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# Jobs Cronyism in Public-Sector Firms\*

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## Abstract

Politicians can use the public sector to give jobs to cronies, at the expense of the efficiency of those organisations and general welfare. In this paper, we regress monthly hires across all firms in Portugal with some degree of public ownership on the country's 1980-2018 political cycle. We find that public-sector appointments increase significantly over the months just after elections but only if the new government is of a different political colour than its predecessor. These results are consistent with a simple model of cronyism and hold in multiple robustness checks. Overall, we find our evidence to be consistent with politically-induced misallocation of public resources.

*Keywords:* Corruption, matched employer-employee panel data, public-sector employment.

*JEL Codes:* J45, H11, J23.

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# 1 Introduction

“No jobs for the boys”, declared António Guterres, the newly-elected Portuguese prime-minister (and current United Nations secretary-general), shortly after his party had regained power in October 1995. The statement was made when his party had spent as many as ten years in opposition. His call sought to address the perception - in Portugal and in many other countries - that governments make use of their powers to appoint cronies and apparatchiks to public-sector positions. Many of these appointments are thought to be made regardless of the merits of the appointees or the needs of the organisations that hire them.

In fact, politicians in power are typically entitled to create and fill vacancies in the civil service as well as in state-owned firms. Given the considerable asymmetry of information they enjoy, politicians can hire cronies under the pretense of efficiency gains, even if the purpose of such appointments is to serve strictly private or party-political goals. Such mismatch between private and public benefits from crony appointments can easily explain why public-sector employment levels may swell above a social optimum. This will be particularly true when taking into account the soft budget constraints of many public-sector organisations and their reduced exposure to competition (Ades & Tella 1999).

For the reasons above, shedding light on public-sector jobs cronyism is of great importance. This is particularly true when taking into account the large size of the public sector, the severe detrimental effects of corruption (Shleifer & Vishny 1993), the evidence of a performance gap between public and private firms (Shleifer 1998), the potential for disruption of internal labour markets, and the fact that rigid employment protection observed in many countries (OECD 1994) will make it difficult for new governments to dismiss their antecessors’ cronies. However, an empirical investigation on cronyism is particularly challenging. As in other types of corruption, the two sides in that process (politicians and their cronies) have a strong preference to hide their relationship from public scrutiny. In fact, we could only find two empirical analysis of jobs cronyism, Mocetti & Orlando (2019) and Colonnelli et al. (2020), which consider the cases of Italy and Brazil, respectively.

This paper proposes a new method of investigate jobs cronyism and presents empirical evidence on its magnitude. Our methodology is motivated by a number of different indirect approaches which uncover strong evidence of corruption (Duggan & Levitt 2002, Jacob & Levitt 2003, Hsieh & Moretti 2006, Wolfers 2006, Gorodnichenko & Sabirianova Peter 2007).

In our case, we start by presenting a simple model of cronyism, where politicians supply appointments to state-sector firms that are demanded by cronies, in exchange for political or other favours. Given the expected greater supply and demand of appointments near general election periods, when favours by cronies can be more valuable or when politicians may be about to lose or have just established their ability to place cronies, for instance, the model predicts spikes in hirings both before and after elections. The model also predicts that post-election hiring spikes will be stronger if the new government is of a different political colour.

To test these predictions, we require data that are not only rich enough in terms of its coverage of the public sector and the appointments made there but also that are measured at a relatively high frequency (Akhmedov & Zhuravskaya 2004) and over a long period. This paper draws on particularly rich data that meet these multiple requirements: a longitudinal matched panel data set covering the population of firms that operate in a country, Portugal, with some degree of public ownership in at least one year from 1982 until 2018. Besides a large set of variables, including the degree of public ownership of each firm in each year, the data also lists the hiring date of each worker in each firm and in each year. We use this information to construct a monthly time-series of hirings across all selected firms. This includes all firms in the state-owned sector, which according to the law are only overseen but not directly managed by the government. We then regress these multiple time-series on the political cycle of the country - namely indicators of the months just before and just after a new government takes office - to test our model of cronyism. Moreover, we use the time-series of private-sector hirings as a possible counterfactual, for instance to control for business cycle or seasonal effects that may be correlated with the election calendar.

Our results indicate a systematic impact of the political cycle on the timings of state-owned firms in Portugal, as predicted by our model of cronyism. We find significant evidence of a large spike in hirings just after a new government takes office, particularly or only in the case when the new government is of a different political colour (left or right) than the previous incumbent. Furthermore, the results hold under different specifications and different subsets of the data, including less-skilled workers and firms in most sectors. We also find that changes in the top management of private firms (which one could regard as a better equivalent of general elections, in the context of the private sector), do not result in significant evidence of hikes in hirings in those firms, either in the months before or after the new appointment.

Our results appear consistent with evidence on the gains from privatisation (Megginson & Netter 2001, Brown et al. 2006). For instance, Porta & Lopez-De-Silanes (1999) show that one third of the efficiency benefits from privatization in Mexico came from transfers from laid-off workers. Bertrand et al. (2018) find that publicly-traded firms managed by politically connected CEOs display higher rates of job creation (and show lower profits) compared to unconnected firms, while Bandiera et al. (2009) document evidence that favouring ‘connected workers’ hurts firm performance. Our findings, while emphasising the microeconomic importance of hirings on top of its macroeconomic implications (Pissarides 2009), may also lead to a partial reinterpretation of the results from the political business cycle literature (Rogoff 1990) that tend to regard higher levels of public employment during election years as evidence of opportunistic behaviour by incumbents to persuade voters of their competence. Most important, while there has been considerable anecdotal evidence of cronyism in many countries, this is the first paper that provides systematic empirical evidence about this phenomenon. This evidence may hopefully pave the way for measures that expose and erode cronyism in the future.

The next section presents the theory that motivates our analysis. Section 3 briefly describes the Portuguese political system and the state-owned economic sector. Section 4 presents the data used in the paper and some descriptive statistics, after which Section 5 describes the main results. Sections 6 and 7 study their robustness and present some extensions, respectively. Finally, Section 8 concludes.

## 2 Theory

This section offers a non-technical model to think about jobs cronyism and its empirically testable manifestations. We focus on the aspects of cronyism that arise when politicians appoint individuals that helped or can help them to public-sector positions, regardless of the cronies’ suitability for those positions. Such cronyism corresponds to expenditure of public resources to pay for (political or other) benefits enjoyed by politicians, even if it may promote mismanagement and waste of public resources. This will also typically involve discrimination against people more qualified for those jobs.

There are two types of agents in our model of cronyism: politicians (either in power or in opposition) and cronies. Politicians care about obtaining, keeping and enhancing their power,

and this process will be facilitated by actions conducted by cronies, although cronies can also be of assistance in other, non-political spheres. Such favours can take a very large number of forms, including campaigning and grassroots activities, donations, (social) media work (in favour of the politician or against her opponents), ‘dirty tricks’ and personal favours.

On the other hand, cronies (who may also be politicians themselves) care about appointments in the public sector (civil service and state-owned firms), as these typically involve rents (Luechinger et al. 2007). The size of the rents will depend on the specific job at stake but it will generally entail a combination of higher salary, greater job stability, lower effort requirements, discretionary management of budgets, etc. The utility from such combination of job amenities would not be feasible in the cronies’ next best alternative (a non-crony job). Of course, these crony appointments can be made only by politicians in power, implying that cronies helping politicians in opposition will see their efforts pay off only if the politicians that they support are elected in the next elections.

