficients (diamonds) in Equation 2. In the plot on the right, points and their c.i. correspond to $\hat{\delta}$ coefficients in Equation 2. Regression details are in Appendix I.

patterns are consistent with politicians anticipating the legal constraints on their discretion. Cycles have intensified over time, and are more pronounced after a municipality is randomly exposed to an anti-corruption audit. In sum, laws constraining politicians' use of public employment around elections displace –rather than eliminate– that practice, thereby shaping and even intensifying political bureaucratic cycles.

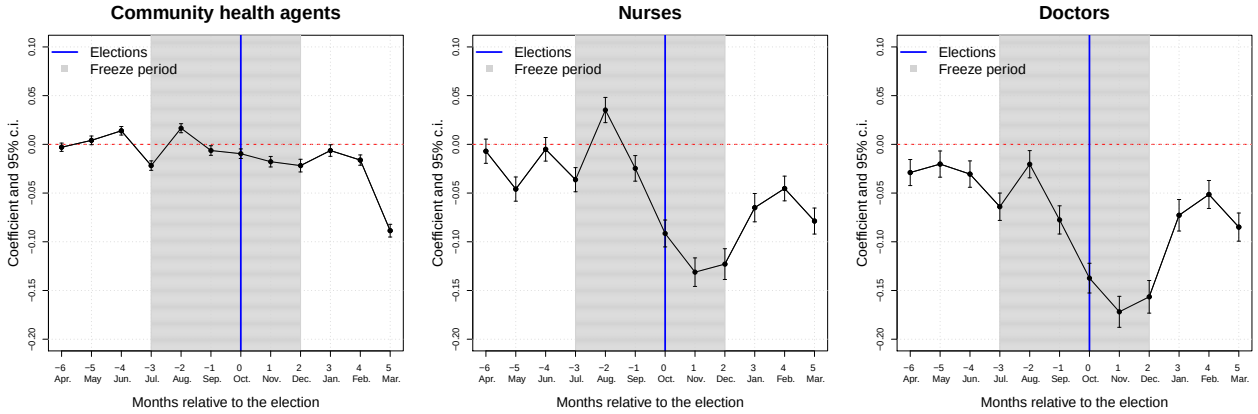
Service delivery

To explore whether political bureaucratic cycles in inputs (public employment) have a correlate in outputs (services) I examine variation before and after elections in the delivery of healthcare services. Primary healthcare is one of the main responsibilities of municipal governments and a highly salient issue for voters in local elections (Boas et al., 2019, 395).

Figure 7 and Table 4 show that there are marked political bureaucratic cycles in home visits

by healthcare professionals. Home visits by CHAs (for whom home visits are the most important outputs) expand ahead of elections. For example, in June of an election year there are 1.14% more CHA visits than in June of a non-election year ($p < 0.001$). This translate into an increase of about 60 visits in the average municipality, where community health agents perform 5,272 home visits in June of a non-election year. The number of visits decreases during the first month of the freeze period (July) and from September onward. These declines are modest, especially compared to those found for household visits by nurses and by doctors, which decline by 3.33% and 8.29%, respectively, In September of an election vs non-election year ($p < 0.001$).

Figure 7: Political bureaucratic cycles in home visits, by healthcare professional category



Each point and its confidence interval (c.i.) corresponds to the $\hat{\beta}$ coefficients in Equation 1.

In-clinic medical consultations fluctuate following a similar pattern to those of CHA household visits: they increase in the months leading up to an election (with a dip in July when the freeze period beings), and a decrease starting 1 month before an election. Figure 8 and Table 5 detail these results. Interestingly, the pre-electoral expansion starts earlier and is more pronounced for medical consultations with adults than with children.

These findings highlight an under-appreciated but important feature of electoral cycles in policy outputs: to the extent that delivering services is a function of finite resources, a pre-election expansion in some services is likely to lead to contractions in other areas. This is best appreciated by examining what a single type of bureaucrat does. In this case, evidence suggests that doctors perform more medical consultations with adults, to the detriment of consultations with children and teenagers. Increases in medical consultations come at the expense of household visits by doctors.

A variety of factors likely shapes these political bureaucratic cycles in healthcare services. A

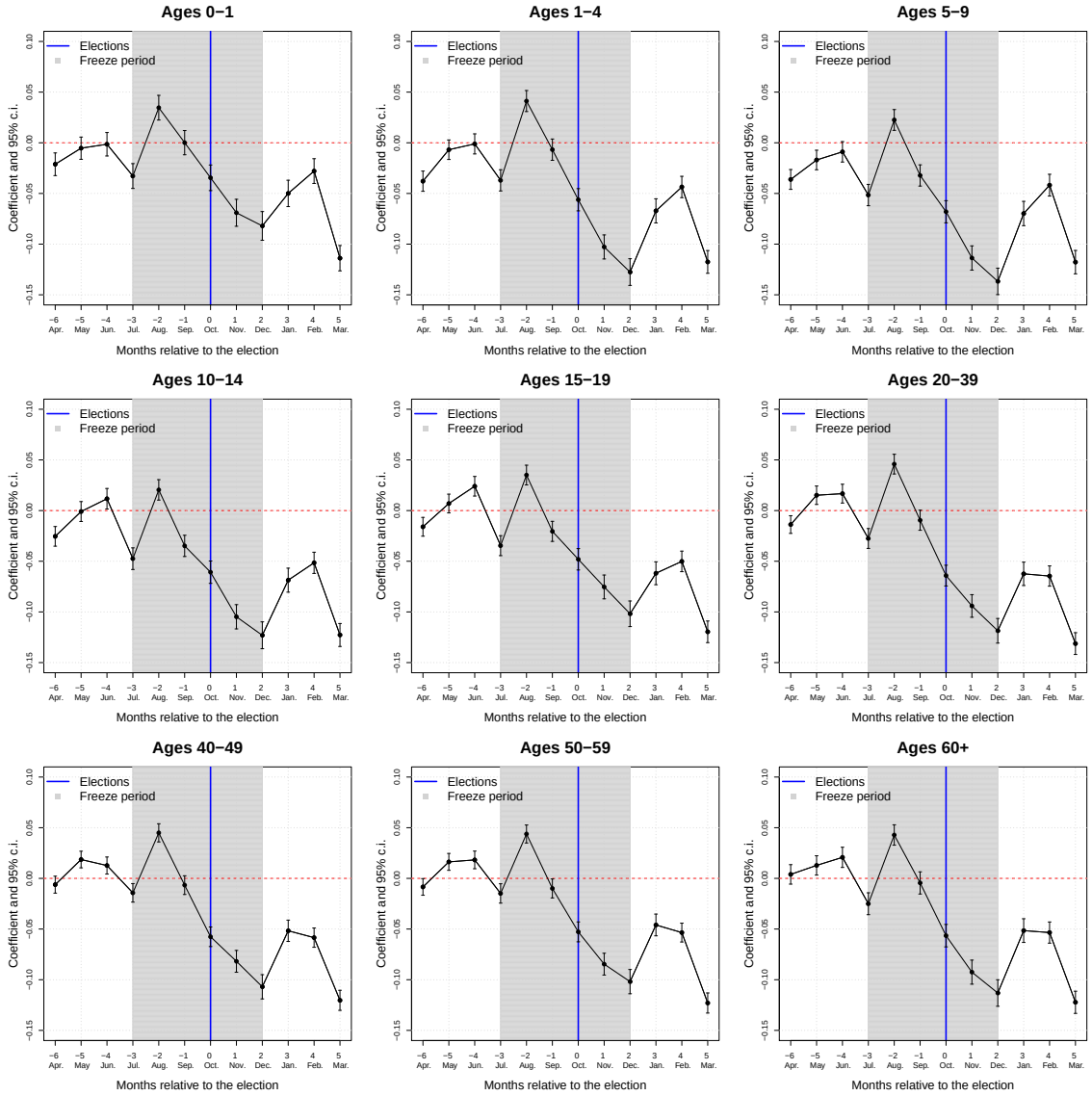
Table 4: Political bureaucratic cycles in home visits, by healthcare professional category

	CHAs (1)	Nurses (2)	Doctors (3)
April	-0.003	-0.007	-0.029***
	(0.002)	(0.006)	(0.007)
May	0.004*	-0.046***	-0.020***
	(0.002)	(0.006)	(0.007)
June	0.014***	-0.005	-0.030***
	(0.002)	(0.006)	(0.007)
July	-0.022***	-0.036***	-0.064***
	(0.002)	(0.006)	(0.007)
August	0.017***	0.035***	-0.020***
	(0.002)	(0.007)	(0.007)
September	-0.006**	-0.025***	-0.078***
	(0.003)	(0.007)	(0.007)
October	-0.010***	-0.091***	-0.137***
	(0.003)	(0.007)	(0.008)
November	-0.018***	-0.131***	-0.172***
	(0.003)	(0.007)	(0.008)
December	-0.022***	-0.123***	-0.156***
	(0.003)	(0.008)	(0.009)
January	-0.006**	-0.065***	-0.073***
	(0.003)	(0.007)	(0.008)
February	-0.016***	-0.045***	-0.051***
	(0.003)	(0.006)	(0.007)
March	-0.089***	-0.079***	-0.085***
	(0.003)	(0.007)	(0.007)
Observations	549,911	473,879	439,031
Municipalities	4,166	3,590	3,326
R^2	0.963	0.852	0.846

