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Public Sector Salary Caps and the Careers of Public Managers

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Abstract

This paper examines how salary caps affect retention and selection of managerial talent in the public sector. We exploit a 2014 reform in Italy that capped top public-sector salaries. Managers affected were about 5 percentage points more likely to move to the private sector. Exit propensity was especially high among executives of state-owned companies, while managers in traditional public administration largely remained in public employment despite substantial pay cuts. Exiting managers were positively selected, reducing average managerial quality in state-owned companies by about 2 percent. The reform generated modest fiscal savings of around 0.1 percent of public-sector labor costs.

Keywords: salary caps, public managers, public-private mobility, state-owned companies.

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1. Introduction

In many advanced economies, governments limit the pay of senior public officials. Such policies are particularly attractive during periods of fiscal pressure because they promise budgetary savings while signaling restraint at the top of the public-sector wage distribution.[1] Yet their consequences are uncertain. If highly paid public managers possess valuable skills that are also rewarded in the private sector, salary caps may induce talented managers to leave and reduce the quality of public-sector leadership. If, instead, managers have limited alternative employment opportunities, salary caps may curb compensation—and, possibly, rent extraction—with little effect on workforce composition or organizational performance.

Despite the widespread use of salary caps, evidence on their consequences remains scarce. Public-sector managers play a key role in policy implementation and service delivery (Pollitt and Bouckaert, 2017), but little is known about how they respond to large reductions in compensation. A key challenge is the lack of administrative data that track careers across public and private employment.

This paper examines the effects of a salary cap introduced in Italy in 2014. The reform imposed a maximum gross annual salary of €240,000 for employees in the public administration and state-owned companies, resulting in substantial pay cuts for a small group of highly paid public managers. Using this policy, we study how reductions in compensation affect managerial retention and career choices, assess broader effects on the quality of public-sector leadership, and explore organizational consequences through co-worker networks.

[1] Federal wages in the United States have long been subject to caps, and by 2017 eleven European Union countries had implemented similar policies (Bruni, 2017).

Our analysis draws on two unique administrative data sources from the Italian Social Security Institute (INPS), covering the universe of public- and private-sector workers.[2] These data allow us to identify public managers, observe their earnings, and track transitions across employers and sectors over time. We exploit the sharp threshold created by the reform using a difference-in-differences design that compares treated managers earning at least €240,000 in 2014 to otherwise similar control managers earning between €150,000 and €240,000, matched on age, gender, and previous private-sector experience.

We first show that outcomes for treated and control managers followed parallel trends prior to the reform. By 2020, six years after the reform, managers affected by the cap were about 7 percentage points more likely to have left their employer, a 14 percent effect relative to comparable managers below the threshold. Transitions to the private sector are a key driver: by 2020, treated managers were about 5 percentage points more likely to work at a private-sector firm than control managers, conditional on being employed. In contrast, we find no significant effect on retirement. Treated managers also experienced substantial earnings losses, particularly those who remained in public employment. These findings are robust to alternative matching strategies, sample definitions, and placebo tests.

The average effects mask substantial heterogeneity. A key advantage of our setting is that we can distinguish between managers employed in traditional public-sector organizations, such as public administration, health, or defense, and managers employed in state-owned companies operating in competitive industries, such as transport, finance, and communications. We find that the propensity to leave public employment and move to private-sector firms is strongly significant and higher for managers in state-owned companies. In contrast, managers in traditional public-sector roles remain largely employed

[2] In many countries, public-sector employees are exempt from social security contributions and are therefore absent from administrative datasets derived from social security records.

in the public sector despite substantial pay cuts. These patterns suggest that managers in state-owned companies possess skills that are more readily transferable to the private sector, whereas managers in traditional public administration face more limited alternative employment opportunities. They are also consistent with the presence of rents in some segments of public-sector employment (Brueckner and Neumark, 2014; Diamond, 2017).

We next examine heterogeneity by managerial ability. Using individual fixed effects from AKM wage regressions (Abowd et al., 1999) estimated over the pre-reform period as a proxy for ability, we show that the increase in private-sector exits is concentrated among high-ability managers. State-owned companies do not replace departing managers with individuals of comparable quality, resulting in a decline in the average managerial ability of about 2 percent. The fiscal gains from the reform are modest. Between 2015 and 2020, the cap reduced public-sector labor costs by a cumulative €186 million, equivalent to around 0.1 percent of the annual public-sector wage bill.

These findings are consistent with a theoretical framework in which public managers face different outside options depending on the transferability of their managerial ability to the private sector. By compressing top public-sector compensation, the cap pushes high-ability workers towards the private sector. However, this only affects managers with viable outside opportunities, whereas managers whose skills are not transferable do not respond.

We also examine spillover effects. Managers earning just below the threshold may have revised their expectations of future compensation downwards and, as a result, left the public sector. Comparing managers earning between €200,000 and €240,000 with those earning between €150,000 and €200,000, we find small and statistically insignificant increases in managerial exits. If anything, this suggests that our baseline estimates understate the overall effect of the policy. Last, we show that employees working with treated managers become more likely to leave their firms, although the estimates are imprecise. These responses are

concentrated among high-ability men, with weaker effects among women and lower-ability co-workers.

This paper contributes to several strands of the literature. First, it adds to research on public-sector incentives and wage-setting (Katz and Krueger, 1991; Dustmann and van Soest, 1998; Bradley et al., 2017; Fenizia et al., 2024). While most of the existing literature examines the effects of positive financial incentives, such as performance pay or bonuses (e.g., Burgess et al., 2017; Geys et al., 2017; Chen et al., 2025), we study the consequences of imposing an upper bound on compensation.[3] Unlike existing work that relies on field experiments (e.g., Dal Bó et al., 2013; Finan et al., 2017; Deserranno et al., 2025), we exploit a large-scale policy reform using population-wide administrative data. Related to our study, Checchi et al. (2026) examine the fiscal effects of public-sector wage caps. Our analysis instead focuses on managerial retention, the selection of talent, and the broader organizational consequences of compensation constraints.

Second, we add to the literature on managers and organizational performance. A large body of work documents the importance of managers for firm performance in the private sector (Bertrand and Schoar, 2003; Bloom and Van Reenen, 2007; Lazear et al., 2015). More recent work shows that public-sector managers also play a critical role in shaping productivity and service delivery (e.g., Rasul and Rogger, 2018; Janke et al., 2019; Fenizia, 2022; Lavy et al., 2023; Muñoz and Prem, 2024; Muñoz and Otero, 2025). We add to this literature by showing that compensation constraints can alter the composition of managerial talent, with effects depending strongly on outside employment opportunities for public managers.

Third, we contribute to the literature on pay cuts and worker behavior. Consistent with evidence from the private sector (Krueger and Friebel, 2022; Coviello et al., 2022) and

[3] Recent studies have documented the distributional consequences of public-sector salary caps (Michael and Christofides, 2020; Nibloe, 2025).

theoretical work by Caselli (2025), we show that reductions in compensation increase turnover, particularly among high-ability workers, and impact broader organizational dynamics and talent retention.[4]

Finally, we provide new evidence on spillovers within firms. Existing research documents that workers' decisions can affect the behavior and outcomes of their colleagues (Dahl et al., 2014; Jäger and Heining, 2022; Bianchi et al., 2023). We illustrate that the departure of senior managers may influence retention for some groups of co-workers, extending the literature on peer effects and labor supply shocks to the public sector.

The remainder of the paper is organized as follows. Section 2 presents the institutional background and data. Section 3 presents a simple conceptual framework. Section 4 outlines the empirical strategy. Section 5 reports the main results and robustness checks. Section 6 examines effects on managerial quality and the broader organizational consequences of the reform. Section 7 concludes.

2. Background, Data, and Descriptive Statistics

2.1. Institutional background

2.1.1 The Italian public sector

Public employment accounts for roughly 13 percent of total employment in Italy, compared with an OECD average of 18 percent (OECD, 2021). This share has gradually declined over the past two decades, partly reflecting cost-cutting measures such as hiring freezes and turnover restrictions. Public-sector workers are older on average and enjoy greater job stability. Public managers account for roughly 5 percent of total public employment. Except

[4] In a different setting, Meekes and Ronchi (2021) show that bonus caps in the financial sector increased worker retention because employers offset the reduction in bonus compensation by increasing fixed pay.

for a few categories (e.g., defense), their numbers have declined broadly in line with overall public employment (Corte dei Conti, 2020).

Recruitment into public employment is highly regulated and occurs primarily through national examinations. Promotions to managerial positions are based on merit and seniority and occur either through public competitions or internal career progression. Compensation is largely determined by collective bargaining and reflects tenure and experience. Public managers are appointed to specific managerial posts for fixed terms, which are typically renewed every three years.

An important distinction for our analysis is between managers employed in traditional public administration and those employed in state-owned companies. While the former operate within a highly regulated employment framework, state-owned companies enjoy greater flexibility in hiring, promotion, and compensation, including incentive schemes, and more closely resemble private firms. As a result, managers in these organizations are likely to face different opportunities outside the public sector.

2.1.2 The salary cap reform

We study a cap of €240,000 to total annual compensation for public-sector managers introduced in May 2014 (Decree-Law No. 66/2014 and Law No. 89/2014). The reform applied to all managers working in public administration and state-owned companies, excluding only publicly listed firms and companies issuing financial instruments.[5] The policy was explicitly motivated by fiscal concerns, with the government arguing that no public manager should earn more than the President of the Italian Republic. The cap was

[5] A wage cap for public-sector workers had already been introduced in 2011, set at the salary of the President of the Supreme Court of Cassation (around €310,000). The 2014 law substantially lowered the cap to €240,000.

announced in Spring 2014 and was unanticipated, as confirmed by the lack of previous media coverage and online searches.

The reform affected only a small group of highly paid managers. In 2014, roughly 0.02 percent of public employees earned above the cap, and the threshold exceeded the 99th percentile of the private-sector wage distribution. Nevertheless, the reform created substantial public debate, with critics arguing it could impair the quality of public-sector leadership (Ansa, 2014).

2.2. Data

The empirical analysis relies on longitudinal matched employer-employee data covering the universe of Italian workers in both the public and private sectors. The data are provided by the Italian Social Security Institute (INPS) through the VisitINPS Scholars program and combine information from various administrative archives.

2.2.1 Traditional public administration

Our first main data source is the INPS "*PosPa*" archive, which covers employees in central and local government, healthcare, education, and defense. Together, these sectors account for the vast majority of public employment, roughly 3 million workers. Throughout the paper, we refer to these employees as "traditional public administration" workers to distinguish them from employees of state-owned companies.

The data include annual earnings, weeks worked, contract characteristics (full-time vs. part-time, temporary vs. permanent), broad occupational categories (managers, mid-managers, white-collar, blue-collar), sector, and worker demographics. Our earnings measure includes base pay and other components of compensation—such as performance-based pay, bonuses,

and allowances—that are subject to social security contributions. Other non-contributory compensation is not fully recorded.