The interaction between politicians and cronies creates an informal market for appointments in the public sector. These appointments can be measured in the model in terms not only of their number but also of their importance, for instance by the size of the rent involved. Furthermore, the market is segmented between current and prospective, after-election jobs. The former type of jobs will be offered only by politicians in power. In contrast, the latter type of jobs can be promised both by politicians in power and by politicians in opposition - but can only be delivered by whoever wins the next election.

In each market, the supply of appointments by politicians responds positively to their price, which is measured in terms of the relevance of the favours provided by the crony to the politician. The supply of appointments will also be affected by several other variables, of a political, economic or private nature. Political variables concern positive or negative aspects such as opposition from public-sector officers, legal issues (e.g. the law may offer politicians different latitude in discretionary appointments), competition within the party, and reputation costs. Moreover, placing cronies in the public sector can involve an insurance element from the point of view of the politician herself. This may also open avenues for reciprocation (Maggian et al. 2018), in particular if the politician loses power, for instance in the context of social networks (Kramarz & Thesmar 2013). Furthermore, the placement of cronies in strategic positions may also facilitate more crony appointments in the future. Economic variables refer

to the size of the public sector (countries or periods with bigger public sectors will generate more opportunities for placements) and the budget constraints faced by each government department. Finally, private aspects include the personal gains for the politician from the appointment. For instance, some cronies may be relatives and politicians may also care about the welfare of such (extended) families.

The case of politicians in opposition and their market for prospective appointments is similar. The main difference is the uncertainty of the reward (the appointment), as that will depend on the election result. This is compounded by the non-binding and not fully enforceable nature of the arrangement between the opposition politicians and their cronies, given the time gap between the favour (before elections) and the appointment (after elections, assuming the candidate wins).<sup>1</sup>

Turning to the demand for appointments, it is expected to respond (negatively) to its price and also to be affected by a number of additional variables, including the proximity to elections and the likely election result. Cronies of the same political colour of the incumbent understand that the time for safe, public-sector appointments will be running out, given the risk that their politicians and parties lose elections. This applies in particular to cronies appointed to political positions in a given government (advisers, personal assistants, etc), whose jobs will expire by default when that government comes to an end. Similarly, cronies of opposition politicians understand that the run-up to elections is an important time to deliver favours of interest for the possible future politicians in power. These two forces will increase the demand for cronyism during periods close to elections.

From the above aspects, it follows that the proximity to elections will affect both the supply of and demand for appointments. First, the model predicts that the behaviour of both politicians in power and challengers will shift the supply curve of crony appointments to the right just before elections: for instance, the effects from the favours will increase in terms of enhancing the probability of (re-)election. Moreover, appointments just before elections could mean a shorter period for the public opinion to gain awareness of them. Finally, there will be little or no reputation cost if the politician loses the elections. These factors mean that the proximity to elections increases the supply of appointments for every price (favour) paid by

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<sup>1</sup>While this moral hazard can be an important disadvantage faced by challengers, one would still expect that cronies would generally be rewarded with the promised appointment after the election if their politician wins. For instance, the crony may threaten to let the public know about the pre-elections arrangements if the newly-election politician reneges on her promise. Less cynical 'gift-exchange' views may also apply (Akerlof 1982), not to mention the 'private' reasons mentioned above (e.g. the gains from appointing relatives).

cronies. Second, for the reasons discussed above, the demand for appointments will similarly increase near elections.

We can therefore say that, in terms of predictions, first of all, we would expect that, under a null hypothesis of no cronyism, the electoral cycle would not influence public-sector hirings. In particular, in the case of state-sector firms studied in this paper, job appointments would be independent from election dates. This may contrast with the case of explicitly political appointments in government positions (ministers, advisors, spokespersons, etc), which are expected to increase soon after elections, with or without cronyism. However, if cronyism is relevant, then periods just before and just after elections will be times of above-average job (crony) appointments, as their demand and supply curves will both shift to the right. This positive relationship between elections (before and, in particular, after such events) and hirings by state-owned firms, when compared to private firms, is the key prediction that we take from this model to our data.

Another prediction we test is that the post-election hirings spike will be greater when there is a government of a different political colour than its antecessor. This follows from the fact that the deferred appointments, conditional on the victory of the challenger, will only apply in that case. In contrast, if the incumbent wins, their appointments may be split between the pre- and after-elections months, with a greater share in the pre-election months.

Next we present an overview of politics in the country under study in this paper, Portugal, and its data, which covers appointments in all state-sector firms over a period of 460 months and 14 general elections.

## 3 Institutional context

### 3.1 Political system

After a complex period that followed a revolution in 1974 that deposed a 48-year-long dictatorship, the political system became relatively stable from the early 1980s.<sup>2</sup> Notwithstanding that, there have been 13 governments since 1980 until 2008 and only four of them led to a full four-year term of office - see Table 1.<sup>3</sup> The table also lists the parties that led the gov-

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<sup>2</sup>Treisman (2000) finds that short exposures to democracy predict higher levels of corruption.

<sup>3</sup>The three main political players in Portugal are the president, the parliament, and the government. The president is elected to a five year term and has a supervising non-executive role. The Parliament is a chamber of 230 representatives elected in four-year terms. The government is headed by the prime minister, typically the leader of the most voted party, who chooses the ministers and their deputies. Ministers are responsible



ernments that took office following each one of those general elections. This table highlights the stability in the party structure: PS ('Partido Socialista', left wing) and PSD ('Partido Social Democrata', centre/right wing) have been, by far, the most important parties. These two parties have typically alternated in power every election or every other election, except in 1983-1985, a period of deep economic crisis, when the two parties formed government together.

Table 1 also highlights the fact that, despite the relatively large number of governments, most of them enjoyed a full majority in parliament (at least 50% + 1 of the representatives), which can facilitate considerably the approval of new laws and policies. In some cases, coalitions were formed, typically between PSD and CDS (a smaller, right-wing party). Another point of information is that the political colour of the government changed six times over the 30-year period covered, even if one party enjoyed a 10-year uninterrupted spell in power (PSD, from the mid-80s to the mid-90s). That spell only came to an end when Mr Guterres won the 1995 general election, prompting the memorable announcement mentioned in Section 1. When the same party (PS or PSD) won the general elections for a second time, the new government was always led by the same prime-minister and many of the same cabinet ministers (except in the early 1980s).

As to election dates, these are tentatively scheduled for September, unless a government comes to an end before the end of its mandate. In any case, (state-owned or private) firms have no influence on election dates, and in this sense they are exogenous with respect to firms' hirings. However, there may be indirect effects on firms' hiring decisions related to elections and their results. For instance, politically connected firms may seek to influence (regional) election results using their employment decisions (Bertrand et al. 2018). Coelho et al. (2006) and Veiga & Veiga (2007) observe an increase in the annual employment levels of municipalities in Portugal in the years of elections, which they interpret as efforts by mayors to enhance voters' perceptions of the mayors' abilities. See also Dahlberg & Mork (2011) who find a 1% increase in public employment in election years when comparing Sweden and Finland.

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for overseeing state-owned firms. Some governments (7, 8 and 16) did not follow from elections but from the resignation or death of the former prime-minister.

## 3.2 State-sector firms

Our empirical analysis is focused on firms that, in at least one year, are public owned. According to the law, state-owned firms in Portugal should be managed so to pursue economic (and social) goals, in which case the political cycle would not affect appointments apart from a very small number of top positions (e.g. CEO's).