All models include municipality-year fixed effects, month fixed effects, and a lag of the dependent variable. Municipality-clustered standard errors in brackets. *p<0.05; **p<0.01; ***p<0.001.

first potential driver is the main input for the delivery of services in this context: human resources. As shown in Figure 9, the hiring of specialized healthcare bureaucrats (such as CHAs, nurses, and doctors) follows similar patterns of expansion before, and contraction during, the freeze period. For example, 13.90% more healthcare hires occur in July of an election year than in July of a non-ion year ($p < 0.001$). This expansion is small in absolute terms, since there are only 2.7 new hires in this sector in July of a non-election year. Therefore, the pre-election expansion of some healthcare services (e.g., household visits by CHAs, medical consultations with adults) must rely on factors other than an increase in workers, such as a surge in individual bureaucrats' productivity or, as the results above suggest, a redistribution of bureaucratic efforts away from certain tasks.

Figure 8: Political bureaucratic cycles in medical consultations, by age of patient



Each point and its confidence interval (c.i.) corresponds to the $\hat{\beta}$ coefficients in Equation 1.

The contraction of healthcare services before and after the election is striking, because unlike hiring and other activities related to campaign (e.g., media appearances, shows, etc.) service delivery is not subject to legal constraints around elections. One possible driver of that contraction of service delivery around elections is the rigidities imposed by the Electoral Law on human resources management. If workers cannot be hired, dismissed, or transferred, it may be more challenging for clinic managers and senior officials at the municipal secretariat of healthcare to fulfill the local

Table 5: Political bureaucratic cycles in medical consultations, by patient age

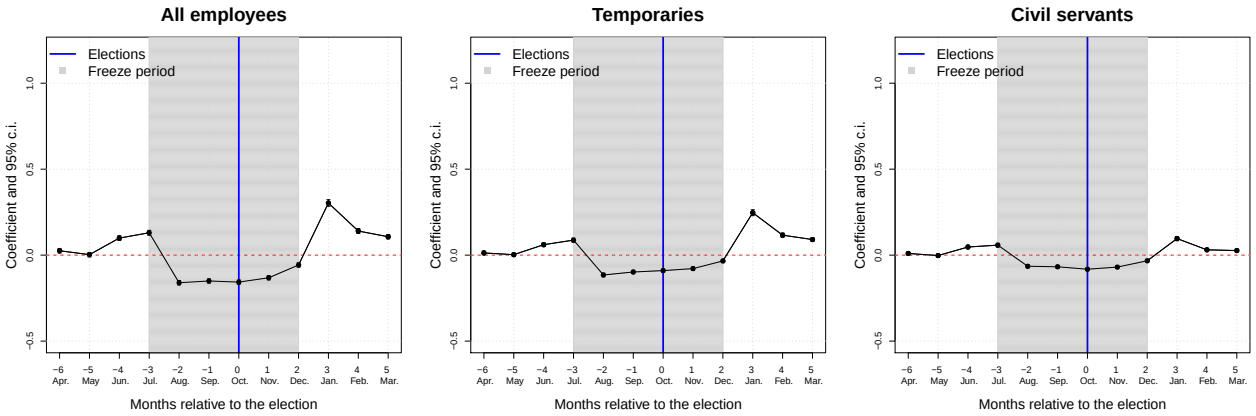
	0-1 (1)	1-4 (2)	5-9 (3)	10-14 (4)	15-19 (5)	20-39 (6)	40-49 (7)	50-59 (8)	60+ (9)
April	-0.021***	-0.038***	-0.036***	-0.025***	-0.016***	-0.014***	-0.006	-0.008**	0.004
	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.005)
May	-0.005	-0.007	-0.017***	-0.0009	0.007	0.015***	0.019***	0.016***	0.013***
	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.005)
June	-0.001	-0.001	-0.009*	0.012**	0.024***	0.017***	0.013***	0.018***	0.021***
	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.005)
July	-0.033***	-0.037***	-0.052***	-0.048***	-0.035***	-0.028***	-0.014***	-0.015***	-0.025***
	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)
August	0.035***	0.041***	0.022***	0.020***	0.035***	0.046***	0.045***	0.044***	0.043***
	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
September	0.0001	-0.007	-0.032***	-0.035***	-0.021***	-0.010*	-0.007	-0.010**	-0.004
	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)
October	-0.035***	-0.056***	-0.068***	-0.061***	-0.048***	-0.064***	-0.058***	-0.053***	-0.057***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)
November	-0.069***	-0.103***	-0.114***	-0.105***	-0.075***	-0.094***	-0.082***	-0.085***	-0.092***
	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.006)
December	-0.082***	-0.128***	-0.137***	-0.123***	-0.102***	-0.119***	-0.107***	-0.102***	-0.113***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)
January	-0.050***	-0.067***	-0.070***	-0.069***	-0.062***	-0.062***	-0.052***	-0.046***	-0.051***
	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.006)
February	-0.028***	-0.044***	-0.042***	-0.051***	-0.050***	-0.065***	-0.059***	-0.053***	-0.053***
	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
March	-0.114***	-0.118***	-0.118***	-0.123***	-0.120***	-0.131***	-0.120***	-0.123***	-0.122***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)
Observations	459,491	476,255	477,047	478,631	480,611	483,119	482,591	482,459	481,535
Municipalities	3,481	3,608	3,614	3,626	3,641	3,660	3,656	3,655	3,648
R^2	0.874	0.886	0.876	0.867	0.877	0.885	0.892	0.897	0.881

All models include municipality-year fixed effects, month fixed effects, and a lag of the dependent variable. Municipality-clustered standard errors in brackets. *p<0.05; **p<0.01; ***p<0.001.

needs of the population. Another plausible driver of these declines is the focus of senior officials and managers on the campaign, and the corresponding disruptions that may introduce in teams. Demand for healthcare services is unlikely to explain the patterns observed in Figures 7 and 8 – particularly for services that are mandated rather than elective, such as medical consultations with infants (under 1 year old) and small children (ages 1–5) for which the Ministry of Health requires at least 7 per year and at least 1 per year, respectively.

These results are suggestive rather than conclusive, but point to the possibility that constraints around elections may have important costs in terms of public service delivery, and to the trade-offs that election-induced government responsiveness necessitates. These trade-offs appear to operate across activities that bureaucrats perform (with some services expanding to the detriment of others)

Figure 9: Political bureaucratic cycles in hires of healthcare professionals, by contract type



Points and their confidence intervals (c.i.) correspond to the $\hat{\beta}$ coefficients in Equation 1.

and across time (pre-election expansion followed by contraction). Future research should examine whether there are trade-offs across policy sectors as well.

Conclusion

A vast literature in political science and economics has shown that politicians often manipulate policy in the run-up to elections to improve their chances of re-election. From a democratic standpoint, these patterns are problematic because they imply that incumbents abuse their control over the government during electoral campaigns, which damages political competition. From a fiscal perspective, the expansion of spending, debt, or public employment ahead of elections is problematic because it can jeopardize fiscal discipline.

In this context, countries often enact laws to constrain incumbents' discretion over policy tools in the months leading up to an election. Operating under either a fiscal or electoral rationale, these laws typically establish freeze periods around elections that severely constrain politicians' discretion.

This paper advances our understanding of political cycles and of the impact of these anti-cyclical policies by empirically analyzing political bureaucratic cycles (i.e., cycles in public employment and in the activities government workers perform) in Brazilian municipalities. Leveraging detailed administrative datasets released by the federal government, I build panels of hundreds of thousands of municipality-month observations. Exploiting the exogenous timing of elections and

the bans on hiring and firing employees during a 6-month window around elections, I examine how hires and public services fluctuate around elections.

The results demonstrate that while hiring decreases during the freeze period (in line with the legal constraints), it also increases before and after. This suggests that politicians respond strategically to both electoral incentives and legal constraints: rather than refraining from cyclical uses of public employment, they anticipate the expansion of the payroll until right before the ban. Cycles are present for both temporary and civil service hiring, which calls into question the common assumption that civil service hiring is completely insulated from political influence, and draws attention to the relevance of politicians' discretion over the timing of civil service hires. Cycles have become more pronounced over time (as the rules and their enforcement have intensified) and are significantly more marked in municipalities that are randomly subject to an anti-corruption audit. Together, these results suggest that, rather than eliminating cycles, legal constraints on policy tools displace and even exacerbate them.