The PosPa dataset is available only from 2014 onwards. To construct pre-reform employment histories, we combine it with the "Comunicazioni Obbligatorie" (*COB*) database, which records all hiring, contract modifications, such as promotions, and terminations, such as dismissals and retirements since 2010. Using these records, we reconstruct employment histories prior to the reform. While this approach allows us to track careers pre-2014, earnings are not observed in the pre-reform period.[6]

2.2.2 State-owned companies

Our second main data source is the "*Uniemens*" database, which covers the universe of private-sector workers and firms. Due to institutional contribution rules, the database also includes around 240,000 public-sector employees, most of whom are employed in state-owned companies operating in market-oriented sectors such as communications, transport, and finance.[7] These workers are particularly relevant for our analysis, because their skills are more likely to be transferable to the private sector.

The Uniemens data contain information similar to the PosPa, including annual earnings, weeks worked, contract status, occupation, and demographics, but are available from 2005 onwards. This longer time span allows us to reconstruct complete employment histories,

[6] When a worker holds multiple contracts within a calendar year, we define the dominant employer in the COB data as the one associated with the longest employment spell. If multiple contracts have the same duration, we retain the contract that began earlier in the year. Periods between the end of one contract and the start of the next are classified as non-employment.
[7] Section 2.3 reports detailed descriptive statistics. Appendix A provides more detail on how we identify public employees in the private sector Uniemens data.

including pre-2014 wage information, for workers of state-owned companies. Importantly, the data also enable tracking of transitions between the public and private sectors.[8]

2.2.3 Combined dataset

We combine PosPa-COB records for workers in traditional public administration with the Uniemens records for employees of state-owned companies. The resulting matched employer-employee dataset covers the universe of Italian public-sector workers between 2005 (2010 for workers in traditional public administration) and 2020. We complement the worker-level data with information on firms' sector and location obtained from Uniemens. Finally, we use the INPS "*Collaboratori*" dataset, which records freelance and project-based contracts. These data allow us to identify managers who engage in freelance work and observe the firms for which they provide services.

2.3. Descriptive statistics

2.3.1 Worker characteristics

Table 1 summarizes the characteristics of Italian public-sector workers in 2014. Columns 1-3 report statistics for the entire public sector, while Columns 4-9 distinguish between workers in traditional public administration and state-owned companies. Throughout the text, we define "top managers" as individuals earning more than €150,000 annually, approximately the 99th percentile of the public-sector earnings distribution. Within this group, we distinguish between managers earning below (Columns 2, 5, and 8) and above (Columns 3, 6, and 9) the €240,000 salary cap.

[8] If a worker is employed by more than one employer within a calendar year in the Uniemens data, we assign them to their dominant job, defined as the job with the highest annual earnings (or, if earnings are identical, the greatest number of weeks worked). We apply the same rule to the PosPa data. By linking the PosPa-COB and Uniemens datasets, we also observe transitions between traditional public administration and the private sector.

In 2014, the Italian public sector employed nearly 3.2 million workers (Column 1). Fewer than 8,000 workers (Columns 2–3) earned more than €150,000, and only 657 earned above the €240,000 salary cap. These managers constitute our treatment group (Column 3). Their average annual earnings were €287,382, implying an average pay cut of almost €50,000 following the reform. Compared with the broader public-sector workforce, top managers are older, less likely to be female, and have substantially more labor-market experience.

Importantly, although state-owned companies account for only about 7.5 percent of public employment, they employ one-third of managers affected by the cap (219 out of 657). Compared with traditional public administration, employees of state-owned companies are less likely to be women, younger, and more likely to have prior private-sector experience.

Appendix Table B1 reports the sectoral distribution of top managers. Managers in traditional public administration are concentrated in central government, while those in state-owned companies are employed primarily in industries such as finance, transportation, and information and communication technology.

Appendix Table B2 compares managers in state-owned companies with private-sector managers in the same industries. Private-sector managers are younger and earn higher wages on average, suggesting that the private sector may provide attractive alternatives for at least some managers affected by the cap.

2.3.2 Transitions

Table 2 reports employment outcomes between 2014 and 2020 for managers above and below the salary-cap threshold. Among managers earning above €240,000, 51 percent remain in the public sector, compared with 63 percent of managers earning between €150,000 and €240,000. Managers above the cap are also more likely to retire and more likely to move to the private sector.

These raw differences should not be interpreted causally, as managers above the threshold differ systematically from those below it, most notably in age, gender, and prior private-sector experience (Table 1). In Section 4, we present our empirical strategy, which accounts for these differences and isolates the causal effect of the reform.

3. Conceptual Framework

This section outlines a simple conceptual framework that motivates our empirical analysis. Figure 1 illustrates the main idea, while Appendix C presents the model in more detail and derives the key predictions.

We focus on incumbent public-sector managers prior to the reform and study their exit decisions following the introduction of the salary cap. Managers differ along two dimensions: general managerial ability, which is valuable in both the public and the private sector; and transferable managerial human capital, which is only rewarded by private employers. Managers with higher ability also accumulate more transferable skills.

Compared to managers in traditional public administration, employed in occupations with no obvious private-sector counterpart (Section 5.3), managers of state-owned companies perform tasks that closely resemble those of private-sector executives. Hence, managers of state-owned companies hold more transferable human capital at any given level of ability.

The dashed line in Figure 1 shows the pre-reform value of public-sector employment (w_{pu}). Public-sector pay increases in ability (a) and offers a common premium (μ) reflecting its overall attractiveness relative to the private sector. This premium may arise from pension benefits, labor-market rents, or non-pecuniary aspects of public service.

The blue and red lines in Figure 1 represent the private-sector outside options of managers in state-owned companies (w_{pr}^{C}) and traditional public administration (w_{pr}^{T}), respectively.

The private-sector outside option rewards both general ability and transferable skills. It is therefore steeper than the public-sector schedule for both groups of managers, and steepest for managers of state-owned companies, whose skills are most transferable. In contrast, managers in traditional public administration have limited outside opportunities.

The salary cap (solid black line, $\overline{w}$) lowers the value of remaining in the public sector to a flat compensation schedule. Managers whose private-sector value exceeds the capped public-sector wage therefore choose to leave. Because private-sector returns increase with managerial ability, exits are positively selected: managers of state-owned companies above the threshold a_C^*, the blue-shaded region in Figure 1, leave for the private sector.

Because the same level of ability commands a better outside option for managers in state-owned companies than in traditional public administration, the ability exit threshold is larger in the latter group. Managers in traditional public administration have less to gain from moving to the private sector because their skills are only weakly transferable; hence, a lower share of these managers will exit.

The framework yields two predictions that we test empirically. First, the salary cap should increase exits among managers of state-owned companies but have little effect on managers in traditional public administration. Second, exits should be positively selected, with the highest-skilled managers being the most likely to leave.

The framework is agnostic about the source of the public-sector premium, μ. To the extent that this premium reflects rents earned by incumbent public managers, a salary cap may reduce those rents without affecting retention among managers whose skills have limited value outside the public sector.

4. Empirical Strategy

4.1. Baseline analysis

Our identification strategy exploits the sharp threshold created by the 2014 salary cap. Managers earning at least €240,000 in 2014 constitute the treatment group, while managers earning between €150,000 and €240,000 form the pool of potential controls.[9]

Because treated managers are older, more likely to be male, and more likely to have private-sector experience, we refine the control group using a matching approach. Specifically, we match each treated manager to a manager earning between €150,000 and €240,000 in 2014 within the same age, gender, and pre-2014 private-sector experience cell.[10] Matching is performed separately for managers in traditional public administration and state-owned companies. This procedure successfully matches 637 of the 657 treated managers. Appendix Table B3 shows that, apart from the mechanical differences in earnings, treated and control managers are highly comparable on observable characteristics, both in the pooled sample and when we consider traditional public administration and state-owned companies separately (Columns 1-6).

Using this matched sample, we compare the evolution of labor market outcomes before and after the introduction of the wage cap. Our main outcomes are retention at the 2014 employer, retirement, employment in the private sector (set to missing for non-employed workers), and earnings. We estimate the following event-study specification:

[9] We assign treatment on the basis of 2014 earnings since wage information for managers in traditional public administration is not available before that year. Because managerial posts are assigned for fixed three-year terms (Section 2.1), with appointments usually running from 1 January, managers in post when the reform came into force (May 2014) retained their existing pay until the following renewal. As a result, the 2014 earnings were largely unaffected by the cap.

[10] In Section 5.2, we show that our results are robust to alternative choices of the lower earnings threshold used to define the control group, and assess the robustness of our results using alternative matching strategies.

$$y_{i,t} = \alpha_i + \theta_t + \sum_{j \neq 2013} \rho_j \cdot \mathbb{1}[t = j] \cdot T_i + \varepsilon_{i,t}, \qquad (1)$$

where $y_{i,t}$ denotes the outcome of worker i in year t, α_i and θ_t are worker and year fixed effects, and T_i is an indicator equal to one if the worker earned above €240,000 in 2014. The coefficients of interest ρ_j measure differences between treated and control managers in year j relative to 2013, the final pre-reform year, which is normalized to zero. Standard errors are clustered at the worker level.

Identification relies on the parallel-trends assumption that, absent the reform, outcomes for managers above and below the threshold would have evolved similarly. We assess this assumption by examining pre-reform event-study coefficients ρ_j.

A potential concern is that the reform may have affected not only managers whose wages were capped, but also managers earning below the threshold. In particular, managers just below the cap may have revised their expectations of future earnings downwards after the reform. If so, members of the control group would also be partially affected, violating the Stable Unit Treatment Value Assumption (SUTVA). To the extent that these spillovers affect outcomes in the same direction as the treatment effect, our baseline estimates should be interpreted as conservative. We investigate this possibility in Section 5.2 by examining managers whose earnings were close to, but below, the salary-cap threshold.

4.2. Effects on co-workers

We also examine whether the reform affected the careers of co-workers of treated managers. Our approach exploits the fact that managers subject to the cap became more likely to leave the public sector after 2014.

Because the data do not directly identify teams, we define co-workers as managerial or middle-management employees working in the same firm and municipality as a top manager in 2014 and whose earnings were below the cap. This definition is intended to capture workers most likely to interact with, or be affected by, senior management.

To improve comparability, we match co-workers of treated managers to co-workers of control managers using one-to-one nearest-neighbor propensity-score matching based on pre-reform characteristics, including age, gender, earnings, and location. We further restrict the sample to workers continuously employed at the same firm since at least 2011, ensuring meaningful exposure to the relevant manager. The resulting sample contains 1,896 treated co-workers and an equal number of controls. Appendix Table B4 provides descriptive statistics.