The number and importance of state-owned firms in Portugal is considerable, in part because of a wave of nationalisations following the 1974 *coup d'etat*. Although there have been more than 230 privatisation events from 1987 to 2005, involving revenues of 25 billion euros (Ministry of Finance 2006), the state-owned enterprise sector still accounted for about 4.7% of GDP and about 2.4% of employment in 2005 (Ministry of Finance 2006). In fact, state-owned firms can be found in a large number of sectors, including utilities, transport, infrastructures (air, rail, ports, roads, wholesale markets), finance, health, urban renewal, media and culture. The state also holds equity in a number of private firms, most of them having been privatised in the recent past (energy and water firms, for instance).

Some of these firms are still potentially subject to considerable state intervention via the so-called 'golden share' mechanism, which allows the state to have veto powers in a number of decisions taken by those firms, even if the actual percentage of ownership rights in those firms is only residual (a form of minority ownership). As this mechanism is disregarded in this paper (i.e. we ignore golden shares and define a firm as state-owned based on whether the state owns 50% or more of the firm), our results can be seen as lower-bound estimates of any cronyism effects documented later. There are also a smaller number of private firms that become state-owned because they went bankrupt when the state was their main creditor. These firms are managed by the state until they are liquidated or auctioned to private investors (see Ministry of Finance (1998) and Ministry of Finance (2006) for more detail.)

Overall, it would be difficult to argue that many of the firms owned by the Portuguese state meet the economic conditions for public ownership to improve upon private ownership (Shleifer 1998). These conditions include weak competition and consumer choice, weak potential for innovation, weak reputation mechanisms, and opportunities for cost reductions that lead to non-contractible reduction in quality. Moreover, state-owned firms as a group have always made (accounting) losses: for instance, state transfers in 2005 amounted to 7.4 billion euros (Ministry of Finance 2006), even if this figure does not include loans taken by those state-

owned firms that are indirectly subscribed by the state.

In this context, the large number of firms that remain in the public sector may itself follow partly from the cronyism potential that arises from state-ownership. However, while government ministers and deputy ministers are responsible for overseeing the management of each state-owned firm, including the appointment of their CEO's and administration members, they are not supposed to influence the day-to-day management of those firms, including recruitment issues. On the other hand, the recruitment of employees by state-owned firms does not need to meet the supposedly more stringent procedures required in the the appointment of public servants, even if the two types of workers are protected by rigid employment laws (Martins 2009). The more discretionary appointment process in the case of state-owned firms could be a particularly interesting avenue for politicians to return the favours delivered by their cronies.

In additional results available upon request, we conducted an analysis of the wage practices of state-owned firms compared to private firms using the same comprehensive matched employer-employee panel data set that we describe next. We found always significant wage premiums in state-owned firms, even in models controlling for a large range of heterogeneity sources (workers or spell fixed effects). These results are consistent with the premise in our model that jobs in state-owned firms provide rents.

## 4 Data

The data used in this paper are derived from 'Quadros de Pessoal' (QP, Personnel Records), a particularly rich annual census conducted by the Ministry of Employment and covering all firms that operate in Portugal and that employ at least one worker. According to employment law, each firm is legally required to provide extensive information about itself and also about each one of its workers that are employed during the census reference month (March, up to 1993, and October, from 1994). Given the extensive coverage of the data, the only types of workers excluded are the self-employed and public servants. Moreover, the period covered by the data is relatively long, as the census has been ongoing since 1982, allowing us to track the political cycle over nearly 40 years, up to 2018.

The long list of variables available in QP includes unique, time-invariant identifiers for each firm and for each employee. Other firm-level variables are the economic sector/industry

(five-digit code), region, number of employees (constructed from the worker-level data), firm age, sales in the previous year, and capital equity. Crucially for this paper, there is also information, for each firm and each year, on the ownership structure of the firm, measured by the percentage of total voting rights stemming from capital equity ownership held by private/domestic, foreign, or public (Portuguese state) stakeholders. At the worker-level, the data includes schooling, age, gender, occupation (five-digit code), job level (a two-digit variable) and promotions. There are several wage variables, all of them expressed in monthly values (the most common frequency of pay in Portugal), including base wages, and information about normal and overtime hours.

Importantly, the data also include information about the month and the year when each employee was hired by the firm. We use these two variables to construct a time-series that counts the number of workers hired in each month by type of firm (state- or private-owned).<sup>4</sup> For instance, we measure the number of state-sector hirings in, say, June 2005, from the number of workers hired in that month according to the lists of personnel of all state-sector firms as reported in the October 2005 census. This variable will inevitably miss short employment spells that start at an earlier month than the census month of the year (March or October). For instance, a worker hired in June 2005 that leaves the firm before October 2005 will not be counted. Moreover, as 1990 and 2001 worker-level data are not available, we rely on longer-lasting employment spells in those periods.<sup>5</sup> Finally, in order to extend the period covered slightly, we also considered appointments since April 1980 that last until March 1982, the first census available. Later in the paper, we explain how we take these data issues into account when estimating our results and check the robustness of the results to different measurement approaches.

In order to draw on a common support of public-owned and non-public-owned firms, we consider and examine all firms that have a positive degree of public-ownership (1% or more of their capital equity held by the state) in at least one year. All other years in which such firm appears in the data are also considered, regardless of its ownership (including when privately

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<sup>4</sup>See Martins et al. (2012) for another analysis of new hires using the ‘Quadros de Pessoal’ data set, in that case about their annual real wage cyclicality.

<sup>5</sup>Specifically, we consider workers that were hired in each month: 1) from April 1989 (the first month after the previous available census month, March 1989, given the lack of 1990 data) until March 1991 (the following census date); or 2) from November 2000 (the first month after the previous available census month, October 2000, given the lack of 2001 data) until October 2002 (the following census date). Workers that join the firm after the census date (when firms report their data late) or without information on their date of entry into the firm are dropped from our analysis. These cases account for a very small number of observations.

owned, by domestic or international investors). Firms are defined as state-owned in a year if at least 50% of the voting rights in that year are held by the Portuguese state.<sup>6</sup> We find a total of 2,719 different firms which in at least one year are owned by the state, a number which varies from 271 in 1980 and 635 in 2012. Each firm is observed once in each one of the 463 months analysed in our paper, from April 1980 until October 2018, leading to a full data set of over 1.25 million firm-month observations.

#### 4.1 Descriptive Statistics

Table 2 presents descriptive statistics of the three types of firms considered in our analysis (public-, private- and foreign-owned firms), over the months available in our data, from April 1980 to October 2018. The mean monthly hirings across state-owned firms over that period, considering periods without hires as well, is 1.8 (standard deviation 12.8). In terms of the domestic-(foreign-)owned firms, we find that the number of mean hirings is 0.3 (2.4). Note that the number of (firm-month) observations is very different: 165,039 in the case of public-owned firms, over one million in the case of domestic-owned firms and 40,654 in the case of foreign-owned firms.

Our monthly hirings series of state-, domestic- and foreign-owned firms (as defined above) are presented in Figure 1. The figure also highlights the three-month periods immediately after a new government takes office (and the cases when the new government is of a different political colour than its predecessor, in dark grey), in accordance with Table 1. There are clear examples of an overlap between a spike in hirings and such three-month periods, namely in late 1985/early 1986, mid-2002 and mid-2005, all of them coinciding with governments of a different political colour. In fact, there are fewer examples of overlap between new governments of the same political colour as their predecessors and spikes in hirings (e.g. 1981, late 1999/early 2000) and those magnitudes are smaller. On the other hand, there are fewer examples of possible overlaps between spikes in hirings of the two remaining groups of firms and the periods after elections.