The results also indicate that there are marked cycles in bureaucratic outputs, namely in the delivery of healthcare services. Some services (e.g., medical consultations or CHA household visits) expand before the election, which is consistent with incumbent politicians using service delivery to signal their policy priorities or competence towards voters. Yet other services contract during the same period, and in general healthcare service delivery contracts from 1 month before the election. These patterns suggest that there are important trade-offs in election-driven government responsiveness.

The paper makes three theoretical and empirical contributionsto the literature on political cycles. First, it advances our understanding of the temporal dynamics of cycles by highlighting how incentives and constraints vary throughout the electoral calendar, and by using monthly-level administrative data (rather than the more typical yearly or quarterly panels). Second, the paper challenges the common policy prescription of constraining politicians' discretion over policy tools around elections by showing that under the strict limits of Brazilian legislation, cycles persist and are even shaped by those constraints. Third, by linking data on bureaucratic inputs (jobs) to bureaucratic outputs (results of how that labor force is used), the paper advances our understanding of how politicians' resource allocations and policy outcomes are connected. While other papers have examined cycles in bureaucratic outputs (Kailthya et al., 2022; Dipoppa and Grossman, 2020; Khemani, 2004), to the best of my knowledge this paper is the first to examine bureaucratic inputs and outputs in the same empirical setting.

References

Alt, James E and Shanna S Rose (2009). Context-conditional political budget cycles. In *The Oxford handbook of comparative politics*.

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 (2021). Occupy government: Democracy and the dynamics of personnel decisions and public sector performance. NBER Working paper, available at https://www.nber.org/papers/w25501.pdf (last accessed on January 14, 2022).

Bhalotra, Sonia, Rudi Rocha, and Rodrigo R Soares (2020). Can Universalization of Health Work? Evidence from Health Systems Restructuring and Expansion in Brazil. IEPS Working paper, available at https://ieps.org.br/wp-content/uploads/2020/02/WPS3.pdf (last accessed on January 14, 2022).

Block, Steven A and Paul M Vaaler (2004). The price of democracy: sovereign risk ratings, bond spreads and political business cycles in developing countries. *Journal of International Money and Finance 23*(6), 917–946.

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.

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

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.

Chortareas, Georgios, Vassilis E Logothetis, and Andreas A Papandreou (2017). Political cycles in greece's municipal employment. *Journal of Economic Policy Reform 20*(4), 321–342.

Christensen, Darin and Simon Ejdemyr (2020). Do elections improve constituency responsiveness? Evidence from US cities. *Political science research and methods 8*(3), 459–476.

Colonnelli, Emanuele, Mounu Prem, and Edoardo Teso (2019). Patronage in the allocation of public sector jobs. *Working paper*.

Dahlberg, Matz and Eva Mörk (2011). Is there an election cycle in public employment? separating time effects from election year effects. *CESifo Economic Studies 57*(3), 480–498.

De Haan, Jakob and Jeroen Klomp (2013). Conditional political budget cycles: A review of recent evidence. *Public Choice 157*(3-4), 387–410.

Dipoppa, Gemma and Guy Grossman (2020). The effect of election proximity on government responsiveness and citizens' participation: Evidence from English local elections. *Comparative Political Studies 53*(14), 2183–2212.

Drazen, Allan and Marcela Eslava (2010). Electoral manipulation via voter-friendly spending: Theory and evidence. *Journal of development economics 92*(1), 39–52.

Dubois, Eric (2016). Political business cycles 40 years after Nordhaus. *Public Choice 166*(1-2), 235–259.

Finan, Federico, Benjamin A Olken, and Rohini Pande (2017). The personnel economics of the developing state. *Handbook of Economic Field Experiments 2*, 467–514.

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.

Franzese, Robert J (2002). Electoral and partisan cycles in economic policies and outcomes. *Annual Review of Political Science 5*(1), 369–421.

Gootjes, Bram, Jakob de Haan, and Richard Jong-A-Pin (2021). Do fiscal rules constrain political budget cycles? *Public Choice 188*(1), 1–30.

Grindle, Merilee S (2012). *Jobs for the boys: Patronage and the state in comparative perspective*. Harvard University Press.

Guo, Gang (2009). China's local political budget cycles. *American Journal of Political Science 53*(3), 621–632.

International Monetary Fund, IMF (2016). Managing government compensation and employment: Institutions, policies, and reform challenges. *IMF Policy Papers*.

Kailthya, Subham, Uma Kambhampati, et al. (2022). Political Competition and Public Healthcare: Evidence from India. Technical report, Working paper.

Kerches, Cristiane and Ursula Dias Peres (2010). Lei de responsabilidade fiscal, federalismo e políticas públicas: un balanço crítico dos impactos da lrf nos municípios brasileiros. In Alexandre dos Santos Cunha, Bernardo Abreu de Medeiros, and Luseni Maria C. de Aquino (Eds.), *Estado, instituições e democracia: República*, Chapter 6, pp. 213–244. IPEA.

Khemani, Stuti (2004). Political cycles in a developing economy: effect of elections in the indian states. *Journal of Development Economics 73*(1), 125–154.

Labonne, Julien (2016). Local political business cycles: Evidence from philippine municipalities. *Journal of Development Economics 121*, 56–62.

Lueders, Hans (2021). Electoral Responsiveness in Closed Autocracies: Evidence from Petitions in the former German Democratic Republic. *American Political Science Review*, 1–16.

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.

Nordhaus, William D (1975). The political business cycle. *The Review of Economic Studies 42*(2), 169–190.

Piccolo, Daiane Marcela (2018). Qualidade de dados dos sistemas de informação do datasus: análise crítica da literatura. *Ciência da Informação em Revista 5*(3), 13–19.

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

Pierskalla, Jan H and Audrey Sacks (2020). Personnel politics: Elections, clientelistic competition and teacher hiring in indonesia. *British Journal of Political Science 50*(4), 1283–1305.

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 January 14, 2022).

Robinson, James A and Thierry Verdier (2013). The political economy of clientelism. *The Scandinavian Journal of Economics 115*(2), 260–291.

Rocha, Thiago Augusto Hernandes, Núbia Cristina da Silva, Allan Claudius Queiroz Barbosa, Pedro Vasconcelos Amaral, Elaine Thumé, João Victor Rocha, Viviane Alvares, and Luiz Augusto Facchini (2018). Cadastro nacional de estabelecimentos de saúde: evidências sobre a confiabilidade dos dados. *Ciência & Saúde Coletiva 23*, 229–240.

Rogoff, Kenneth S (1990). Equilibrium political budget cycles. *American Economic Review*.

Rose, Shanna (2006). Do fiscal rules dampen the political business cycle? *Public choice 128*(3-4), 407–431.

Stokes, Susan C, Thad Dunning, Marcelo Nazareno, and Valeria Brusco (2013). *Brokers, Voters, and Clientelism: The Puzzle of Distributive Politics*. Cambridge University Press.

Tavares, Rafael Alves de Albuquerque (2017). Electoral cycles and public employment in brazilian prefectures: Evidence for the years 2002-2013. Technical report, USP.

Toral, Guillermo (2020). *The political logics of patronage: Uses and abuses of government jobs in Brazil*. Ph. D. thesis, Massachusetts Institute of Technology.

Toral, Guillermo (2022). Turnover: How lame-duck governments disrupt the bureaucracy and service delivery before leaving office. *Working paper*.

Tufte, Edward R (1978). *Political Control of the Economy*. Princeton University Press.

Appendices

A Additional details on legal constraints around elections

Rules in the Fiscal Responsability Law (LRF) concerning personnel expenses

The Fiscal Responsibility Law (LRF, Complementary Law 101, approved on May 4, 2000) includes seven main rules designed for controlling personnel expenses and their use as patronage in electoral years.[39] First, no municipal government can spend more than 60% of the net liquid revenue in personnel expenses, with 6 points being reserved for the legislative and 54 for the executive (article 20). Second, personnel expenses cannot increase during the 180 days before the end of the government's mandate (article 21). Third, compliance with this limit is verified at the end of every quadrimestre or four-month period. If personnel expenses are over 90% of the limit (i.e. over 51.3%), the municipality cannot create new posts or give out salary increase (article 22). Fourth, if the limits are surpassed, the government must comply in the next two quadrimestres, with at least one third of the reduction in the first quadrimestre. However if the limits are surpassed during an electoral year, the government cannot receive so-called voluntary transfers,[40] or get credit or guarantees (article 23). Fifth, up to 30 days after the end of every quadrimestre the government must issue a Fiscal Management Report (RGF, *Relatório de Gestão Fiscal*), which must be open to the public and contain a comparison of actual personnel expenses and the legal limits (articles 54 and 55). Sixth, if personnel expenses reach 90% of the limit (i.e., 48.6% for executive governments), audit courts will alert the legislature and the prosecutor's office (article 59). Finally, municipalities with less than 50,000 inhabitants can issue their RGFs every semester instead of every quadrimestre, and were only obliged to issue some of the other fiscal reports starting 2005 (article 63). While the LRF became an inflection point in the fiscal control of state and municipal governments, some of its rules, especially those concerning the control of personnel expenses were already enshrined in federal legislation (Kerches and Peres, 2010).