Using this sample, we estimate:

$$y_{c,t} = \alpha_c + \theta_t + \sum_{j \neq 2013} \delta_j \cdot \mathbb{I}[t = j] \cdot T_{i(c)} + \upsilon_{c,t}, \qquad (2)$$

where $T_{i(c)}$ equals one if co-worker c's manager was treated. As in the baseline specification, worker and year fixed effects are included throughout. Identification relies on the assumption that, absent the reform, outcomes of co-workers of treated managers and control managers would have followed similar trends. We cluster standard errors at the firm-municipality level.

5. Results

5.1. Baseline analysis

We begin by examining how the salary cap affected managers' career trajectories. Figure 2 reports the event-study estimates from Equation 1, while Table 3 summarizes the medium-

run (2017) and long-run (2020) effects. Across all specifications, pre-reform coefficients are close to zero, supporting the parallel trends assumption.

The reform substantially increased job separations among affected managers. As shown in Figure 2 Panel A and Table 3 (Column 1), treated managers became progressively more likely to leave their 2014 employer following the introduction of the cap. The effect is modest immediately after implementation but grows steadily over time.[11] By 2020, managers affected by the cap are 7.4 percentage points less likely to work at their 2014 employer than control managers, corresponding to roughly 14 percent of the control group mean (see Appendix Figure B1 for the raw means separately for treated and control managers).

This increase in mobility is not driven by retirement. Panel B (and Table 3, Column 2) shows that retirement rates evolve similarly for treated and control managers throughout the post-reform period. Instead, the primary response is a transition to the private sector (Panel C and Table 3, Column 3). By 2020, managers affected by the cap are 5.4 percentage points more likely to work in the private sector, conditional on being employed.

Overall, the evidence indicates that the salary cap increased mobility among highly paid public managers and that these responses primarily took the form of transitions to the private sector.

5.2. Robustness

We next assess the robustness of our findings. Table 4 reports long-run estimates, while Appendix Figures B2-B6 present the corresponding event-study coefficients.

[11] A likely reason why the effects emerge gradually is that managers who earned above the cap when the reform came into force continued to be paid under the terms of their ongoing managerial post (up to three years) until renewal, after which the cap became binding for them.

5.2.1 Spillovers

A potential concern is that managers just below the cap may also have been affected if the reform reduced their expected future earnings. To assess this possibility, we redefine the treatment group to include managers earning €200,000-€240,000 in 2014—just below the cap but potentially responsive to the reform—and compare them with managers earning between €150,000 and €200,000, applying the same matching procedure as in the baseline analysis. Balancing statistics are reported in Appendix Table B3.

The estimates, shown in Table 4 Panel I, reveal no meaningful effects on separation, retirement, or private-sector mobility. Although imprecisely estimated, the coefficients generally point in the same direction as the baseline results. This suggests that any spillovers are limited and, if anything, likely attenuate our main estimates.

5.2.2 Alternative specifications and placebo tests

We next test the sensitivity of our results to alternative sample definitions and matching procedures (Table 4, Panels II–IV; see Appendix Table B3 for balancing statistics).

First, we restrict the control group to managers earning above €200,000 (but below €240,000) in 2014. Second, we match each treated manager to two control managers rather than one. Third, we estimate the model using the full unmatched sample. Across all specifications, the central finding remains unchanged: managers affected by the cap are more likely to leave their employer and move to the private sector. The unmatched specification additionally produces a significant increase in retirement, a result that likely reflects age differences between treated and control managers rather than a causal effect of the reform. This reinforces the importance of matching on observable characteristics.

As a final check, we conduct a placebo exercise using 2009 as the reform year. We compare managers earning above €240,000 in 2009 to those earning €150,000-€240,000 in the same year, and apply the same matching procedure as in the main analysis.[12] The results, reported in Table 4 Panel V, reveal no significant differences in career trajectories around the threshold before and after 2009.

Taken together, these exercises confirm the robustness of our baseline findings.

5.3. Traditional public administration and state-owned companies

The average effects reported above mask substantial heterogeneity. Our conceptual framework illustrates that the effect of public-sector compensation constraints on managerial retention depends on the transferability of managerial ability to the private sector. A key feature of our setting is that we can distinguish between managers employed in traditional public administration and managers employed in state-owned companies operating in market-oriented industries. Because managers in state-owned companies are more likely to possess skills that are transferable to the private sector, our model suggests that they would respond more strongly to reductions in compensation.

To examine this hypothesis, we estimate Equation 1 separately for the two groups. Figure 3 shows the corresponding event-study coefficients, with solid lines for managers in traditional public administration and dashed lines for managers in state-owned companies. Table 5 summarizes the medium- and long-run estimates.

The results reveal striking differences. We find little evidence that managers in traditional public administration responded to the salary cap. As shown in Figure 3 and Table 5, estimated effects on employer separations are modest (2-5 percentage points) and

[12] This analysis is restricted to managers of state-owned companies because employment histories for managers in traditional public administration are only available from 2010 onwards.

statistically insignificant, despite the substantial wage reductions generated by the reform. We observe more significant increases in transitions to the private sector, although coefficients are relatively small (1.5-3 percentage points).

By contrast, we estimate a sharper response for treated managers employed in state-owned companies, who by 2020 are about 12 percentage points more likely to have left their 2014 employer than comparable managers below the threshold. The increase in private-sector exits is especially large (11.2 percentage points) and significant.

These findings suggest that managers in state-owned companies have considerably stronger outside options, while managers in traditional public administration face fewer comparable opportunities in the private sector. Consistent with this interpretation, occupation codes indicate that many managers in this group work in lawmaking, judicial, and public administration occupations with no obvious private-sector counterpart.

More broadly, the results imply that compensation constraints affect different segments of the public sector in very different ways. While managers in state-owned companies respond strongly to wage reductions by moving to alternative employers, managers in traditional public administration remain largely in public employment despite sizeable earnings losses.[13]

5.3.1 Earnings effects

The preceding results indicate that the salary cap primarily affected managers employed in state-owned companies. We focus on this group when examining earnings effects, as pre-

[13] A further possible explanation for the muted response among these managers is stronger intrinsic motivation (Perry and Wise, 1990; Dixit, 2002; Delfgaauw and Dur, 2010). While intrinsic motivation may contribute to managers' willingness to remain in public employment, it is unlikely to be the primary mechanism, given the magnitude of the pay cuts they absorbed—on average close to €45,000 per year.

reform wage information is only available for these workers and not for managers in traditional public administration.

Figure 4 Panel A (with corresponding coefficients reported in Table 6, Columns 1–3) shows that treated managers experience a persistent post-reform wage decline of roughly 10 percent relative to control managers. The effect is predominantly driven by managers who remain in the public sector, who account for the majority of the estimation sample (Column 2). For exiting managers, the wage effects turn positive in the long run, but coefficients are imprecisely estimated (Column 3).[14] Combining wage and employment responses, we find a significant relative decline in total labor earnings among treated managers (Figure 4 Panel B and Table 6 Column 4). The earnings effects do not appear to reflect changes in the number of weeks worked, which remains essentially unchanged (Appendix Figure B7).

5.3.2 Other career outcomes

We now investigate alternative career paths for managers besides retirement and private-sector transitions. First, we document increased moves to other public-sector employers, although coefficients—while not small at roughly 5 percentage points—are mostly insignificant (Appendix Figure B8, Panel A).[15]

Second, for managers of state-owned companies, we also find a 2-4 percentage point higher probability of exiting wage employment, again imprecisely estimated (Appendix Figure B8, Panel B). This small increase in non-employment may reflect a shift towards alternative

[14] The effect for leavers is estimated imprecisely due to the small number of managers in this group. Descriptive evidence suggests that managers moving to the private sector are successful. They typically earn wages well above the 99th percentile of the private-sector wage distribution and, on average, do not experience wage losses relative to their pre-2014 public-sector salaries. If anything, their earnings increase modestly following the transition.

[15] Transitions to other public-sector employers may partly reflect moves to organizations exempt from the salary cap, such as firms issuing financial instruments, although we cannot identify these employers directly in the data. As described in Appendix A, we exclude state-owned companies listed on the stock market, which were exempt from the cap. We cannot, however, identify firms that issued bonds or other financial instruments, so a small number of exempt companies likely remain in our sample.

forms of employment such as external freelance or contractor work following the reform. We investigate this in Appendix Figure B9. While we find no evidence of increased freelance work with the 2014 employer (Panel A), managers of state-owned companies become more likely to engage in freelance work with other firms, with the effect statistically significant in 2018 (Panel B). Thus, the cap may have induced some managers to shift from standard wage employment toward freelance work, helping to explain the increase in non-employment documented above.

6. Impact on Talent Retention

Our analysis so far has demonstrated that the salary cap increased transitions to the private sector, particularly among managers employed in state-owned companies. We now turn to the second central prediction of our conceptual framework: were these departures selective and did the reform affect the quality of public-sector management?

6.1. Which managers leave?

To measure managerial ability, we estimate AKM wage regressions (Abowd et al., 1999) using the universe of Italian workers in the Uniemens database between 2005 and 2013. We use the estimated individual fixed effects, normalized to lie between zero and one, as proxies for portable managerial ability (see Appendix D for details and Muñoz and Otero, 2025, for a similar approach).

We then split treated managers into high- and low-ability groups based on whether their fixed effect is above or below the median, and estimate Equation 1 separately for each group. Figure 5 reports the event-study estimates, while Table 7 summarizes the medium- and long-run effects.

The results reveal a striking pattern: the increased likelihood of transitioning to the private sector is almost entirely concentrated among high-ability managers. By 2020, high-ability managers are 15.4 percentage points more likely to work in the private sector than comparable managers below the salary-cap threshold, more than twice the corresponding estimate for low-ability managers, whose responses are smaller and insignificant in the medium run and only marginally significant by 2020. These findings indicate that the salary cap disproportionately induced high-ability managers to leave public employment, in line with the predictions of the framework described in Section 3.[16]

6.2. Managerial quality and organizational consequences

The selective departure of high-ability managers need not reduce organizational quality if firms are able to replace them with managers of comparable ability. We therefore examine the quality of replacement managers. For each departing manager, we identify incoming managers within the same firm and municipality and compare their estimated AKM fixed effects. On average, replacement managers exhibit fixed effects that are about 10 percent lower than those of the managers whom they replace. This suggests that state-owned companies were unable to fully replace the managerial talent lost following the reform.