Overall, we interpret the evidence above as encouraging as to the scope for the political cycle to drive hirings of state-owned firms, either when taken in isolation or when considering the contrast between state-owned and private (domestic or foreign) firms. Section 5 will

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<sup>6</sup>As we do not have information on the specific month when the type of ownership changed, we assume this occurred from January of the year after the last year when the firm was state-owned.

subject these suggestive findings to more precise statistical tests.

## 5 Results

Following the theoretical discussion, our empirical analysis is based on the examination of the relationship between hirings and the electoral cycle. Specifically, we estimate the following equation, based on monthly data for the state-owned and domestic sectors (private and foreign firms), in the spirit of an event study:

$$\begin{aligned}
 Hires_{it} = & \beta_1 NewGovtAfter_t * PublicOwned_{it} + \beta_2 NewColourAfter_t * PublicOwned_{it} + \\
 & \beta_3 NewGovtBefore_t * PublicOwned_{it} + \beta_4 NewColourBefore_t * PublicOwned_{it} + \\
 & \beta_5 NewGovtAfter_t + \beta_6 NewColourAfter_t + \beta_7 NewGovtBefore_t + \beta_8 NewColourBefore_t + \\
 & \beta_9 PublicOwned_{it} + X_{it}\beta_{10} + e_{it}.
 \end{aligned}
 \tag{1}$$

The dependent variable,  $Hires_t$ , indicates the number of new hires of firm  $i$  in month  $t$ .  $NewGovtAfter_t$  is a dummy variable equal to one in the first three months after a new government takes office (and zero otherwise), while  $NewColourAfter_t$  is a dummy variable equal to one in the first three months after a new government of a different political colour than its predecessor takes office (and zero otherwise), as indicated in Table 1. We pick a time range of three months as it strikes us as a reasonable period of time when the post-elections spike may arise (later we examine the robustness of our findings to this choice). Similarly,  $NewGovtBefore_t$  and  $NewColourBefore_t$  are dummy variables equal to one in the first three months before a new government takes office (and zero otherwise), in the second case when a new government of a different political colour than its predecessor takes office.  $Public - Owned_{it}$  is a dummy variable equal to one if firm  $i$  is public owned in month  $t$ .

Finally,  $X_{it}$  is a set of control variables, depending on the specification, including a dummy for each month (January, February, ..., December) to pick up seasonal effects, a dummy for each month in the period up to March 1993 (when the pattern of seasonality may be different because of the different census month), a variable ('Distance') capturing the number of months between the census month and  $t$  (ranging from zero to 23), and a quadratic trend. These variables serve to control for systematic differences in the number of hirings across months and

years (because of business cycle or seasonal effects) that may be correlated with the political cycle. In the most thorough specifications,  $X_{it}$  includes firm and month (month/year, ie Jan 2008 or Dec 2015) fixed effects.

Given the large number of zeroes in our dependent variable, we estimate the equation above using a Poisson model. Moreover, given the large number of fixed effects in the most detailed specifications, including over 2,000 firm fixed effects and over 460 month fixed effects, we make use of the new algorithm introduced in Correia et al. (2020). We also allow for clustering of standard errors at this month level.

$\beta_1$  and  $\beta_2$  are the key parameters of interest. The first one indicates the average percentage difference in state-sector hires during the three-month periods after a new government takes office; the second parameter indicates any additional effect (on top of  $\beta_1$ ) on hires of state-sector firms if the new government that took office is of a different colour than its predecessor (i.e. typically a switch from PS to PSD or vice-versa). According to our model, cronyism would be consistent with significantly positive coefficients for either variables or, at least, a significantly positive  $\beta_2$ .  $\beta_3$  and  $\beta_4$  are also parameters of interest, indicating potential increases in hires in the run-up to an election, particularly when new political colour may be more likely to take over.

Note that, in models including firm and month fixed effects, identification is obtained from variation across firms over the critical months that is specific to public-owned firms (as opposed to their private-owned counterparts). Part of such variation is driven from firms that switch status between public- and private ownership, which correspond to a majority of our sample (2,116 firms in total, when considering a 50% capital equity ownership threshold). In other words, we compare the same firms over time and contrast their responsiveness to the political cycle when owned privately and publicly. We also compare different firms at the same points in time (thus implicitly controlling for the business cycle) and again contrast their hirings as function of the political cycle.

Table 3 presents our main results, based on different versions of equation 1. We find that, when not considering firm fixed-effects, all coefficients are insignificant (columns 1 and 2). However, when allowing for firm-specific differences in hires, we obtain significant coefficients in the new government dummy variables (columns 3 and 4). The point estimates of the interaction between new government colour and public ownership increase to 37% and are

statistically significant at the 1% level. On the other hand, the point estimates of the interaction between new government and public ownership increase to -16% and are statistically significant at the 5% level.

Finally, we do not significant effects in hirings in the months before a new government, of the same or of a different colour, despite positive coefficients in both cases, of between 9% and 12%. Besides testing directly the prediction of the model regarding pre-elections appointments, this analysis also addresses an alternative interpretation of the findings above on the post-elections hires bump: Hires may be put on hold in the run up to an election because of the unpredictability of the election outcome and the future strategic direction of the firm. Firms could adopt this approach if they predicted that a potential new government would introduce different personnel practices, including a different profiles of new hires. If this were the case, then, once the new government takes office, such held-up appointments could finally take place, generating a post-elections increase in hires, as documented in above, that would not be consistent with cronyism.

Overall, these results indicate that, in general, monthly hires by state-owned firms tend to fall (by about 16%) after a new government takes office. However, if the new government is of a different political colour than its immediate predecessor, then the effects are reversed and hires actually increase (by about  $37\% - 16\% = 21\%$ ). In contrast, hires do not appear to be significantly affected (just) before general elections, regardless of what happens regarding a potential change in the new government.<sup>7</sup> All results are consistent with our theoretical discussion above about the effects of cronyism in state-sector hirings.

## 6 Robustness

### 6.1 Month-by-month analysis

Here we conduct an analysis of the monthly hires in specific reference to the month when elections take place (see also Akhmedov & Zhuravskaya (2004)). This is a more disaggregated and directed approach than in our benchmark results above and allows us to gain a more detailed understanding of the systematic differences in hirings over the months before and after elections. In particular, we consider both the 6 months before elections and the 6

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<sup>7</sup>Opinion polls typically predicted well which party would win and form government, at least since the mid-1980s. Any spike in hires in the pre-elections period could be higher when the incumbent was predicted to lose.



months after elections. Our specification again draws on hires of the three types of firms, following equation 1, as in Section 5:

$$\begin{aligned}
 Hires_{it} = & \sum_{j=-6}^6 \beta_j^A NewColourAfter_{t+j} * PublicOwned_{it} + \\
 & \sum_{j=-6}^6 \beta_j^B NewColourAfter_{t+j} + \beta_2 PublicOwned_{it} + X_{it}\beta_3 + e_{it}.
 \end{aligned}
 \tag{2}$$

All variables are defined as above. The 13  $\beta_j^A$  parameters thus indicate the average percentage difference in hires of public-owned firms in those months (from 6 months before to 6 months after general elections that led to a government of a different colour) with respect to the comparison group of months outside this range. Moreover, we focus of the case of a change of political colour because that was the most important finding in the previous section.