Rules in the Electoral Law concerning the hiring and firing of bureaucrats

Brazil's Electoral Law (Law 9,504, approved on September 30, 1997)[41] establishes a number of rules constraining the behavior of public officials in order to ensure the fair competition of candidates. These rules include a number of provisions regarding the hiring and firing of bureaucrats.

[39] The whole law can be found at http://www.planalto.gov.br/ccivil_03/leis/lcp/lcp101.htm.

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

[41] The whole law can be found at http://www.planalto.gov.br/ccivil$_03/leis/l9504.htm$.

First, bureaucrats cannot be hired, dismissed with no fair cause (*sem causa justa*), or transferred, from 3 months before the election up to January 1st, with the exception of positions of trust, the hiring of people who passed a civil service examination before the beginning of the period (article 73.V), or hiring of positions necessary for the delivery of *essential* services (which the jurisprudence of the Supreme Electoral Court has clarified do not include education). Second, wages cannot be increased beyond adjustments that allow employees to recover any purchasing power lost during the election year (article 73.VIII). Municipalities cannot receive voluntary transfers from the federal or state government during the 3 months before and the 3 months after the period, with the exception of those destined to emergency situations (article 73.VI.a).

The law also establishes a number of strong penalties for breaches, including fines (to be paid by the candidate and/or their party), the suspension of the electoral candidacy of those benefited by the decision, the loss of access to the party financing system (*Fundo Partidário*), and the penalties established in the Law of Administrative Improbity (including the loss of any public position, the suspension of political rights between 3 and 5 years, and payment of a fine up to 100 times the wage received as official).

Rules in the Law of Ineligibilities concerning the incompatibility of holding a bureaucratic position and running for election

Brazil's Law of Ineligibilities (Complementary Law 64, approved on May 18, 1990),[42] establishes certain limits on who can run for office, and allows for some time windows before the election in which "incompatibilities" can be fixed. The limits vary by the office a person is running for and the position they hold, but for city councilor art. 1.V establishes that public employees (with or without tenure) should be removed from their post up to 3 months before the election, except those involved in tax collection who should be removed from their posts 6 months before the election. Those who are tenured can simply leave their posts until the election, with pay. Those who are hired with temporary contracts or in positions of trust must leave their jobs.[43]

[42]The whole law can be found at http://www.planalto.gov.br/ccivil$_03/leis/lcp/lcp64.htm$.

[43]The supreme electoral court has a varied jurisprudence on the issue, which can be consulted at http://www.tse.jus.br/eleicoes/desincompatibilizacao/desincompatibilizacao.

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.[44] Descriptive statistics for the data on municipal employees are reported in Table **??**. Between 2000 and 2019 the number of municipal government contracts has increased by about 3.9 million or 131%, but the share of civil service employees has remained roughly constant at about two thirds.[45] 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.[46]

Municipal governments (like all formal employers) are legally required[47] to report data for all its employees[48] 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.

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,[49] and compare them to all 5,569 municipalities.[50] As can be seen in Figure 10, 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., 2019; Barbosa and Ferreira, 2021), their exclusion from the data is biasing the results. This bias, however, is likely to be in the direction of

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

[45] 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*).

[46] Unfortunately, RAIS does not allow a reliable identification of temporary workers who are politically appointed (e.g., *cargo comissionado*, *função de confiança*).

[47] 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.

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

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

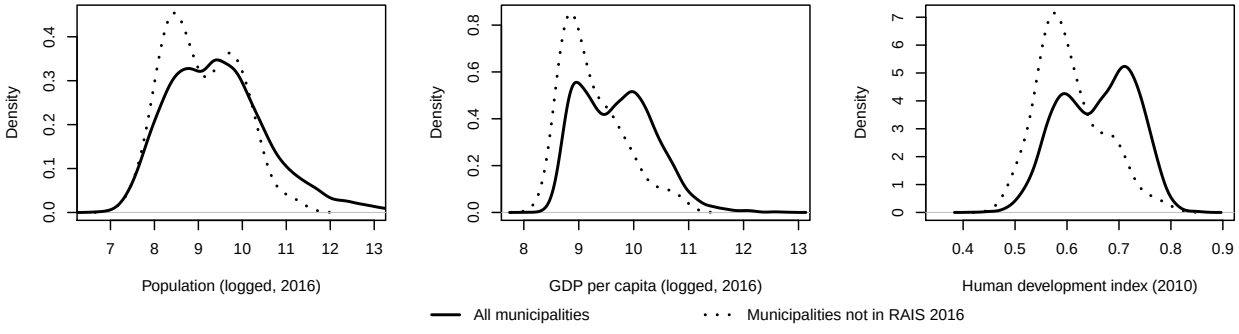
[50] I exclude Brasília because it does not have a municipal government.

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.

Table 6: Descriptive statistics for municipal employees as identified in RAIS

Year	Municipalities	% of total	Millions of contracts	Share civil service
2019	5496	98.69	6.76	0.65
2018	5512	98.98	6.62	0.66
2017	5522	99.16	6.60	0.67
2016	5480	98.40	6.42	0.67
2015	5516	99.05	6.49	0.66
2014	5521	99.14	6.50	0.65
2013	5499	98.74	6.50	0.64
2012	5513	99.08	6.09	0.65
2011	5509	99.01	6.09	0.64
2010	5522	99.25	5.72	0.63
2009	5497	98.80	5.61	0.64
2008	5481	98.51	5.33	0.65
2007	5497	98.81	5.02	0.66
2006	5501	98.89	4.75	0.66
2005	5459	98.13	4.41	0.66
2004	5387	96.91	4.06	0.69
2003	5370	96.60	3.90	0.69
2002	5306	95.45	3.62	0.69
2001	5209	93.70	3.31	0.68
2000	4978	90.41	2.92	0.65
1999	4891	88.83	2.73	0.65
1998	4864	88.34	2.61	0.66
1997	4377	79.50	2.48	0.66
1996	4296	78.02	2.34	0.64
1995	4159	83.63	2.31	0.62

Figure 10: Socioeconomic characteristics of municipalities not reporting employment data in 2016



C Administrative healthcare data

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

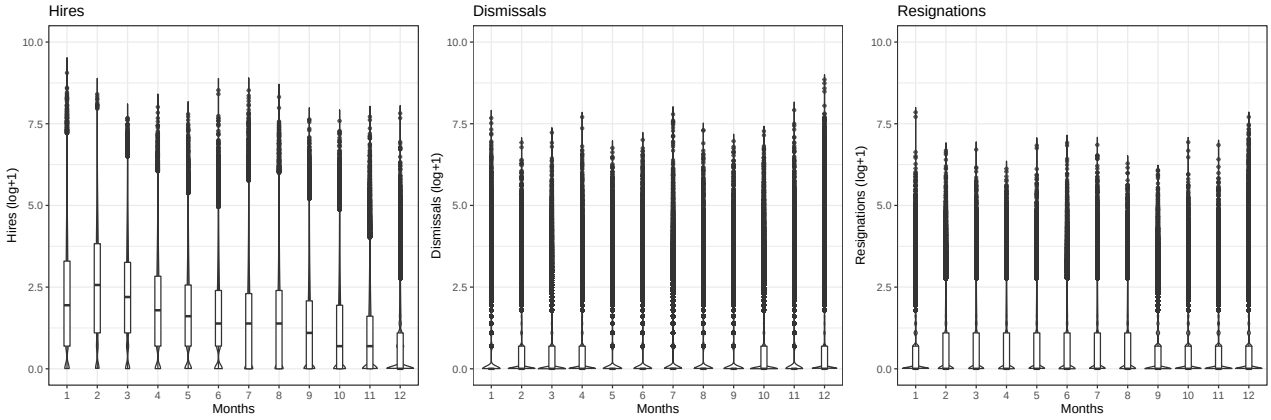
To measure the effects on public service delivery I use data from the Ministry of Health's Basic Healthcare Information System (SIAB, *Sistema de Informação da Atenção Básica*). The data are collected by municipal secretariats of healthcare, consolidated by state governments, and published by the federal government at the municipality-month level from 2004 to 2014.[51] I use SIAB to generate counts of a number of healthcare services for each municipality in each quarter around elections.