As a consequence, average managerial quality declines. Comparing the average AKM fixed effects of treated managers prior to the reform with those of managers who remain in the public sector afterward, we estimate a decline in average managerial quality of about 2

[16] A possible complementary explanation is that high-ability managers are more inclined to leave because they suffer a larger pay cut. Appendix Figure B10 plots the estimated AKM fixed effects against the wage bite of the reform across individuals, revealing a positive but far from perfect correlation. This suggests that the heterogeneous responses shown in Figure 5 cannot be explained solely by differences in the size of the wage cut and are at least partly driven by positive selection on managerial ability.

percent. Although this measure cannot be directly translated into productivity losses, it indicates a meaningful deterioration in the composition of managerial talent.[17]

The fiscal benefits of the reform were modest. The average annual wage reduction for treated managers amounts to €47,382. Multiplying this figure by the 657 managers affected by the reform implies annual savings of approximately €31 million, or around €186 million between 2015 and 2020. This corresponds to roughly 0.1 percent of the annual public-sector wage bill as computed in Corte dei Conti (2020).[18]

Taken together, these findings suggest that the salary cap generated relatively modest fiscal savings while reducing the quality of managerial talent in state-owned companies. The evidence, therefore, points to an important trade-off between expenditure restraint and the retention of high-quality public-sector managers.

6.3. Co-worker effects

The loss of high-ability managers may also affect other employees at the firm. We therefore examine the potential spillover effects on the careers of their co-workers, focusing exclusively on state-owned companies.

The direction of such effects is ambiguous. A manager's departure may create promotion opportunities and improve retention among remaining workers (e.g., Jäger and Heining, 2022). Alternatively, it may reduce morale, weaken organizational quality, or signal deteriorating career prospects, increasing turnover.[19]

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[17] This loss in managerial quality following the cap can only be estimated for managers of state-owned companies, for whom we can estimate pre-2014 AKM regressions.
[18] This calculation assumes all treated managers remain and absorb the cut. In practice, some managers left the public sector and were replaced by managers whose salaries could not exceed the cap. The realized fiscal savings are therefore likely to be somewhat larger than the estimated €186 million.
[19] Public-sector managers typically do not have access to incentive tools commonly used in the private sector, such as bonuses or performance-based pay. In the absence of these traditional motivation mechanisms,

Table 8 reports the long-run event-study coefficients following the design described in Section 4.2, while Appendix Figures B11-B13 show the full event study results. The estimates suggest that co-workers of treated managers are themselves more likely to leave their firms, although coefficients are imprecisely estimated. The effects are concentrated among men, particularly among high-ability male co-workers. By 2020, these workers are about 10 percentage points less likely to remain with their 2014 employer than comparable co-workers of control managers.

The greater mobility of these workers reflects both increases in retirement and transitions to private-sector employers, although these coefficients are again imprecisely estimated. We find little evidence of similar responses among women and lower-ability co-workers.

Taken together, these findings suggest that the adverse effects of salary caps may extend beyond the managers directly affected. The departure of high-ability managers appears to weaken the retention of other talented employees, amplifying the organizational consequences of the reform. This pattern is consistent with Bender et al. (2018), who show that organizations losing strong managers may also struggle to retain other high-human-capital workers. Given the limited precision of these estimates and our inability to precisely identify teams, however, we view the evidence on co-workers as suggestive rather than conclusive.

7. Conclusions

Governments around the world use salary caps to restrain public-sector pay, yet little is known about their effects on the allocation of managerial talent. This paper studies a 2014 reform in Italy that capped the salaries of top public-sector managers. Using unique

effective public managers may instead be better at allocating tasks or at identifying alternative ways to motivate workers, as argued in Fenizia (2022).

population-wide administrative data and a matched event-study design, we examine how this policy affected managers' careers and the quality of public-sector leadership.

Our analysis is guided by a simple model in which public managers differ in the transferability of their managerial ability. Consistent with theoretical predictions, we find that the reform increased transitions from the public to the private sector, but the response was highly heterogeneous. Exit propensity was especially significant among managers employed in state-owned companies, who possess more transferable skills. Instead, managers in traditional public administration, employed in occupations with no obvious private-sector counterpart, largely remained in public employment despite substantial pay cuts. Among managers in state-owned companies, the response was concentrated almost entirely among high-ability individuals. These managers were not replaced by equally skilled successors, leading to a decline in average managerial quality. We also find suggestive evidence that the departure of high-ability managers increased turnover among other high-ability employees, pointing to broader organizational consequences.

These findings highlight an important trade-off. Salary caps reduce public-sector wage costs but may also weaken the ability of public organizations to retain managerial talent. In our setting, the cumulative fiscal savings were modest—around 0.1 percent of the annual public-sector wage bill—whereas the reform reduced average managerial quality in state-owned companies and may have adversely affected organizational performance.

At the same time, the effects differ markedly across segments of the public sector. Managers in traditional public administration appear to have relatively limited opportunities outside the public sector and therefore respond little to reductions in compensation. In such settings, where high salaries may partly reflect rents, salary caps may curb excess compensation with few adverse consequences for talent retention. By contrast,

organizations operating in competitive markets face a much sharper trade-off between expenditure restraint and managerial quality.

More broadly, our results suggest that compensation policies cannot be designed independently of labor-market opportunities, and that the consequences of salary caps depend critically on the availability of outside employment for affected workers. Future research based on richer data linking managerial quality to organizational performance and service delivery will help quantify the broader welfare implications of these policies.

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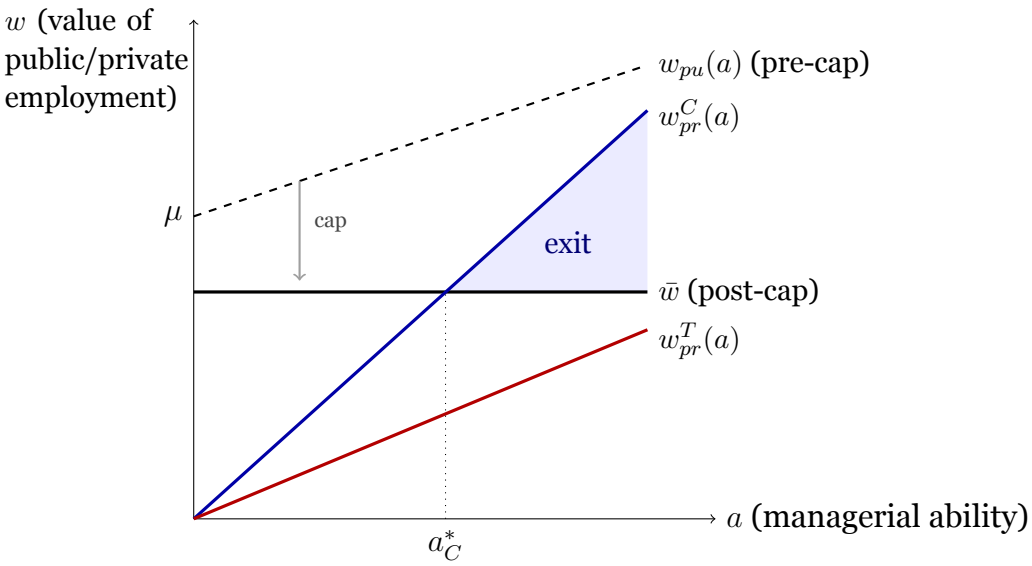
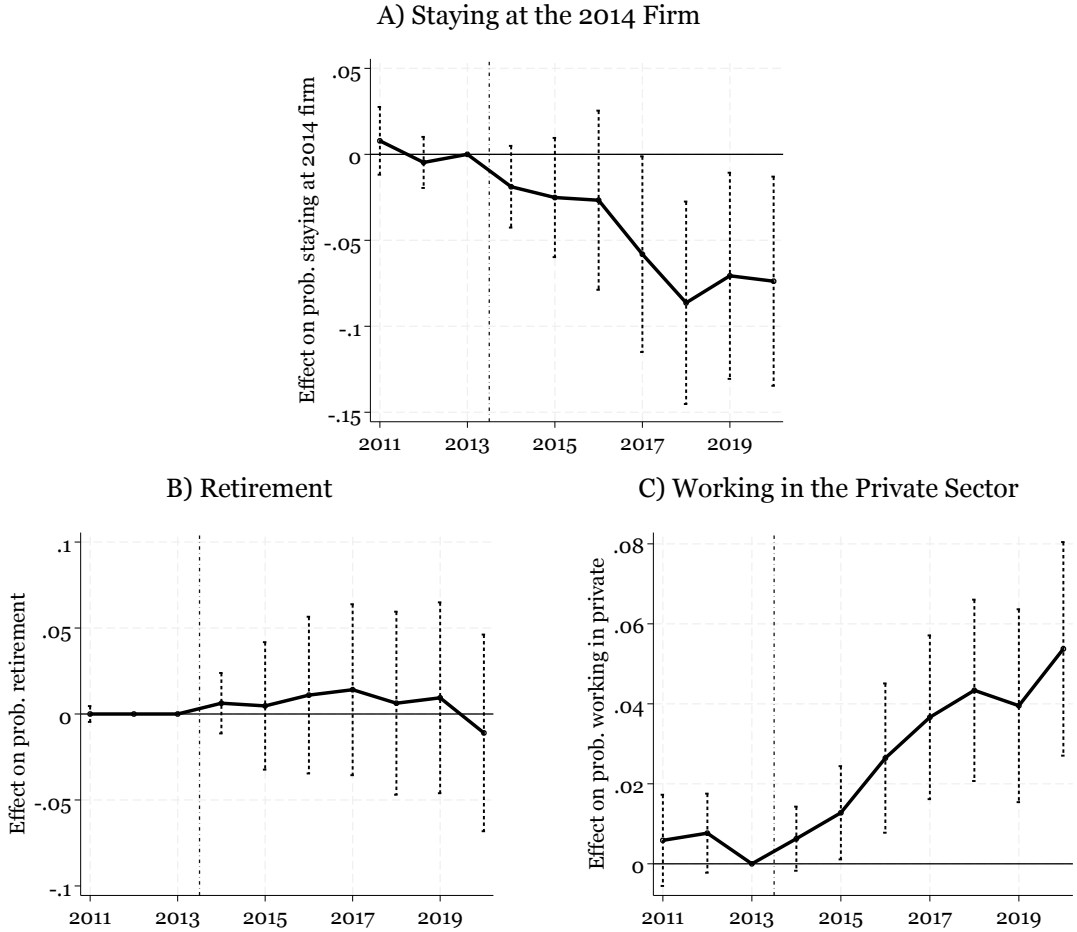
Figure 1. The Effects of a Public-Sector Salary Cap