Table 4 presents the results, which indicate again a large spike in hires in the first months following a new government of a different political colour. In particular, month 2 presents an increase in hires of 47% (significant at the 1% level), while month 1 has an increase in hires of 28% (significant at the 10% level). Interestingly, we also find an increase in hires before a new government of a different colour but before the three-month window we considered before, namely between months -6 and -4, with increases of between 19% and 32%, significant at the 5% or 10% levels. When considering as well indicators for new government (not necessarily of a different colour) both before and after the elections, the latter results lose statistical significance while the former (on the increase after elections) remain large and significant (results available upon request).

Overall, the more nuanced analysis conducted here supports our benchmark findings presented before and the predictions of our cronyism theoretical framework, namely regarding a significant increase in hirings in public-sector firms immediately after general elections when the political colour of the new government changes. Moreover, we also find evidence of increases in hires before general elections in the context of a future change in the political colour of the government.

## 6.2 Political colours

We also tested if there are systematic differences between the left- and right-wing main parties (PS and PSD) in terms of the pre- and post-elections spikes in hirings. We considered our benchmark specification in equation 1 and split each one of the four dummy variables there into left- and right-wing versions. The results are presented in Table 5, focusing on the post-election variables. Again, they indicate similar effects as before, stemming from new government colours, but coming mostly or exclusively from left-wing governments: 41%, statistically significant at the 1% level - in contrast to 19%, not statistically significant at the 10% level. Given the imprecision of the latter coefficient, we cannot rule out that the effects are equal from a statistical perspective, even if, when taken at face value, left-wing new governments appear to increase hires in public-owned firms by more.

## 6.3 Capital equity share

In our main analysis, we considered public-owned firms as those in which the state owns at least 50% of their capital equity. In this robustness check, we consider instead a potentially more demanding measurement of public involvement, based on the percentage of capital equity held by the state. This percentage can thus vary from 0% to 100%, allowing to test for a linear relationship between the degree of capital ownership and the degree of influence in new hires with respect to the political business cycle, in the context of our cronyism model. All other aspects of the specification are as above:

$$\begin{aligned} Hires_{it} = & \beta_1 NewGovtAfter_t * PublicShare_{it} + \beta_2 NewColourAfter_t * PublicShare_{it} + \\ & \beta_3 NewGovtBefore_t * PublicShare_{it} + \beta_4 NewColourBefore_t * PublicShare_{it} + \\ & \beta_5 NewGovtAfter_t + \beta_6 NewColourAfter_t + \beta_7 NewGovtBefore_t + \beta_8 NewColourBefore_t + \\ & \beta_9 PublicShare_{it} + X_{it}\beta_{10} + e_{it}. \end{aligned} \tag{3}$$

Table 6 presents the results, which are again strongly consistent with our benchmark findings: statistically significant negative effects, of -0.2% per percentage point of capital equity share in the case of a new government, and statistically significant positive effects, of 0.4% per percentage point of capital equity share in the case of a new government of a

different government colour.

These results indicate that the magnitude of the cronyism effect, in the context of our model, will increase with the degree of control that the state will have in the firm, from no effect at all in strictly private firms to up to 20% increases in hires in fully controlled public-sector firms  $((-0.2\%+0.4\%)*100)$ .

#### **6.4 Additional checks**

Furthermore, in the spirit of a falsification test, we checked if the municipalities' electoral cycle affected hirings. All coefficients proved to be insignificant, as expected. The same result was obtained when we lagged the (general) elections dates by six months or one year. The results (available upon request) are again qualitatively similar to our main findings.

Moreover, we considered the effects of the hires prompted by the election period on the total employment of the firms affected. Unfortunately, our data does not provide information on employment at the same frequency as the hirings information (Akhmedov & Zhuravskaya 2004). However, we were able to find some evidence that employment levels do increase in election years.

In an additional analysis, we examined the profiles of the workers hired over the period covered in our data in state-owned and private firms. We conducted this analysis by computing the mean value of each worker characteristic in each month in both private and state-sector firms. Specifically, we considered several of the worker characteristics available from QP, namely mean schooling years, mean (Mincer) experience, mean age, mean real hourly wage, mean wage bill, mean job level, and the female ratio. We then estimated a specification similar to our benchmark model, except that the dependent variable is the level or the log of each of the worker characteristics described above, rather than the count of newly hired workers. In results not reported but available upon request, we find that all worker characteristic effects tend to be insignificant. These results point strongly in the direction of effects across the entire firms' hierarchy, rather than just a (small) subset of high-level positions.

### **7 Extension: Managers in private firms**

In Section 3.2 we explained that public sector firms in Portugal are not directly controlled by government ministers, even if the government is responsible for appointing the CEO and other

members of the board in those firms and providing strategic guidance. One may therefore tentatively argue that the best equivalent of general elections in the context of private-sector firms would be private firms that undergo a change in their top management. In this case, a good understanding of the effects of general elections (and new governments taking office) upon hirings in state-owned firms would require a comparison with private-sector firms that similarly undergo a change in their top management.

Here we assess to what extent private firms that undergo a change in their CEOs also exhibit systematic increases in their hires just before and/or just after those events, as we have shown in the case of public-sector firms near election periods. In particular, we draw on our sample of private firms and identify those which exhibited turnover in their top management position. We then use the date (month and year) when the new top manager in the firm was promoted (or hired from the external market) to that top-management position to create a dummy variable specific to each firm that will be one in the three months immediately after the appointment (promotion or external hire) of the new top management and zero in the remaining months. This is intended to follow closely our analysis for public-owned firms. Using a similar time series of appointments that we explored in our main results and a similar specification as that of equation 1, we estimate the partial correlation of pre- and post-CEO-reshuffle in terms of the hirings of private firms.

Table 7 presents the results. The top panel includes all private firms, while the bottom panel considers only the subset of private firms that exhibit turnover in their top management. We also consider different types of dummy variables, highlighting the three (or six) months after the new top management or the three months before, and a combination of the three variables (except that, unfortunately for our purposes in this study, there are no obvious equivalents to a change in political colours in the context of private firms, at least in our data). All other controls used before are also considered but not reported. In both panels, each observation corresponds to a firm-month.

We find no evidence of systematic spikes in hirings either before or after the private firms appoint new top managers. If anything, there is evidence that private-sector firms undergo a period of fewer appointments, of approximately 1%, both just after and just before new management (column 4 of the top panel). When focusing on the subset of firms that change ownership, the effects even double to -2.2% (over the period after the new top management

appointment).

This result may be explained by the need to understand better the firm before a new strategy is implemented by the new CEO. This would suggest that top management would find it better to slow down new appointments until she has settled down in her new job. Similarly, it may not be appropriate for the previous CEO to increase hirings just before the new CEO takes over, in case the latter decides to take the firm in a different direction, which may not fit with the profile of those hirings. In any case, and more important, the clear contrast between our results for public-sector firms -considerable increases in hires just after a new government, of a different political colour, takes office - and these results for private firms undergoing a change in their top management - hires tend to slow down - makes the cronyism interpretation of the public-sector hirings spikes even more likely.

## 8 Conclusions

State-owned firms can carry out a number of tasks that may be less efficiently produced by the private sector. However, it has been shown abundantly that assuming the benevolence and public-spiritedness of politicians overseeing or managing those firms is not always appropriate. Their private interests may not be fully aligned with those of the public-sector firms that they supervise on a political level. For instance, politicians can use those firms to give jobs to cronies, at the expense of public- sector efficiency, equity, and general welfare.