Municipal governments are legally required to compile and submit the corresponding data to SIAB (Ministério da Saúde, 2012d). The quality of health data collected by the Ministry of Healthcare has been examined empirically by researchers who have generally found them to be reliable despite some errors (Piccolo, 2018; Rocha et al., 2018).

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

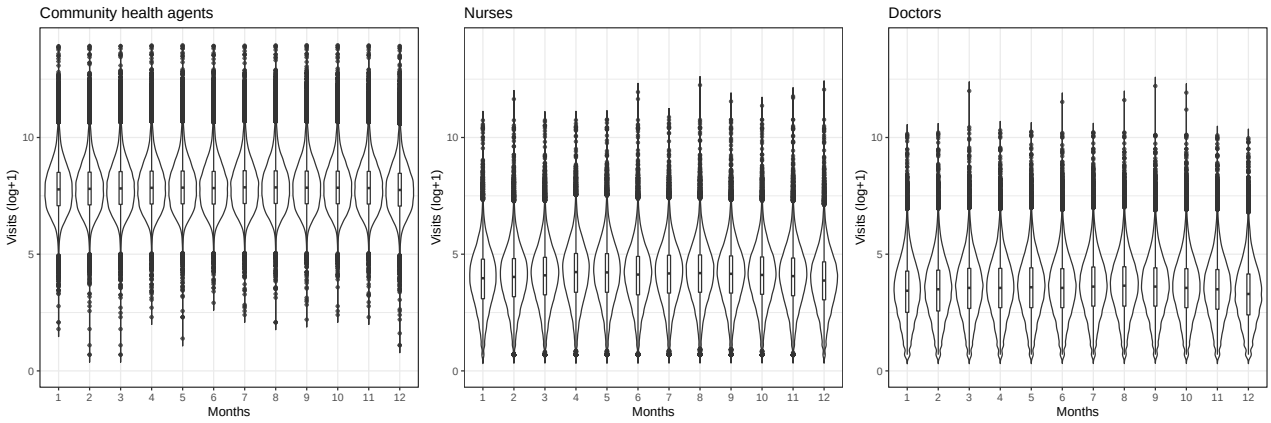
D Distributions of outcome data

Figure 11: Distribution of hires, dismissals, and resignations, by month



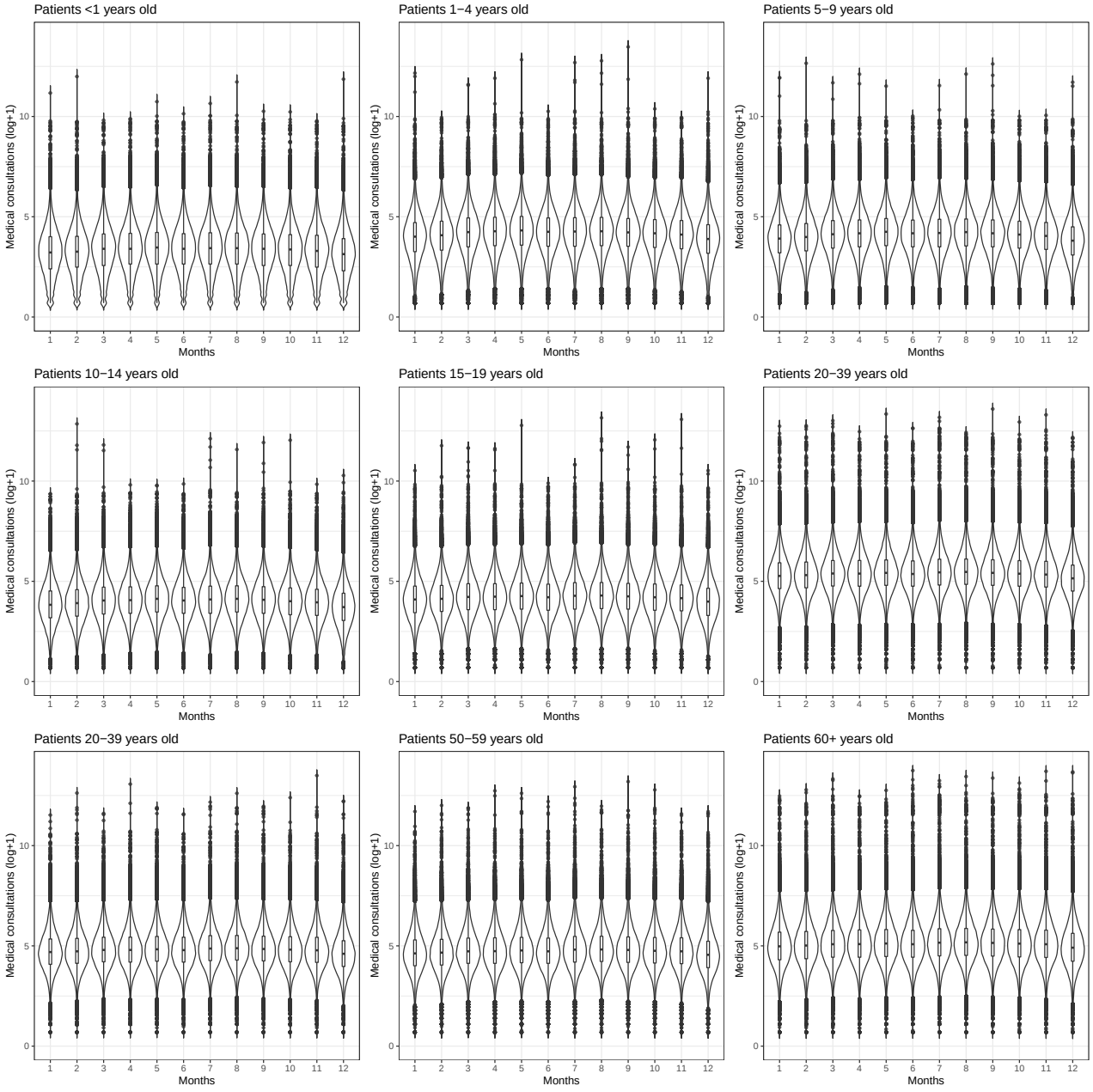
Horizontal lines correspond to the median. Boxes cover the interquartile range.

Figure 12: Distribution of healthcare household visits, by professional category and month



Horizontal lines correspond to the median. Boxes cover the interquartile range.

Figure 13: Distribution of medical consultations, by patient's age and month



Horizontal lines correspond to the median. Boxes cover the interquartile range.

E Political bureaucratic cycles in hires, by job skill level

I use the Brazilian Classification of Occupations (CBO, *Classificação Brasileira de Ocupações*), as reported by RAIS. CBO 1 corresponds to managers; CBO 2 corresponds to "scientific and artistic professionals"; CBO 3 to mid-level technicians; and CBO 4+ corresponds to administrative services and other low-skill workers.

Figure 14: Political bureaucratic cycles in hires: Managers (CBO 1)

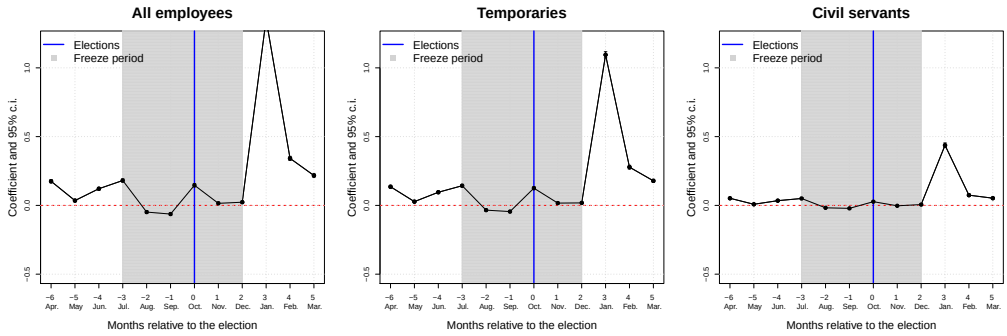


Figure 15: Political bureaucratic cycles in hires: Professionals (CBO 2 or 3)