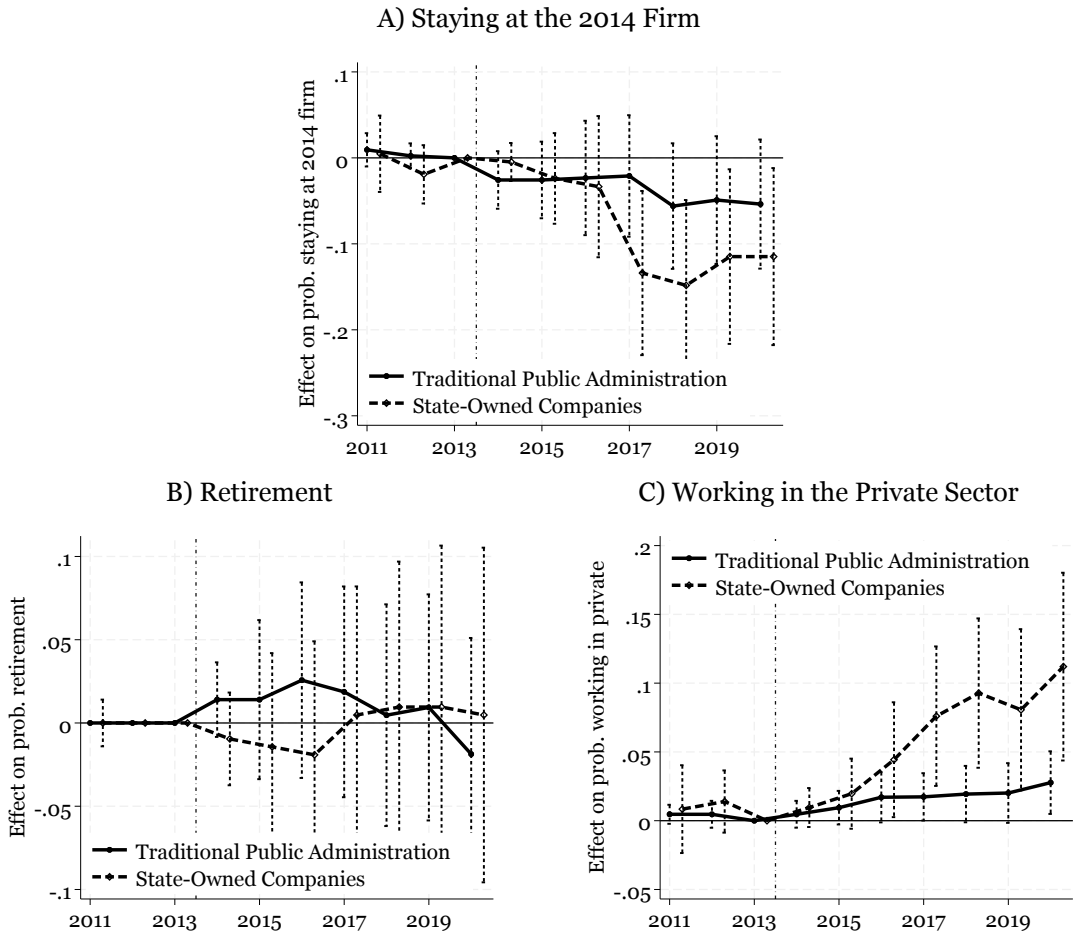
Notes: This figure illustrates the consequences of a public-sector salary cap through the lens of the model in Section 3 and Appendix C. The dashed black line shows the pre-reform public-sector compensation $w_{pu}(a) = \mu + \beta_{pu}a$, where μ is the net premium associated with public-sector employment. The blue and red lines show the private-sector outside options of managers of state-owned companies ($w_{pr}^{C}(a)$) and traditional public administration ($w_{pr}^{T}(a)$). Both are steeper than the public-sector schedule because the private sector also rewards transferable managerial human capital $t_s = \rho_s a$, and more steeply so for managers of state-owned companies, who accumulate more transferable skills ($\rho_C > \rho_T$). The salary-cap reform lowers public-sector pay to $\bar{w}$ (solid black line). Managers of state-owned companies with $a > a_C^*$ then earn more in the private sector than under the cap and exit (blue-shaded area). See Section 3 and Appendix C for details.

Figure 2. The Effects of the 2014 Salary Cap on Public Managers



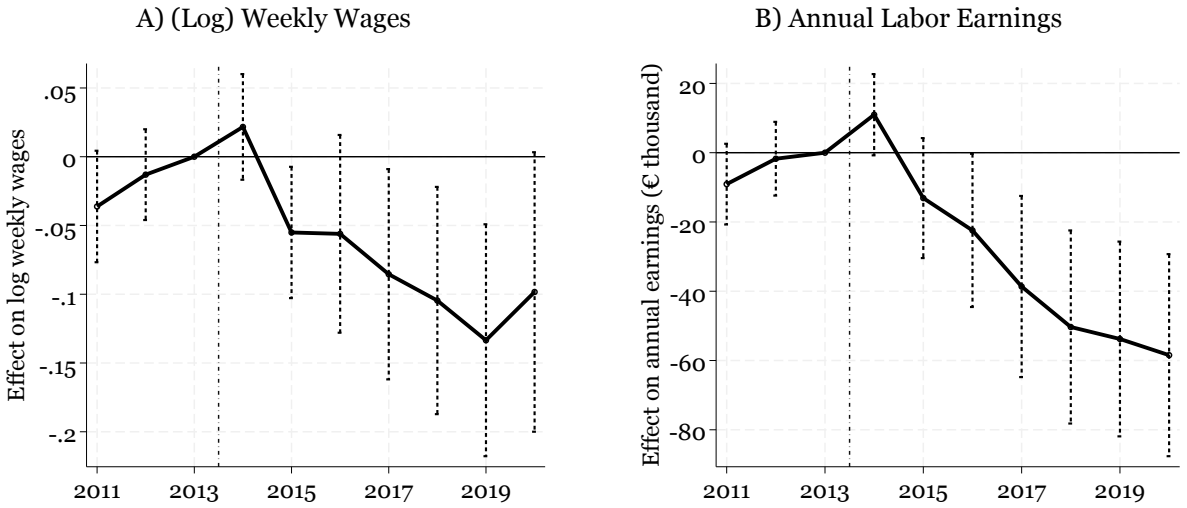
Notes: Event study coefficients resulting from the estimation of Equation 1 on the matched sample of top public managers, where each treated manager earning above the €240,000 cap in 2014 is compared with a control manager earning between €150,000 and €240,000 in 2014 within the same age*gender*pre-2014 private sector experience cell (Section 4). The omitted year is 2013 and the dash-dot vertical line marks the introduction of the salary-cap reform. Panel A: The outcome is an indicator variable equal to one if the worker stays at the 2014 employer and zero otherwise. Panel B: The outcome is an indicator variable equal to one if the worker has retired in that year. Panel C: The outcome is an indicator variable equal to one if the worker is employed in the private sector, conditional on being employed. Standard errors clustered at the worker level. The vertical capped bars denote 95% confidence intervals.

Figure 3. The Effects of the 2014 Salary Cap on Public Managers: Traditional Public Administration vs. State-Owned Companies



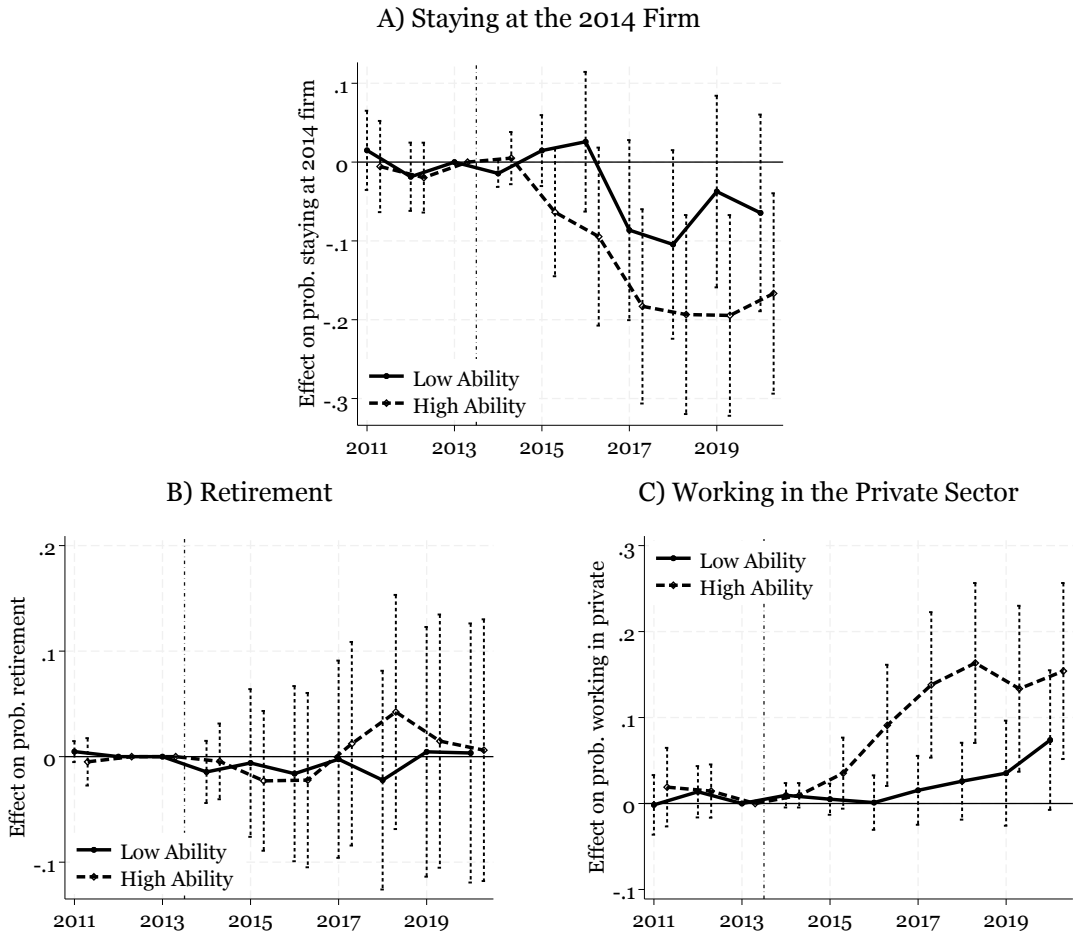
Notes: Event study coefficients resulting from the estimation of Equation 1 on the matched sample of top public managers, where each treated manager earning above the €240,000 cap in 2014 is compared with a control manager earning between €150,000 and €240,000 in 2014 within the same age*gender*pre-2014 private sector experience cell (Section 4). The omitted year is 2013 and the dash-dot vertical line marks the introduction of the salary-cap reform. Effects estimated separately for the sample of managers in traditional public administration jobs ("Traditional Public Administration", solid lines) and managers of state-owned companies ("State-Owned Companies", dashed lines). Section 2.2 provides a description of the different datasets. Panel A: The outcome is an indicator variable equal to one if the worker stays at the 2014 employer and zero otherwise. Panel B: The outcome is an indicator variable equal to one if the worker has retired in that year. Panel C: The outcome is an indicator variable equal to one if the worker is employed in the private sector, conditional on being employed. Standard errors clustered at the worker level. The vertical capped bars denote 95% confidence intervals.