We examine this question first by presenting a simple model of cronyism. This model predicts spikes in appointments to state-owned firms near elections, before and or after them, and in particular if a government of a different political colour takes over. These results follow from the greater usefulness of the cronies' favours from the politicians' points of view near elections and the simultaneous increase in the demand for appointments during those periods. We then take this model to our rich and novel data, long monthly time series of hires across all state-owned firms and post-privatisation private firms in Portugal, from 1980 to 2018.

Consistently with the model, we find that appointments to state-owned firms increase significantly over the months just after a new government of a different political colour takes office. All findings hold in multiple robustness checks. These results point towards the pervasiveness of cronyism within public-sector firms.

Our evidence of cronyism suggests a considerable scope for politically-induced misallo-

cation of public resources. These results also help explain not only the performance gap between private and public-sector firms - and the consequent gains from privatisation (Porta & Lopez-De-Silanes 1999, Megginson & Netter 2001, Brown et al. 2006) - but also the reluctance against privatisation observed in many countries (including the one studied in this paper). While there is considerable anecdotal evidence about cronyism in appointments to public-sector firms, this is one of the first papers that provides systematic empirical evidence about this phenomenon (see also the recent contributions in Mocetti & Orlando (2019) and Colonnelli et al. (2020)). Our findings can also contribute towards the design of policy approaches to minimise the size of the market for crony appointments. These could include restrictions on hires near elections and greater transparency (Ferraz & Finan 2008) on the profiles and timings of public-sector appointments.

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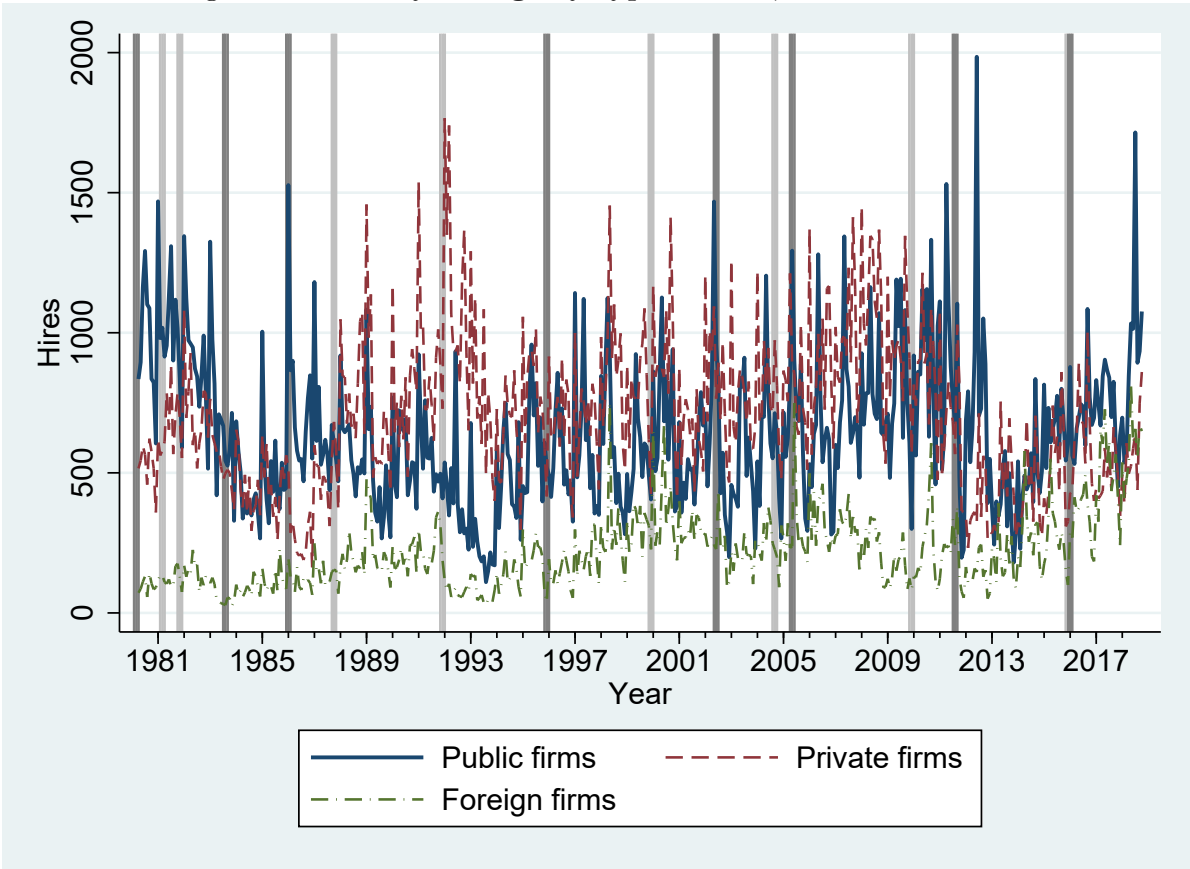
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# Figures

Figure 1: Monthly hirings by type of firm, 1980:4-2018:10



**Notes:** Vertical bars indicate the three months after a new government takes office. Bars are darker if the new government is of a different political colour than its antecessor; bars are lighter if the new government is of the same political colour than its antecessor. State-owned firms are those owned in 50% or more by the Portuguese state in the year. Private (foreign) firms are those owned in 50% or more by the domestic private (foreign) investors but that have been or will be state-owned over the period 1982-2018. Source: own calculations based on ‘Quadros de Pessoal’ data set, 1982-2018.

## Tables

Table 1: **Governments of Portugal, 1980-2020**

| Gov't no. | Party/Coalition | Start  | End    | New colour | Elections | Full majority |
|-----------|-----------------|--------|--------|------------|-----------|---------------|
| 6         | PSD+CDS+PPM     | Jan-80 | Jan-81 | x          | x         | x             |
| 7         | PSD+CDS+PPM     | Jan-81 | Sep-81 |            |           | x             |
| 8         | PSD+CDS+PPM     | Sep-81 | Jun-83 |            |           | x             |
| 9         | PS+PSD          | Jun-83 | Nov-85 | x          | x         | x             |
| 10        | PSD             | Nov-85 | Aug-87 | x          | x         |               |
| 11        | PSD             | Aug-87 | Oct-91 |            | x         | x             |
| 12        | PSD             | Oct-91 | Oct-95 |            | x         | x             |
| 13        | PS              | Oct-95 | Oct-99 | x          | x         |               |
| 14        | PS              | Oct-99 | Apr-02 |            | x         | a)            |
| 15        | PSD+CDS         | Apr-02 | Jul-04 | x          | x         | x             |
| 16        | PSD+CDS         | Jul-04 | Dec-04 |            |           | x             |
| 17        | PS              | Mar-05 | Oct-09 | x          | x         | x             |
| 18        | PS              | Oct-09 | Jun-11 |            | x         |               |
| 19        | PSD+CDS b)      | Jun-11 | Oct-15 | x          | x         | x             |
| 20        | PSD+CDS         | Oct-15 | Nov-15 |            | x         |               |
| 21        | PS              | Nov-15 | Oct-19 | x c)       |           |               |
| 22        | PS              | Oct-19 |        |            | x         |               |

**Notes:** ‘Gov’t no.’ lists the government number, in the period covered by our data. PS (‘Partido Socialista’, left wing) and PSD (‘Partido Social Democrata’, centre/right-wing) are the two largest parties. CDS (or CDS/PP, ‘Centro Democrático Social/Partido Popular’) is a smaller, right-wing party. PPM (‘Partido Popular Monárquico’) is a small, pro-monarchy party. ‘Start’ and ‘End’ are the start and end dates of each government. ‘New colour’ refers to governments of a different political colour (left or right) than their immediate predecessors. ‘Elections’ indicates when the government resulted from general elections (x) or the resignation/death of the prime minister and appointment of replacement. ‘Full majority’ refers to governments that held an absolute majority in the parliament (50% + 1 of the members of parliament, ‘deputados’). a) tie (50% of MP’s, when budget approval required 50% + 1); b) The author was a member of this government between 2011 and 2013; c) PS came second in the general elections but then established an agreement with the extreme left parties (PCP and BE) to obtain majority support in the parliament.