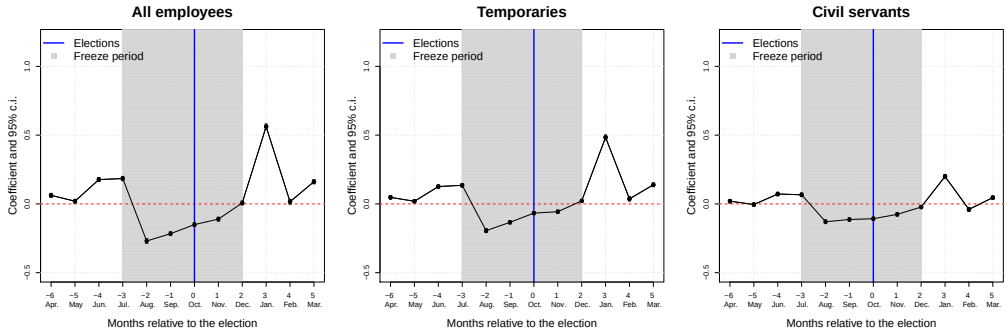
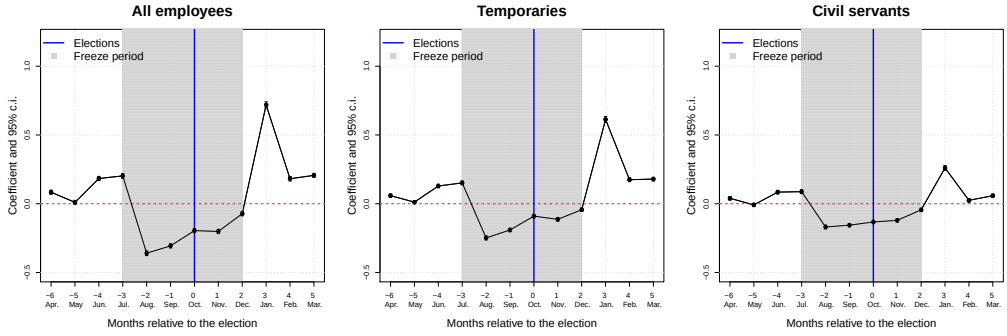


Figure 16: Political bureaucratic cycles in hires: Low-skill employees (CBO 4+)



Points and their confidence intervals (c.i.) corresponds to the $\hat{\beta}$ coefficients in Equation 1.

F Political bureaucratic cycles in placebo outcomes: Employee deaths and retirements

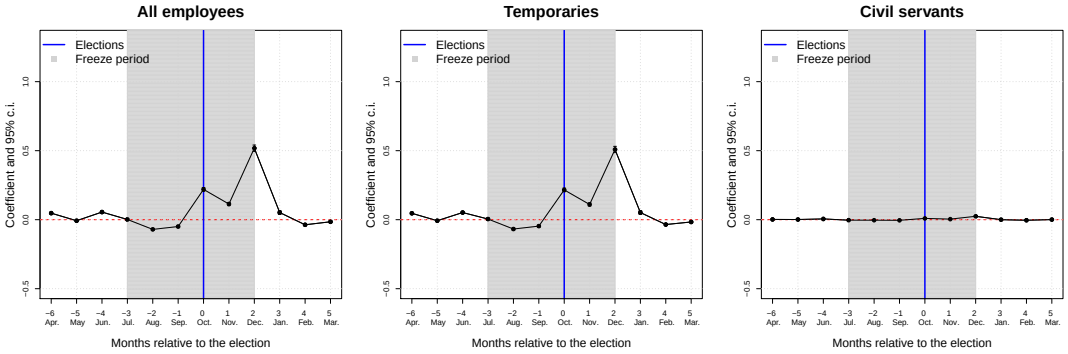
Table 7: Political bureaucratic cycles in placebo outcomes: Employee deaths and retirements

	Deaths (1)	Retirements (2)
April	0.0007	-0.008***
	(0.002)	(0.003)
May	-0.002	-0.011***
	(0.002)	(0.003)
June	-0.003	-0.0008
	(0.002)	(0.003)
July	-0.003	-0.011***
	(0.002)	(0.003)
August	-0.004**	-0.012***
	(0.002)	(0.003)
September	-0.004**	-0.018***
	(0.002)	(0.003)
October	-0.002	-0.005
	(0.002)	(0.003)
November	-0.005***	-0.003
	(0.002)	(0.003)
December	-0.005**	0.025***
	(0.002)	(0.003)
January	-0.0006	-0.003
	(0.002)	(0.003)
February	-0.002	-0.009***
	(0.002)	(0.003)
March	-0.001	-0.005*
	(0.002)	(0.003)
Observations	998,640	998,640
Municipalities	4,161	4,161
R^2	0.406	0.603

All models include municipality-year fixed effects, month fixed effects, and a lag of the dependent variable. Municipality-clustered standard errors in brackets. *p<0.05; **p<0.01; ***p<0.001.

G Political bureaucratic cycles in dismissals

Figure 17: Political bureaucratic cycles in dismissals, by contract type



Points and their confidence intervals (c.i.) corresponds to the $\hat{\beta}$ coefficients in Equation 1.

Table 8: Political bureaucratic cycles in fires, by contract type

	Total (1)	Temporaries (2)	Civil servants (3)
April	0.047***	0.046***	0.002
	(0.004)	(0.004)	(0.001)
May	-0.008*	-0.007*	0.001
	(0.004)	(0.004)	(0.001)
June	0.055***	0.052***	0.005***
	(0.004)	(0.004)	(0.001)
July	0.002	0.005	-0.003**
	(0.004)	(0.004)	(0.001)
August	-0.070***	-0.068***	-0.004***
	(0.004)	(0.004)	(0.001)
September	-0.050***	-0.047***	-0.005***
	(0.004)	(0.004)	(0.001)
October	0.220***	0.216***	0.009***
	(0.007)	(0.007)	(0.002)
November	0.113***	0.110***	0.004***
	(0.006)	(0.006)	(0.002)
December	0.518***	0.509***	0.025***
	(0.012)	(0.012)	(0.002)
January	0.052***	0.052***	2.79×10^{-5}
	(0.007)	(0.007)	(0.001)
February	-0.037***	-0.035***	-0.004***
	(0.004)	(0.004)	(0.001)
March	-0.015***	-0.017***	0.0008
	(0.004)	(0.004)	(0.001)
Observations	998,640	998,640	998,640
Municipalities	4,161	4,161	4,161
R^2	0.647	0.650	0.466

All models include municipality-year fixed effects, month fixed effects, and a lag of the dependent variable. Municipality-clustered standard errors in brackets. *p<0.05; **p<0.01; ***p<0.001.

H Political bureaucratic cycles in hires, by decade

Table 9: Political bureaucratic cycles in hires by decade and by contract type

	Total	Temporaries	Civil servants
	(1)	(2)	(3)
April	0.146***	0.083***	0.087***
	(0.017)	(0.013)	(0.015)
May	0.094***	0.041***	0.053***
	(0.016)	(0.013)	(0.013)
June	0.152***	0.086***	0.075***
	(0.017)	(0.013)	(0.014)
July	0.212***	0.122***	0.117***
	(0.018)	(0.015)	(0.015)
August	-0.107***	-0.076***	-0.057***
	(0.017)	(0.013)	(0.014)
September	-0.083***	-0.049***	-0.041***
	(0.015)	(0.012)	(0.012)
October	0.006	0.011	-0.005
	(0.015)	(0.012)	(0.013)
November	-0.006	-0.0006	-0.008
	(0.015)	(0.012)	(0.013)
December	0.056***	0.037***	0.019
	(0.016)	(0.012)	(0.013)
January	0.803***	0.519***	0.435***
	(0.021)	(0.019)	(0.018)
February	0.018	0.0001	-0.023
	(0.018)	(0.016)	(0.015)
March	0.004	0.036**	-0.027**
	(0.017)	(0.014)	(0.013)
2000s × April	0.017	0.019	0.030
	(0.021)	(0.016)	(0.018)
2000s × May	-0.015	0.0005	-0.011
	(0.020)	(0.016)	(0.017)
2000s × June	0.193***	0.141***	0.123***
	(0.021)	(0.017)	(0.018)
2000s × July	-0.034	-0.004	-0.011
	(0.022)	(0.018)	(0.019)
2000s × August	-0.194***	-0.130***	-0.112***
	(0.020)	(0.016)	(0.018)
2000s × September	-0.175***	-0.124***	-0.084***
	(0.018)	(0.015)	(0.016)
2000s × October	-0.089***	-0.037**	-0.067***
	(0.018)	(0.015)	(0.016)
2000s × November	-0.117***	-0.084***	-0.056***
	(0.019)	(0.016)	(0.016)
2000s × December	-0.042**	-0.042***	0.0009
	(0.019)	(0.015)	(0.017)
2000s × January	0.269***	0.373***	0.009
	(0.024)	(0.022)	(0.022)
2000s × February	0.116***	0.172***	-0.025
	(0.022)	(0.019)	(0.019)
2000s × March	0.154***	0.142***	0.037**
	(0.020)	(0.017)	(0.017)
2010s × April	-0.106***	-0.037**	-0.077***
	(0.020)	(0.017)	(0.019)
2010s × May	-0.126***	-0.061***	-0.065***
	(0.020)	(0.017)	(0.018)
2010s × June	0.008	0.041**	0.010
	(0.021)	(0.017)	(0.018)
2010s × July	-0.042*	0.046**	-0.043**
	(0.023)	(0.019)	(0.020)
2010s × August	-0.393***	-0.326***	-0.148***
	(0.022)	(0.019)	(0.019)
2010s × September	-0.430***	-0.339***	-0.185***
	(0.020)	(0.017)	(0.017)
2010s × October	-0.277***	-0.145***	-0.177***
	(0.020)	(0.017)	(0.017)
2010s × November	-0.374***	-0.268***	-0.188***
	(0.020)	(0.017)	(0.017)
2010s × December	-0.256***	-0.196***	-0.100***
	(0.020)	(0.017)	(0.018)
2010s × January	0.360***	0.571***	-0.017
	(0.025)	(0.024)	(0.024)
2010s × February	0.108***	0.147***	0.023
	(0.022)	(0.020)	(0.020)
2010s × March	0.287***	0.227***	0.135***
	(0.021)	(0.018)	(0.017)
Observations	963,300	963,300	963,300
Municipalities	3,211	3,211	3,211
R^2	0.714	0.739	0.635