Figure 4. The Effects of the 2014 Salary Cap on Public Managers: Earnings



Notes: Event study coefficients resulting from the estimation of Equation 1 on the matched sample of top public managers, where each treated manager earning above the €240,000 cap in 2014 is compared with a control manager earning between €150,000 and €240,000 in 2014 within the same age*gender*pre-2014 private sector experience cell (Section 4). The omitted year is 2013 and the dash-dot vertical line marks the introduction of the salary-cap reform. Coefficients are estimated only for the sample of managers of state-owned companies, as earnings are observed before 2014 only for these managers. Panel A: The outcome is the (log) weekly wage of a worker in that year (missing if the worker is not in employment). Panel B: The outcome is total labor earnings (in thousand euros, 2010 prices) of a worker in that year and is equal to zero if the worker is not employed. For these outcomes, the sample excludes six managers with a large wage jump between 2013 and 2014 (wage below €150,000 in 2013 and above €240,000 in 2014). The baseline results in the rest of the analysis are unchanged when these six managers are excluded. Standard errors clustered at the worker level. The vertical capped bars denote 95% confidence intervals.

Figure 5. The Effects of the 2014 Salary Cap on Public Managers: High-Ability vs. Low-Ability Managers



Notes: Event study coefficients resulting from the estimation of Equation 1 on the matched sample of top public managers, where each treated manager earning above the €240,000 cap in 2014 is compared with a control manager earning between €150,000 and €240,000 in 2014 within the same age*gender*pre-2014 private sector experience cell (Section 4). The omitted year is 2013 and the dash-dot vertical line marks the introduction of the salary-cap reform. Coefficients are estimated only for the sample of managers of state-owned companies. Estimation conducted separately for treated managers with above-median individual fixed effect ("High Ability", dashed lines) and below-median individual fixed effect ("Low Ability", solid lines). Individual fixed effects are estimated through AKM regressions, see Appendix D for details. The matched control group remains the same as in the baseline analysis. Panel A: The outcome is an indicator variable equal to one if the worker stays at the 2014 employer and zero otherwise. Panel B: The outcome is an indicator variable equal to one if the worker has retired in that year. Panel C: The outcome is an indicator variable equal to one if the worker is employed in the private sector, conditional on being employed. Standard errors clustered at the worker level. The vertical capped bars denote 95% confidence intervals.

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Table 1. Descriptive Statistics for Public Sector Workers in 2014

	All public employees			Traditional public administration			State-owned companies		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All	Wage (€) $\in [150k, 240k)$	Wage (€) $\geq 240k$	All	Wage (€) $\in [150k, 240k)$	Wage (€) $\geq 240k$	All	Wage (€) $\in [150k, 240k)$	Wage (€) $\geq 240k$
Annual wage (€)	31,635	179,544	287,382	31,692	179,296	284,426	30,945	180,603	293,292
	(19,591)	(22,636)	(80,178)	(18,810)	(22,482)	(76,128)	(27,330)	(23,263)	(87,604)
Female	0.57	0.28	0.17	0.59	0.30	0.20	0.29	0.22	0.09
	(0.50)	(0.45)	(0.37)	(0.49)	(0.46)	(0.40)	(0.45)	(0.41)	(0.29)
Age	49.09	57.47	59.02	49.37	58.15	59.78	45.68	54.57	57.48
	(9.50)	(6.56)	(6.36)	(9.34)	(6.53)	(6.58)	(10.67)	(5.90)	(5.60)
Temporary contract	0.05	0.03	0.03	0.04	0.03	0.01	0.12	0.03	0.07
	(0.21)	(0.16)	(0.18)	(0.20)	(0.16)	(0.12)	(0.33)	(0.18)	(0.25)
Part-time status	0.05	0.00	0.01	0.05	0.00	0.01	0.06	0.00	0.00
	(0.22)	(0.05)	(0.10)	(0.22)	(0.05)	(0.12)	(0.24)	(0.04)	(0.00)
Private job before 2014	0.04	0.01	0.03	0.03	0.01	0.02	0.09	0.03	0.05
	(0.19)	(0.11)	(0.17)	(0.18)	(0.09)	(0.13)	(0.28)	(0.16)	(0.23)
Labor market experience	25.63	31.02	32.71	26.00	32.18	33.36	22.59	29.07	32.14
	(10.63)	(8.99)	(9.48)	(10.34)	(9.08)	(9.97)	(12.36)	(8.48)	(9.02)
N. Observations	3,159,830	7,333	657	2,918,923	5,944	438	240,907	1,389	219

Notes: Descriptive statistics for public sector workers in 2014. Columns 1-3 refer to the whole public sector. Columns 4-9 report statistics separately for traditional public administration workers (Columns 4-6) and employees of state-owned companies (Columns 7-9). Section 2.2 provides a description of the different datasets. Columns 1, 4 and 7 show statistics for all workers, Columns 2, 5 and 8 for workers earning between €150,000 and €240,000 in 2014 and Columns 3, 6 and 9 for workers earning above the €240,000 cap in 2014. "Annual wage" is measured in euros. "Female", "Temporary contract", and "Part-time status" are indicator variables. "Private job before 2014" is also an indicator variable taking value one if the worker has been employed in the private sector before 2014. "Age" and "Labor market experience" are measured in years. Standard deviations in parentheses.

Table 2. Employment Status for Top Public Managers After 2014

	Wage $\in [150k, 240k)$	Wage $\geq 240k$
	(1)	(2)
Stay in public	4,651	337
	0.63	*0.51*
Retirement	2,354	258
	0.32	*0.39*
Non-employment	238	27
	0.03	*0.04*
Private sector	90	35
	0.01	*0.05*
Total	7,333	657

Notes: Employment status for top public managers after 2014, separately for control managers earning between €150,000 and €240,000 in 2014 (Column 1) and treated managers earning above the €240,000 cap in 2014 (Column 2). "Stay in public" denotes managers who remain in the public sector between 2014 and 2020 (either at the 2014 employer or another public employer). The other indicators denote whether a manager retired ("Retirement"), is not observed anymore in the INPS data ("Non-employment", which can denote either unemployment or self-employment) or moved to a private job ("Private sector"). Shares are denoted in italics.

Table 3. The Effects of the 2014 Salary Cap on Public Managers

	(1)	(2)	(3)
	Stay at 2014 Firm	Retire	Work in Private
Medium run	-0.058	0.014	0.037
	(0.029)**	(0.025)	(0.010)***
Long run	-0.074	-0.011	0.054
	(0.031)**	(0.029)	(0.014)***
N. Observations	12,740	12,740	10,788
Mean outcome	0.543	0.425	0.010
Standard deviation	0.499	0.495	0.102

Notes: This table reports the medium-run (year 2017) and the long-run (year 2020) event study coefficients resulting from the estimation of Equation 1 on the matched sample of top public managers, where each treated manager earning above the €240,000 cap in 2014 is compared with a control manager earning between €150,000 and €240,000 in 2014 within the same age*gender*pre-2014 private sector experience cell (Section 4). Column 1: The outcome is an indicator variable equal to one if the worker stays at the 2014 employer and zero otherwise. Column 2: The outcome is an indicator variable equal to one if the worker has retired in that year. Column 3: The outcome is an indicator variable equal to one if the worker is employed in the private sector, conditional on being employed. "Mean outcome" and "Standard deviation" are the mean and standard deviation of the outcome of interest in year 2020 for the control group. Standard errors, clustered at the worker level, are shown in parentheses. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table 4. The Effects of the 2014 Salary Cap on Public Managers: Robustness Tests

	(1)	(2)	(3)	(4)	(5)	(6)
	Stay at 2014 Firm	Retire	Work in Private	Stay at 2014 Firm	Retire	Work in Private
	I) Spillover Effects			*II) Controls Above €200,000*		
Long run	-0.014	-0.010	0.007	-0.057	-0.002	0.032
	(0.024)	(0.022)	(0.007)	(0.033)*	(0.031)	(0.013)**
N. Observations	21,960	21,960	18,457	11,520	11,520	9,716
Mean outcome	0.502	0.473	0.010	0.514	0.427	0.015
Standard deviation	0.500	0.499	0.099	0.500	0.495	0.122
	III) 1:2 Matching			*IV) No Matching*		
Long run	-0.081	0.008	0.036	-0.158	0.075	0.053
	(0.027)***	(0.025)	(0.013)***	(0.023)***	(0.021)***	(0.012)***
N. Observations	18,930	18,930	16,103	79,900	79,900	70,568
Mean outcome	0.560	0.410	0.017	0.620	0.340	0.012
Standard deviation	0.497	0.492	0.129	0.485	0.474	0.111

	V) 2009 Placebo Reform		
	Stay at 2009 Firm	Retire	Work in Private
Long run	0.000	-0.042	0.000
	(0.052)	(0.050)	(0.021)
N. Observations	3,408	3,408	2,972
Mean outcome	0.606	0.394	0.029
Standard deviation	0.490	0.490	0.168

Notes: This table reports the long-run (year 2020 for all panels except Panel V, for which we show year 2013) event study coefficients resulting from the estimation of Equation 1 on alternative samples. See Table 3 for a description of the outcomes. Unless noted otherwise, the matching strategy is the one used in the baseline analysis, where each treated manager earning above the €240,000 cap in 2014 is compared with a control manager earning between €150,000 and €240,000 in 2014 within the same age*gender*pre-2014 private sector experience cell (Section 4). Panel I: each public manager earning between €200,000 and €240,000 in 2014 is compared with a public manager earning between €150,000 and €200,000 in 2014; Panel II: potential controls in the baseline design (public managers earning between €150,000 and €240,000 in 2014) are replaced with public managers earning between €200,000 and €240,000 in 2014; Panel III: each public manager earning above €240,000 in 2014 is compared with public managers earning between €150,000 and €240,000 in 2014 using one-to-two (rather than one-to-one) matching; Panel IV: no matching is performed and all public managers earning above €240,000 in 2014 are compared with public managers earning between €150,000 and €240,000 in 2014; Panel V: placebo reform exercise, where each public manager earning above €240,000 in 2009 is compared with a public manager earning between €150,000 and €240,000 in 2009 (exercise conducted only for managers of state-owned companies, who are observed before 2014). "Mean outcome" and "Standard deviation" are the mean and standard deviation of the outcome of interest in year 2020 for the control group (for Panel V, they refer to year 2013). Standard errors, clustered at the worker level, are shown in parentheses. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table 5. The Effects of the 2014 Salary Cap on Public Managers: Traditional Public Administration vs. State-Owned Companies

	(1)	(2)	(3)
	Stay at 2014 Firm	Retire	Work in Private
	I) Traditional Public Administration		
Medium run	-0.021	0.019	0.017
	(0.036)	(0.032)	(0.009)**
Long run	-0.054	-0.019	0.028
	(0.038)	(0.036)	(0.012)**
N. Observations	8,560	8,560	7,261
Mean outcome	0.544	0.423	0.004
Standard deviation	0.499	0.495	0.062
	II) State-Owned Companies		
Medium run	-0.134	0.005	0.076
	(0.049)***	(0.039)	(0.026)***
Long run	-0.115	0.005	0.112
	(0.052)**	(0.051)	(0.035)***
N. Observations	4,180	4,180	3,527
Mean outcome	0.541	0.431	0.025
Standard deviation	0.500	0.496	0.157