Table 2: Descriptive statistics, monthly hires

| Variable                   | Mean     | Std. Dev. | Min. | Max.  | N       |
|----------------------------|----------|-----------|------|-------|---------|
| <b>Public-owned firms</b>  |          |           |      |       |         |
| Hires                      | 1.824    | 12.797    | 0    | 2639  | 165039  |
| Month                      | 271.669  | 132.825   | 0    | 462   | 165039  |
| Year                       | 2002.431 | 11.072    | 1980 | 2018  | 165039  |
| Public ownership           | 89.435   | 17.767    | 50   | 100   | 165039  |
| Foreign ownership          | 1.172    | 6.275     | 0    | 50    | 165039  |
| New government             | 0.029    | 0.168     | 0    | 1     | 165039  |
| New govt - diff colour     | 0.016    | 0.127     | 0    | 1     | 165039  |
| New govt - left            | 0.013    | 0.112     | 0    | 1     | 165039  |
| New govt - right           | 0.016    | 0.126     | 0    | 1     | 165039  |
| <b>Private-owned firms</b> |          |           |      |       |         |
| Hires                      | 0.306    | 3.373     | 0    | 451   | 1045039 |
| Month                      | 222.687  | 132.685   | 0    | 462   | 1045039 |
| Year                       | 1998.348 | 11.061    | 1980 | 2018  | 1045039 |
| Public ownership           | 1.04     | 5.850     | 0    | 49.95 | 1045039 |
| Foreign ownership          | 0.38     | 3.518     | 0    | 49.95 | 1045039 |
| New government             | 0.028    | 0.165     | 0    | 1     | 1045039 |
| New govt - diff colour     | 0.015    | 0.121     | 0    | 1     | 1045039 |
| New govt - left            | 0.013    | 0.113     | 0    | 1     | 1045039 |
| New govt - right           | 0.015    | 0.121     | 0    | 1     | 1045039 |
| <b>Foreign-owned firms</b> |          |           |      |       |         |
| Hires                      | 2.447    | 11.16     | 0    | 544   | 40654   |
| Month                      | 276.647  | 125.815   | 0    | 462   | 40654   |
| Year                       | 2002.848 | 10.487    | 1980 | 2018  | 40654   |
| Public ownership           | 3.034    | 8.529     | 0    | 50    | 40654   |
| Foreign ownership          | 88.13    | 15.443    | 50   | 100   | 40654   |
| New government             | 0.029    | 0.168     | 0    | 1     | 40654   |
| New govt - diff colour     | 0.015    | 0.12      | 0    | 1     | 40654   |
| New govt - left            | 0.014    | 0.118     | 0    | 1     | 40654   |
| New govt - right           | 0.015    | 0.121     | 0    | 1     | 40654   |

**Notes:** Hirings denote the number of individuals hired in a given month, from April 1980 to October 2008. Schooling years are derived from the highest diploma obtained by each new hire (e.g. high school correspond to 12 years of schooling). Job level ranges from 1 (top management) to 8 (apprentice). Real hourly earnings are measured in 2008 euros. ‘Distance’ is a dummy variable equal to one in the period when the census month was March. ‘New govt (3 months after)’ is a dummy variable equal to one in each of the three months after a new government takes office. ‘New colour (3 months after)’ is a dummy variable equal to one in each of the three months after a new government takes office if it is of a different political colour than the previous government.

Table 3: Hires by state-owned firms and the political cycle

|  | (1)             | (2)             | (3)               | (4)               |
|--|-----------------|-----------------|-------------------|-------------------|
| New government*Public-owned firm         | -.078<br>(.102) | -.070<br>(.098) | -.161<br>(.065)** | -.153<br>(.065)** |
| New govt colour*Public-owned firm        | .262<br>(.167)  | .241<br>(.166)  | .367<br>(.099)*** | .369<br>(.100)*** |
| Before new government*Public-owned firm  | .158<br>(.109)  | .150<br>(.110)  | .087<br>(.070)    | .093<br>(.070)    |
| Before new govt colour*Public-owned firm | -.018<br>(.166) | .003<br>(.167)  | .119<br>(.103)    | .098<br>(.102)    |
| Calendar month FE                        | X               | X               | X                 |                   |
| Quadratic in month/year, etc             |                 | X               | X                 |                   |
| Firm fixed effects                       |                 |                 | X                 | X                 |
| Month/year FE                            |                 |                 |                   | X                 |
| Obs.                                     | 1258897         | 1258897         | 1258897           | 1258897           |

**Notes:** Dependent variable: hirings per month. Poisson model with different controls and fixed effects. ‘New government’ is a dummy variable equal to one in each of the three months after a new government takes office. ‘New govt colour’ is a dummy variable equal to one in each of the three months after a new government takes office if it is of a different political colour than the previous government. ‘Before new government’ is a dummy variable equal to one in each of the three months *before* a new government takes office. ‘Before new govt colour’ is a dummy variable equal to one in each of the three months *before* a new government takes office if the new government is of a different political colour than the incumbent. All variables are included separately and in interactions with a public-owned firm dummy variable. The latter is one only in the months in which the firm is public owned. Only the interaction coefficients are reported. Control for public ownership also included. Calendar month FEs: dummies for each month (January, February, ..., December). Control variables under ‘Quadratic in month/year, etc’: ‘Trend’ and ‘*Trend*<sup>2</sup>’ (a quadratic trend in the month number, starting in zero in April 1980), ‘Before 1994’ (equal to one for all months up to March 1993, after which the census month moves to October), ‘Distance’ (the number of months between the census date and the month of the data). Robust standard errors, allowing for clustering at the month/year level. Significance levels: \*: 0.10; \*\*: 0.05; \*\*\*: 0.01.

Table 4: **Hiring effects by month, in relation to month of new government**

|   |                   |
|---|-------------------|
| Before new govt colour (month -6)*Public-owned firm | .187<br>(.109)*   |
| Before new govt colour (month -5)*Public-owned firm | .321<br>(.127)**  |
| Before new govt colour (month -4)*Public-owned firm | .250<br>(.111)**  |
| Before new govt colour (month -3)*Public-owned firm | .053<br>(.147)    |
| Before new govt colour (month -2)*Public-owned firm | .114<br>(.121)    |
| Before new govt colour (month -1)*Public-owned firm | .100<br>(.100)    |
| New govt colour (month 0)*Public-owned firm         | .123<br>(.114)    |
| New govt colour (month +1)*Public-owned firm        | .280<br>(.149)*   |
| New govt colour (month +2)*Public-owned firm        | .465<br>(.093)*** |
| New govt colour (month +3)*Public-owned firm        | .007<br>(.087)    |
| New govt colour (month +4)*Public-owned firm        | -.026<br>(.129)   |
| New govt colour (month +5)*Public-owned firm        | .130<br>(.148)    |
| New govt colour (month +6)*Public-owned firm        | -.024<br>(.112)   |
| Obs.  | 1222210           |

**Notes:** Dependent variable: log hirings per month. ‘Month: -6’ is a dummy variable equal to one if a new government of a different political colour takes office 6 months after that month, ..., ‘Month: 0’ is a dummy variable equal to one if there is a new government takes office that month, ..., and ‘Month: +6’ is a dummy variable equal to one if a new government took office 6 months before that month. All variables also included separately without interactions with a public-owned firm dummy variable. Only the interaction coefficients are reported. Control for public ownership also included. The specification also controls for firm and month/year fixed effects. Robust standard errors, allowing for clustering at the month/year level. Significance levels: \*: 0.10; \*\*: 0.05; \*\*\*: 0.01.