All models include municipality-year fixed effects, month fixed effects, and a lag of the dependent variable. Municipality-clustered standard errors in brackets. *p<0.05; **p<0.01; ***p<0.001.

I Political bureaucratic cycles in hires, by audit

Table 10: Political bureaucratic cycles in hires by anti-corruption audit and by contract type

	Total (1)	Temporaries (2)	Civil servants (3)
April	0.142***	0.134***	0.050***
	(0.008)	(0.007)	(0.008)
May	0.024***	0.024***	-0.016**
	(0.007)	(0.006)	(0.007)
June	0.287***	0.218***	0.132***
	(0.007)	(0.006)	(0.007)
July	0.128***	0.104***	0.031***
	(0.008)	(0.007)	(0.007)
August	-0.408***	-0.305***	-0.225***
	(0.008)	(0.007)	(0.007)
September	-0.231***	-0.112***	-0.115***
	(0.007)	(0.006)	(0.006)
October	-0.017**	0.082***	-0.053***
	(0.007)	(0.006)	(0.006)
November	-0.123***	-0.059***	-0.065***
	(0.008)	(0.006)	(0.006)
December	0.044***	0.055***	0.028***
	(0.008)	(0.006)	(0.006)
January	1.15***	1.03***	0.454***
	(0.010)	(0.011)	(0.010)
February	-0.146***	-0.176***	-0.162***
	(0.008)	(0.008)	(0.008)
March	0.151***	0.101***	0.054***
	(0.007)	(0.007)	(0.007)
Audit × April	0.012	0.036	0.026
	(0.031)	(0.028)	(0.031)
Audit × May	-0.011	-0.041	0.036
	(0.030)	(0.028)	(0.029)
Audit × June	-0.044	-0.041	0.012
	(0.031)	(0.028)	(0.032)
Audit × July	0.074**	0.061*	0.044
	(0.035)	(0.031)	(0.032)
Audit × August	-0.141***	-0.124***	-0.066**
	(0.035)	(0.030)	(0.032)
Audit × September	-0.096***	-0.058**	-0.031
	(0.028)	(0.025)	(0.024)
Audit × October	-0.038	-0.002	-0.022
	(0.028)	(0.025)	(0.023)
Audit × November	-0.059**	-0.060**	-0.004
	(0.026)	(0.024)	(0.021)
Audit × December	-0.078***	-0.051**	-0.034
	(0.027)	(0.022)	(0.023)
Audit × January	0.104**	0.136***	0.0005
	(0.042)	(0.049)	(0.044)
Audit × February	0.032	0.002	0.021
	(0.037)	(0.038)	(0.037)
Audit × March	0.048	0.041	0.015
	(0.035)	(0.035)	(0.032)
Observations	998,640	998,640	998,640
Municipalities	4,161	4,161	4,161
R^2	0.630	0.637	0.520

All models include municipality-year fixed effects, month fixed effects, and a lag of the dependent variable. Municipality-clustered standard errors in brackets. *p<0.05; **p<0.01; ***p<0.001.

J Alternative specifications

This appendix shows that results on political bureaucratic cycles for hires are robust to the follwoing alternative specifications: using different transformations of the dependent variable (dropping observations where the unlogged outcome equals zero, taking the inverse hyperbolic sine transformation, or transforming employment outcomes into a binary measure of whether the count is larger than zero), omitting the lagged dependent variable, using municipality and year fixed effects instead of interactive fixed effects, clustering standard errors at the municipality and year level, clustering standard errors at the municipality and month level, using unbalanced panels, and omitting years with federal and state elections.

Figure 18: Political bureaucratic cycles in hires, by contract type
Log, without adding 1

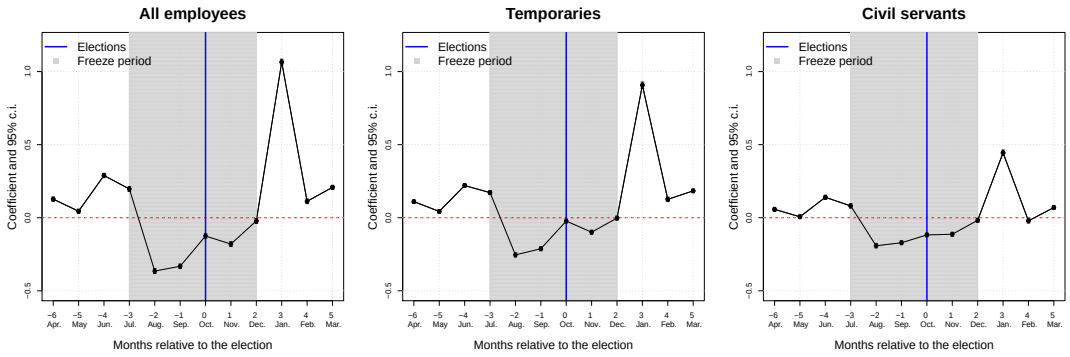
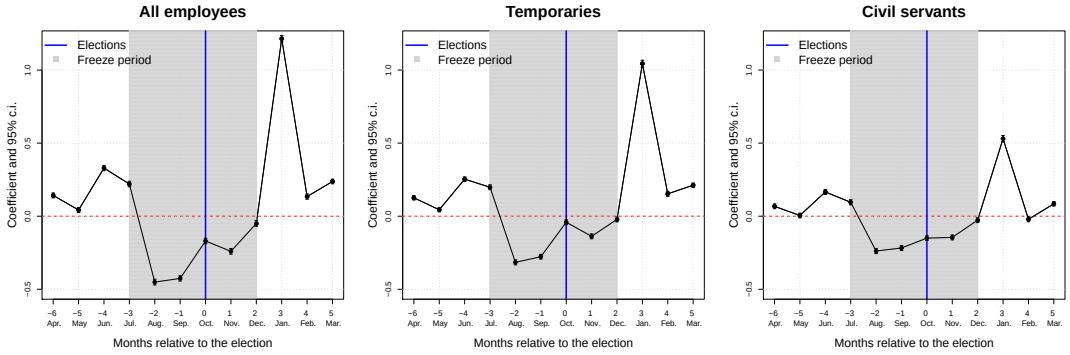


Figure 19: Political bureaucratic cycles in hires, by contract type
Inverse hyperbolic sine transformation



Points and their confidence intervals (c.i.) correspond to the $\hat{\beta}$ coefficients in Equation 1.