Notes: This table reports the medium-run (year 2017) and the long-run (year 2020) event study coefficients resulting from the estimation of Equation 1 on the matched sample of top public managers, where each treated manager earning above the €240,000 cap in 2014 is compared with a control manager earning between €150,000 and €240,000 in 2014 within the same age*gender*pre-2014 private sector experience cell (Section 4). Effects estimated separately for the sample of managers in traditional public administration jobs ("Traditional Public Administration", Panel I) and managers of state-owned companies ("State-Owned Companies", Panel II). Section 2.2 provides a description of the different datasets. Column 1: The outcome is an indicator variable equal to one if the worker stays at the 2014 employer and zero otherwise. Column 2: The outcome is an indicator variable equal to one if the worker has retired in that year. Column 3: The outcome is an indicator variable equal to one if the worker is employed in the private sector, conditional on being employed. "Mean outcome" and "Standard deviation" are the mean and standard deviation of the outcome of interest in year 2020 for the control group. Standard errors, clustered at the worker level, are shown in parentheses. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table 6. The Effects of the 2014 Salary Cap on Public Managers: State-Owned Companies, Earnings

	(1)	(2)	(3)	(4)
	(Log) Weekly Wages			Annual
	All workers	Stayers	Leavers	Earnings
Medium run	-0.085	-0.097	-0.161	-38,637
	(0.039)**	(0.033)***	(0.246)	(13,304)***
Long run	-0.098	-0.086	0.067	-58,457
	(0.052)*	(0.045)*	(0.204)	(14,839)***
N. Observations	3,475	2,640	1,938	4,120
Mean outcome	8.176	8.176	8.176	101,115
Standard deviation	0.245	0.245	0.245	95,895

Notes: This table reports the medium-run (year 2017) and the long-run (year 2020) event study coefficients resulting from the estimation of Equation 1 on the matched sample of top public managers, where each treated manager earning above the €240,000 cap in 2014 is compared with a control manager earning between €150,000 and €240,000 in 2014 within the same age*gender*pre-2014 private sector experience cell (Section 4). Effects estimated only for the sample of managers of state-owned companies. Columns 1-3: The outcome is the (log) weekly wage of a worker in that year (missing if the worker is not in employment), separately for all managers (1), managers who stay in the public sector after 2014 (2) and managers who leave to the private sector after 2014 (3). The matched control group remains the same for Columns (2) and (3). Column 4: The outcome is total labor earnings (in euros, 2010 prices) of a worker in that year and is equal to zero if the worker is not employed. The sample excludes six treated managers with a large wage jump between 2013 and 2014 (wage below €150,000 in 2013 and above €240,000 in 2014). In Column (3), we only consider direct transitions from the public to the private sector (we exclude five leaving managers who go through periods of non-employment). The baseline results in the rest of the analysis are unchanged when these managers are excluded. "Mean outcome" and "Standard deviation" are the mean and standard deviation of the outcome of interest in year 2020 for the control group. Standard errors, clustered at the worker level, are shown in parentheses. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table 7. The Effects of the 2014 Salary Cap on Public Managers: High-Ability vs. Low-Ability Managers

	(1)	(2)	(3)
	Stay at 2014 Firm	Retire	Work in Private
	I) High-Ability Managers		
Medium run	-0.183	0.012	0.138
	(0.063)***	(0.049)	(0.043)***
Long run	-0.167	0.006	0.154
	(0.065)**	(0.063)	(0.052)***
N. Observations	3,120	3,120	2,624
Mean outcome	0.541	0.431	0.025
Standard deviation	0.500	0.496	0.157
	II) Low-Ability Managers		
Medium run	-0.086	-0.002	0.015
	(0.058)	(0.048)	(0.020)
Long run	-0.064	0.003	0.074
	(0.063)	(0.062)	(0.041)*
N. Observations	3,150	3,150	2,683
Mean outcome	0.541	0.431	0.025
Standard deviation	0.500	0.496	0.157

Notes: This table reports the medium-run (year 2017) and the long-run (year 2020) event study coefficients resulting from the estimation of Equation 1 on the matched sample of top public managers, where each treated manager earning above the €240,000 cap in 2014 is compared with a control manager earning between €150,000 and €240,000 in 2014 within the same age*gender*pre-2014 private sector experience cell (Section 4). Effects estimated only for the sample of managers of state-owned companies. Estimation conducted separately for treated managers with above-median individual fixed effect ("High-Ability Managers", Panel I) and below-median individual fixed effect ("Low-Ability Managers", Panel II). Individual fixed effects are estimated through AKM regressions, see Appendix D for details. The matched control group remains the same as in the baseline analysis. Column 1: The outcome is an indicator variable equal to one if the worker stays at the 2014 employer and zero otherwise. Column 2: The outcome is an indicator variable equal to one if the worker has retired in that year. Column 3: The outcome is an indicator variable equal to one if the worker is employed in the private sector, conditional on being employed. "Mean outcome" and "Standard deviation" are the mean and standard deviation of the outcome of interest in year 2020 for the control group. Standard errors, clustered at the worker level, are shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 8. The Effects of the 2014 Salary Cap on Public Managers: Effects on Co-Workers

	(1)	(2)	(3)	(4)	(5)	(6)
	Stay at 2014 Firm		Retire		Work in Private	
	Men	Women	Men	Women	Men	Women
			I) All Co-Workers			
Long run	-0.042	0.006	0.020	-0.058	0.013	-0.005
	(0.044)	(0.062)	(0.043)	(0.055)	(0.014)	(0.013)
N. Observations	22,670	15,250	22,670	15,250	20,495	13,805
Mean outcome	0.639	0.648	0.309	0.291	0.016	0.018
Standard deviation	0.480	0.478	0.462	0.455	0.125	0.133
			II) High-Ability Co-Workers			
Long run	-0.102	-0.033	0.051	-0.028	0.016	-0.001
	(0.050)**	(0.065)	(0.054)	(0.057)	(0.015)	(0.015)
N. Observations	17,810	10,630	17,810	10,630	15,969	9,526
Mean outcome	0.639	0.648	0.309	0.291	0.016	0.018
Standard deviation	0.480	0.478	0.462	0.455	0.125	0.133
			III) Low-Ability Co-Workers			
Long run	0.023	0.042	-0.015	-0.085	0.011	-0.010
	(0.054)	(0.064)	(0.044)	(0.059)	(0.015)	(0.013)
N. Observations	17,370	11,070	17,370	11,070	15,862	10,057
Mean outcome	0.639	0.648	0.309	0.291	0.016	0.018
Standard deviation	0.480	0.478	0.462	0.455	0.125	0.133

Notes: This table reports the long-run (year 2020) event study coefficients resulting from the estimation of Equation 2 on the matched sample of co-workers of public managers, where a co-worker of a treated manager is matched to a co-worker of a control manager using a propensity score matching algorithm based on pre-reform characteristics (age, gender, earnings, and location). We restrict the sample to employees who had worked at their 2014 firm since at least 2011 (Section 4). The exercise focuses only on co-workers of managers in state-owned companies. Co-workers defined as managers and mid-managers below the cap in 2014 in the same firm*municipality as the managers of interest. Panel I) considers all co-workers. Panels II-III) distinguish between co-workers with above-median individual fixed effect ("High-Ability Co-Workers", Panel II) and below-median individual fixed effect ("Low-Ability Co-Workers", Panel III). The matched control group remains the same across panels. Individual fixed effects are estimated through AKM regressions, see Appendix D for details. See Table 3 for a description of the three outcomes. "Mean outcome" and "Standard deviation" are the mean and standard deviation of the outcome of interest in year 2020 for the control group. Standard errors, clustered at the firm*municipality level, are shown in parentheses. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Appendix

A. Identifying the Employees of State-Owned Companies

This Appendix describes how we identify employees of state-owned companies in the private-sector administrative data ("*Uniemens*"). As discussed in Section 2, these archives include a subset of workers employed in state-owned companies who, for social security contribution purposes, appear in the private-sector records.

To identify these workers, we use four sources of information available in the Uniemens data: i) a worker's collective bargaining agreement; ii) the contribution type, which classifies special worker categories based on their social security contributions; iii) the INPS social security code ("codice statistico contributivo"); and iv) the authorization code, which complements the previous code and is specific to certain employers. Each of these variables takes values that identify workers in state-owned companies, and we use this information to identify public employees. We complement this procedure with information from the so-called "S13 List" available at the Italian National Institute of Statistics (Istat), which records state-owned companies.[1]

This selection may still include workers employed in state-owned companies listed on the stock market, which were exempt from the salary cap. To exclude them, we compile a list of listed state-owned companies using "Cassa Depositi e Prestiti" records and merge it with the INPS data.[2] This procedure yields a final sample of roughly 240,000 workers in 2014. Of these, 219 earned above the cap in 2014 and enter our treatment group together with top managers in traditional public administration.

[1] See https://www.istat.it/it/archivio/190748.
[2] See https://www.cdp.it/sitointernet/it/cdp_equity_portafoglio.page.

B. Additional Statistics, Analysis, and Robustness Results

Table B1. Sector Distribution of Public Employees in 2014

	All (1)	Wage (€) $\in [150k, 240k)$ (2)	Wage (€) $\geq 240k$ (3)
		I) Traditional Public Administration	
Education	31.57	0.02	0.00
Health	22.03	10.08	10.27
Central administrations	7.45	72.95	72.15
Universities	4.41	5.06	6.39
Local administrations	21.20	7.25	3.20
Defense	9.66	1.31	1.60
Other	3.68	3.33	6.39
		II) State-Owned Companies	
Agriculture, Forestry and Fishing	2.71	0.73	1.83
Mining	0.28	0.00	0.00
Manufacturing	0.48	0.15	0.91
Electricity, Gas, Steam and Air Conditioning	0.91	2.32	1.83
Water Supply; Sewerage, Waste Management	0.60	0.07	0.46
Construction	0.63	0.94	0.91
Wholesale and Retail Trade; Vehicles Repair	0.08	0.00	0.00
Transportation and Storage	30.88	9.01	16.44
Accommodation and Food Service Activities	0.29	0.00	0.00
Information and Communication	2.28	7.92	13.70
Financial and Insurance Activities	3.79	39.14	33.33
Real Estate Activities	0.05	0.00	0.00
Professional, Scientific and Technical Activities	2.41	2.69	2.74
Administrative and Support Service Activities	7.23	5.52	5.48
Public Administration and Defense	31.57	23.75	9.13
Education	2.95	0.07	0.00
Human Health and Social Work Activities	6.13	1.16	1.37
Arts, Entertainment and Recreation	1.27	1.67	1.83
Other Service Activities	4.70	4.87	10.05
Activities of Households as Employers	0.18	0.00	0.00
Extraterritorial Organizations and Bodies	0.56	0.00	0.00

Notes: Sector shares of public employees in 2014 (in %), separately for all workers (Column 1), workers earning between €150,000 and €240,000 in 2014 (Column 2) and workers earning above the €240,000 cap in 2014 (Column 3). Panel I shows the sector distribution for traditional public administration employees. Panel II shows the sector distribution for employees of state-owned companies. Section 2.2 provides a description of the different datasets.