Table 5: **Hires by state-owned firms and the political cycle: Left vs Right**

|   | (1)              | (2)              | (3)               | (4)               |
|---|------------------|------------------|-------------------|-------------------|
| New government*Left*Public-owned firm   | -.208<br>(.150)  | -.207<br>(.154)  | -.109<br>(.068)   | -.093<br>(.070)   |
| New government*Right*Public-owned firm  | -.027<br>(.107)  | -.0007<br>(.101) | -.088<br>(.099)   | -.090<br>(.098)   |
| New govt colour*Left*Public-owned firm  | .432<br>(.215)** | .414<br>(.220)*  | .441<br>(.140)*** | .407<br>(.140)*** |
| New govt colour*Right*Public-owned firm | .132<br>(.248)   | .110<br>(.248)   | .161<br>(.130)    | .192<br>(.139)    |
| Calendar month FE                       | X                | X                | X                 |                   |
| Quadratic in month/year, etc            |                  | X                | X                 |                   |
| Firm fixed effects                      |                  |                  | X                 | X                 |
| Month/year FE                           |                  |                  |                   | X                 |
| Obs.                                    | 1258897          | 1258897          | 1258897           | 1258897           |
| $R^2$                                   |                  |                  |                   |                   |

**Notes:** Dependent variable: hirings per month. Poisson model with different controls and fixed effects. ‘New govt colour\*Left(Right)’ is a dummy variable equal to one in each of the three months after a new government from the political Left (Right) takes office if it is of a different political colour than the previous government. ‘Before new govt colour\*Left(Right)’ is a dummy variable equal to one in each of the three months *before* a new government from the political Left (Right) takes office if the new government is of a different political colour than the incumbent. All variables are included separately and in interactions with a public-owned firm dummy variable. The latter is one only in the months in which the firm is public owned. Only the interaction coefficients are reported. Control for public ownership also included. Calendar month FEs: dummies for each month (January, February, ..., December). Control variables under ‘Quadratic in month/year, etc’: ‘Trend’ and ‘Trend<sup>2</sup>’ (a quadratic trend in the month number, starting in zero in April 1980), ‘Before 1994’ (equal to one for all months up to March 1993, after which the census month moves to October), ‘Distance’ (the number of months between the census date and the month of the data). Robust standard errors, allowing for clustering at the month/year level. Significance levels: \*: 0.10; \*\*: 0.05; \*\*\*: 0.01.

Table 6: Hires by state-owned firms and the political cycle: Capital equity public ownership share

|   | (1)              | (2)              | (3)                | (4)                |
|---|------------------|------------------|--------------------|--------------------|
| New government*Public-ownership share         | -.0008<br>(.001) | -.0007<br>(.001) | -.002<br>(.0007)** | -.002<br>(.0007)** |
| New govt colour*Public-ownership share        | .002<br>(.002)   | .002<br>(.002)   | .004<br>(.001)***  | .004<br>(.001)***  |
| Before new government*Public-ownership share  | .002<br>(.001)   | .002<br>(.001)   | .0008<br>(.0007)   | .0008<br>(.0007)   |
| Before new govt colour*Public-ownership share | -.0002<br>(.002) | .00009<br>(.002) | .001<br>(.001)     | .001<br>(.001)     |
| Calendar month FE                             | X                | X                | X                  |                    |
| Quadratic in month/year, etc                  |                  | X                | X                  |                    |
| Firm fixed effects                            |                  |                  | X                  | X                  |
| Month/year FE                                 |                  |                  |                    | X                  |
| Obs.  | 1258897          | 1258897          | 1258897            | 1258897            |

**Notes:** Dependent variable: hirings per month. Poisson model with different controls and fixed effects. ‘New government’ is a dummy variable equal to one in each of the three months after a new government takes office. ‘New govt colour’ is a dummy variable equal to one in each of the three months after a new government takes office if it is of a different political colour than the previous government. ‘Before new government’ is a dummy variable equal to one in each of the three months *before* a new government takes office. ‘Before new govt colour’ is a dummy variable equal to one in each of the three months *before* a new government takes office if the new government is of a different political colour than the incumbent. All variables are included separately and in interactions with a public-ownership share (from 0 to 100). The latter is one only in the months in which the firm is public owned. Only the interaction coefficients are reported. Control for public ownership also included. Calendar month FEs: dummies for each month (January, February, ..., December). Control variables under ‘Quadratic in month/year, etc’: ‘Trend’ and ‘ $Trend^2$ ’ (a quadratic trend in the month number, starting in zero in April 1980), ‘Before 1994’ (equal to one for all months up to March 1993, after which the census month moves to October), ‘Distance’ (the number of months between the census date and the month of the data). Robust standard errors, allowing for clustering at the month/year level. Significance levels: \*: 0.10; \*\*: 0.05; \*\*\*: 0.01.



Table 7: Hires by private firms, before and after new top management

|  | (1)             | (2)                | (3)               | (4)                |
|--|-----------------|--------------------|-------------------|--------------------|
| <i>All private firms</i>                   |                 |                    |                   |                    |
| New top manager<br>(3 months after)        | -.006<br>(.004) |                    |                   | -.007<br>(.005)    |
| New top manager<br>(6 months after)        |                 | -.010<br>(.004)**  |                   | -.011<br>(.005)**  |
| New top manager<br>(3 months before)       |                 |                    | -.010<br>(.004)** | -.011<br>(.004)**  |
| Obs.                                       | 243094          | 243094             | 243094            | 243094             |
| $R^2$                                      | .011            | .374               | .374              | .374               |
| <i>Only firms with change in ownership</i> |                 |                    |                   |                    |
| New top manager<br>(3 months after)        | -.002<br>(.008) |                    |                   | -.005<br>(.008)    |
| New top manager<br>(6 months after)        |                 | -.022<br>(.008)*** |                   | -.022<br>(.008)*** |
| New top manager<br>(3 months before)       |                 |                    | -.006<br>(.008)   | -.006<br>(.008)    |
| Obs.                                       | 69539           | 69539              | 69539             | 69539              |
| $R^2$                                      | .015            | .371               | .371              | .371               |

**Notes:** Dependent variable: log hirings per month in each firm. ‘New top manager (3 months later)’ is a dummy variable equal to one in each of the three months after a new top manager heads the firm. ‘New top manager (6 months later)’ is a dummy variable equal to one in the period from the fourth to the six month after a new top manager heads the firm. ‘New top manager (3 months before)’ is a dummy variable equal to one in each of the three months *before* a new top manager becomes head of the firm. Other control variables (included, but not reported - available upon request): ‘Before 1994’ (equal to one for all months up to March 1993, after which the census month moves to October), ‘Distance’ (the number of months between the census date and the month of the data), ‘Trend’ and ‘ $Trend^2$ ’ (a quadratic trend), dummies for each month (January, February, ..., December), and dummies for each month (January, February, ..., December) if before 1994. Robust standard errors. Significance levels: \*: 0.10; \*\*: 0.05; \*\*\*: 0.01.