Figure 20: Political bureaucratic cycles in hires, by contract type
Binary measure of whether there are any hires

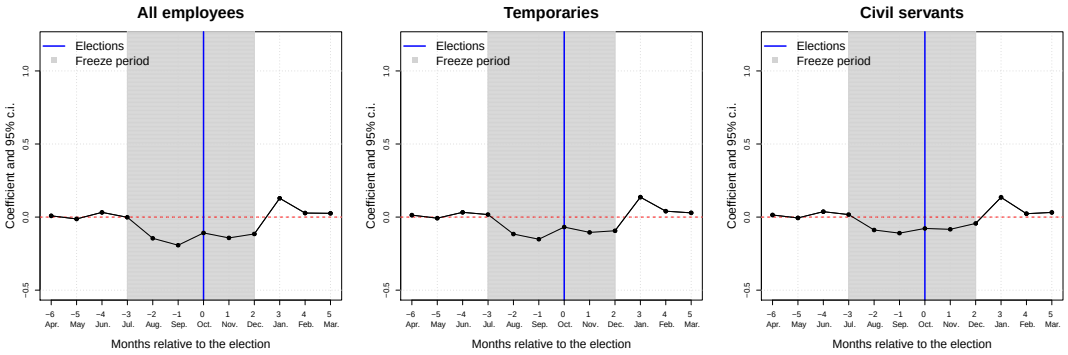


Figure 21: Political bureaucratic cycles in hires, by contract type
Omitting the lag of the dependent variable

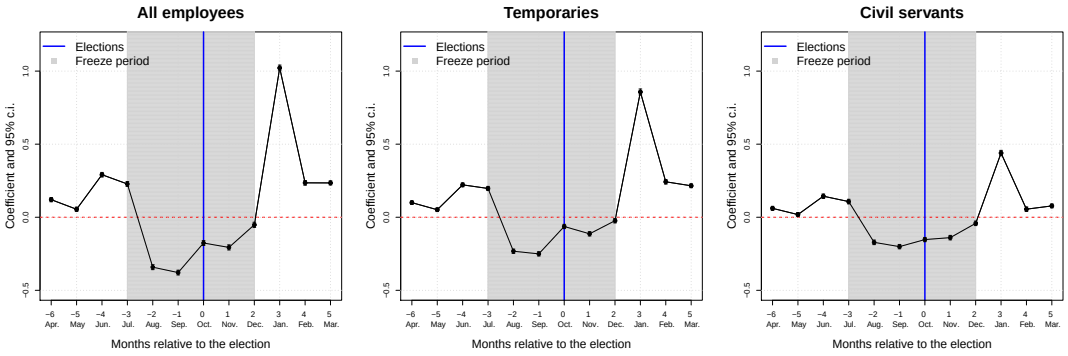
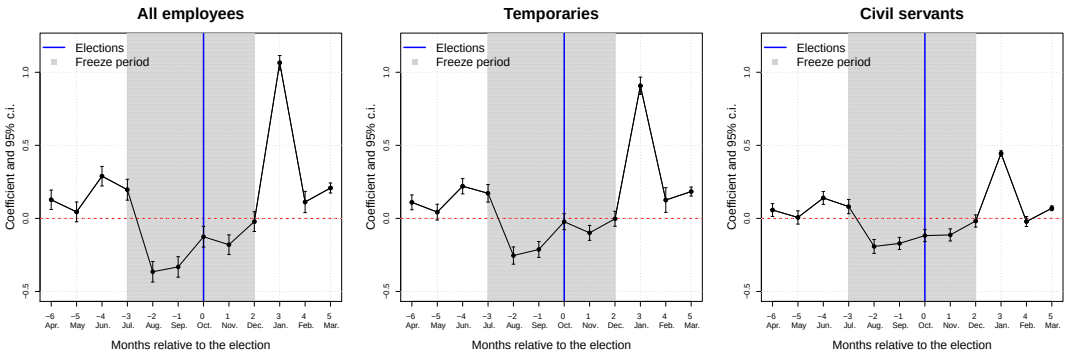


Figure 22: Political bureaucratic cycles in hires, by contract type
Standard errors clustered by municipality and by month



Points and their confidence intervals (c.i.) correspond to the $\hat{\beta}$ coefficients in Equation 1.

Figure 23: Political bureaucratic cycles in hires, by contract type
Standard errors clustered by municipality and by year

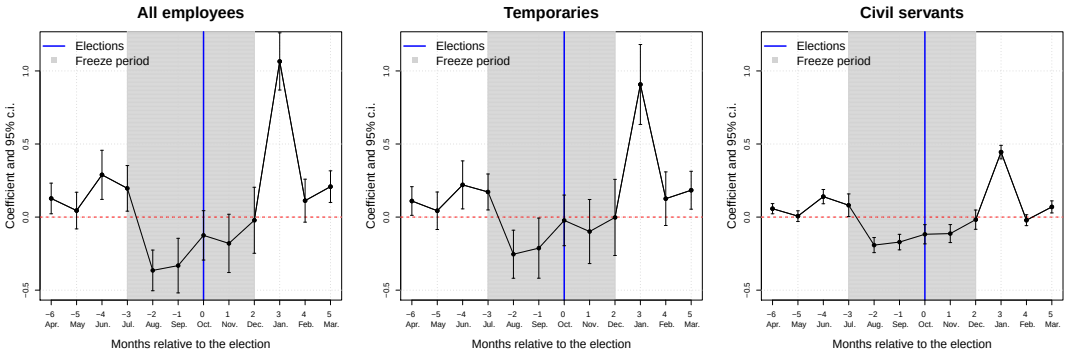


Figure 24: Political bureaucratic cycles in hires, by contract type
Two-way fixed effects

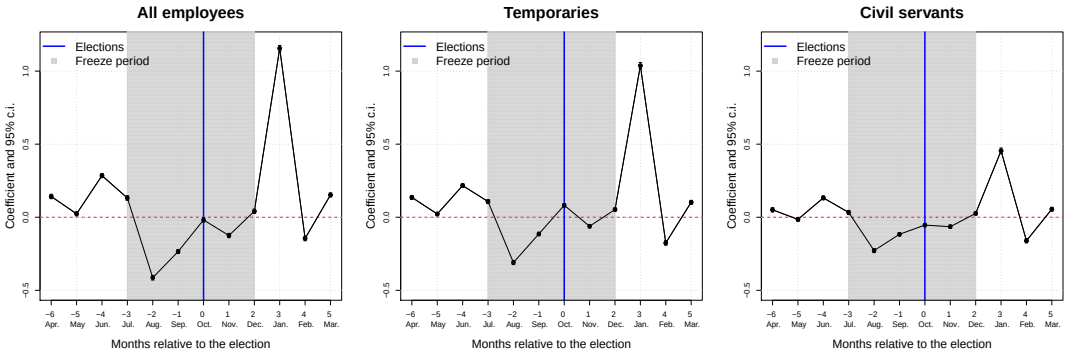
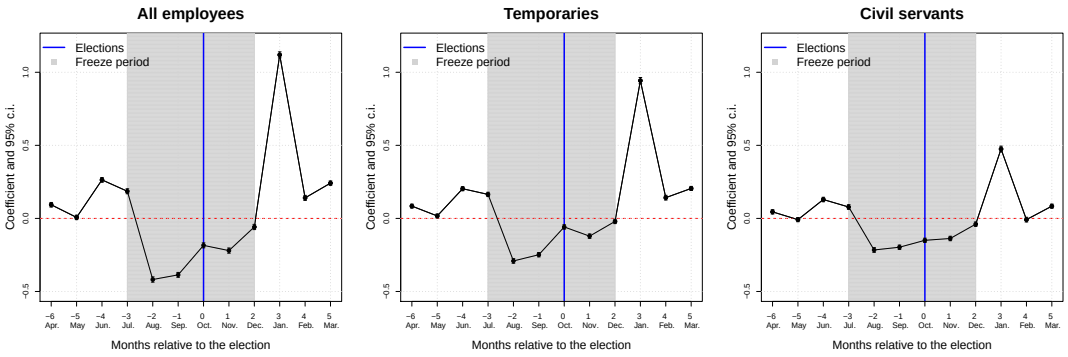
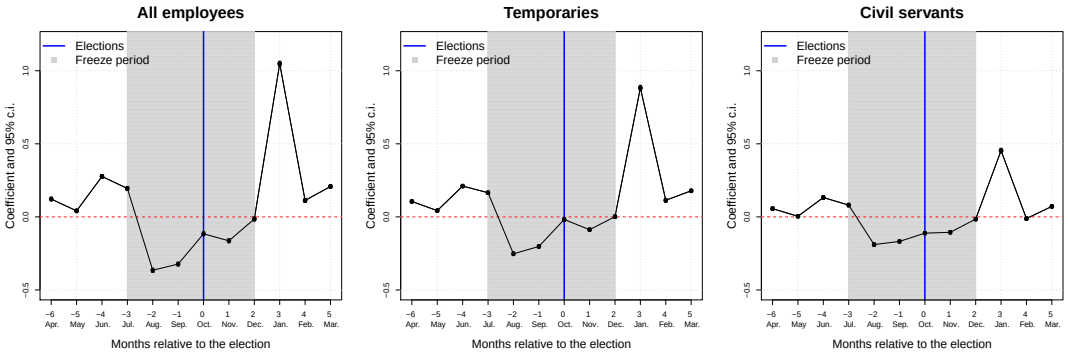


Figure 25: Political bureaucratic cycles in hires, by contract type
Omitting years with state and federal elections



Points and their confidence intervals (c.i.) correspond to the $\hat{\beta}$ coefficients in Equation 1.

Figure 26: Political bureaucratic cycles in hires, by contract type
Unbalanced panels



Points and their confidence intervals (c.i.) correspond to the $\hat{\beta}$ coefficients in Equation 1.