Table B2. Within-Industry Descriptive Statistics, Private Sector vs. State-Owned Companies

	Private Sector	State-Owned Companies
	(1)	(2)
Annual wage (€)	374,128	294,020
	(50,513)	(23,498)
Female	0.09	0.10
	(0.05)	(0.03)
Age	52.05	57.46
	(2.68)	(2.15)
Temporary contract	0.02	0.07
	(0.01)	(0.08)
Part-time status	0.00	0.00
	(0.01)	(0.00)
Labor market experience	26.65	31.33
	(2.82)	(3.22)
N. Observations	2,240	186

Notes: Descriptive statistics for managers earning more than €240,000 in 2014. Column 1 refers to private sector managers, Column 2 to managers of state-owned companies. Each statistic is computed within industry, then averaged across industries with weights based on industry employment distributions in the public sector. The table only includes sectors with a share of treated managers in state-owned companies of at least 5 percent. "Annual wage" is measured in euros. "Female", "Temporary contract", and "Part-time status" are all indicator variables. "Age" and "Labor market experience" are measured in years. Standard deviations in parentheses.

Table B3. Balancing of Matched Samples, 2014

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	I)							
	Baseline		Traditional Public		State-Owned Comp.		Spillovers	
	C	T	C	T	C	T	C	T
Annual wage (€)	180,252	287,624	179,864	284,815	177,219	273,290	172,762	213,800
	(23,739)	(81,166)	(23,830)	(76,880)	(43,604)	(94,191)	(16,861)	(10,817)
Female	0.17	0.17	0.21	0.21	0.09	0.09	0.20	0.20
	(0.37)	(0.37)	(0.40)	(0.40)	(0.29)	(0.29)	(0.40)	(0.40)
Age	58.96	58.96	59.71	59.71	56.42	56.42	59.43	59.43
	(6.25)	(6.25)	(6.55)	(6.55)	(5.26)	(5.26)	(6.54)	(6.54)
Temporary contract	0.02	0.03	0.02	0.01	0.04	0.07	0.02	0.02
	(0.15)	(0.17)	(0.13)	(0.11)	(0.19)	(0.25)	(0.13)	(0.15)
Part-time status	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
	(0.04)	(0.10)	(0.05)	(0.12)	(0.00)	(0.00)	(0.03)	(0.04)
Private job before 2014	0.01	0.01	0.01	0.01	0.03	0.03	0.00	0.00
	(0.12)	(0.12)	(0.08)	(0.08)	(0.17)	(0.17)	(0.04)	(0.04)
Labor market experience	32.10	32.45	31.21	32.84	31.89	31.10	31.94	31.43
	(9.23)	(9.68)	(10.86)	(10.81)	(7.45)	(8.53)	(9.61)	(9.44)
N. Observations	637	637	428	428	209	209	1,098	1,098
	II)							
	Controls $\geq$ €$200k$		$1:2$ Matching		No Matching		2009 Placebo	
	C	T	C	T	C	T	C	T
Annual wage (€)	214,514	286,948	180,926	287,607	179,544	287,382	173,183	268,479
	(10,624)	(84,381)	(23,801)	(81,411)	(22,636)	(80,178)	(44,314)	(105,205)
Female	0.15	0.15	0.17	0.17	0.28	0.17	0.08	0.08
	(0.36)	(0.36)	(0.38)	(0.38)	(0.45)	(0.37)	(0.27)	(0.27)
Age	59.29	59.29	59.01	59.01	57.47	59.02	55.58	55.58
	(6.16)	(6.16)	(6.21)	(6.21)	(6.56)	(6.36)	(6.00)	(6.00)
Temporary contract	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.04
	(0.14)	(0.15)	(0.15)	(0.15)	(0.16)	(0.18)	(0.17)	(0.19)
Part-time status	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.00
	(0.04)	(0.08)	(0.05)	(0.10)	(0.05)	(0.10)	(0.00)	(0.00)
Private job before 2014	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02
	(0.06)	(0.06)	(0.08)	(0.08)	(0.09)	(0.14)	(0.14)	(0.14)
Labor market experience	31.72	32.46	32.07	32.54	31.62	32.51	31.05	30.77
	(9.20)	(9.63)	(9.31)	(9.60)	(8.48)	(9.88)	(7.59)	(8.38)
N. Observations	576	576	1,262	631	7,333	657	213	213

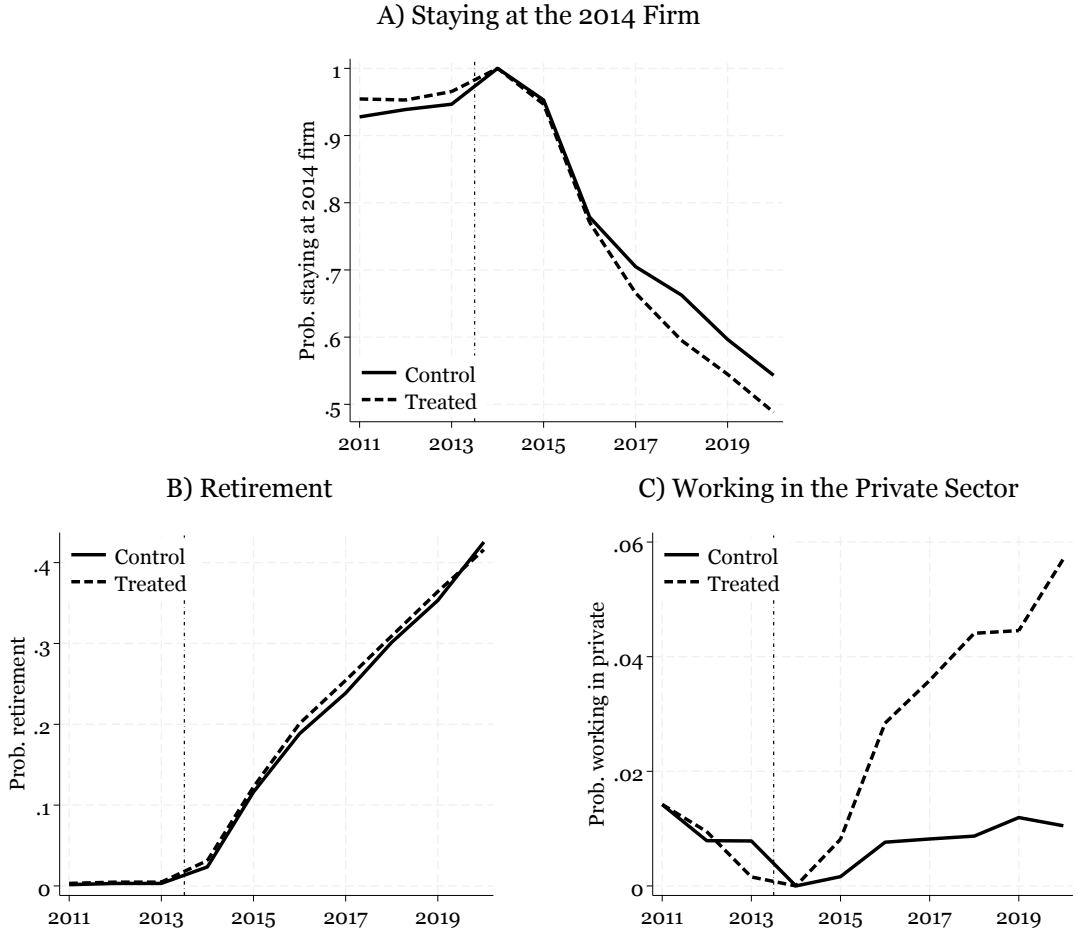
Notes: Balancing properties of matched samples separately for the control (C) and treated (T) groups, statistics as of 2014 except for Panel II Columns 7-8 (which refer to 2009). Unless noted otherwise, the matching strategy is always a one-to-one matching within age*gender*pre-2014 private sector experience cells. Panel I Columns 1-2: baseline analysis, each treated manager earning above the €240,000 cap in 2014 is compared with a control manager earning between €150,000 and €240,000 in 2014. Panel I Columns 3-4 and Columns 5-6: baseline analysis, breakdown between managers of traditional public administration (Columns 3-4) and managers of state-owned companies (Columns 5-6); Panel I Columns 7-8: spillover analysis, each public manager earning between €200,000 and €240,000 in 2014 is compared with a public manager earning between €150,000 and €200,000 in 2014. Panel II Columns 1-2: potential controls in the baseline design (public managers earning between €150,000 and €240,000 in 2014) are replaced with public managers earning between €200,000 and €240,000 in 2014. Panel II Columns 3-4: each treated manager earning above the €240,000 cap in 2014 is compared with control managers earning between €150,000 and €240,000 in 2014 using one-to-two (rather than one-to-one) matching within age*gender*pre-2014 private sector experience cells. Panel II Columns 5-6: no matching is performed and all treated managers earning above the €240,000 cap in 2014 are compared with control managers earning between €150,000 and €240,000 in 2014. Panel II Columns 7-8: placebo reform exercise, where each public manager earning above €240,000 in 2009 is compared with a public manager earning between €150,000 and €240,000 in 2009. Standard deviations in parentheses. See Table 1 and text for details and definition of the variables.

Table B4. Balancing of Matched Sample of Co-Workers, 2013

	(1)	(2)
	C	T
Annual wage (€)	65,851	65,059
	(29,558)	(24,816)
Female	0.34	0.46
	(0.47)	(0.50)
Age	52.19	51.91
	(6.78)	(6.93)
Temporary contract	0.01	0.01
	(0.08)	(0.09)
Part-time status	0.02	0.02
	(0.13)	(0.13)
Labor market experience	28.01	27.69
	(9.26)	(9.10)
N. Observations	1,896	1,896

Notes: Balancing properties of the matched sample of the co-workers of managers of state-owned companies affected by the cap (treated group, Column 2) and of the co-workers of managers of state-owned companies not affected by the cap (control group, Column 1), described in Section 4. Statistics as of 2013. Co-workers defined as managers and mid-managers below the cap in 2014 in the same firm*municipality as the managers of interest. Matching performed using a one-to-one propensity score matching, where a co-worker of a treated manager is matched to a co-worker of a control manager based on pre-reform characteristics (age, gender, earnings, and location). We restrict the sample to employees who had worked at their 2014 firm since at least 2011. The matching procedure is implemented without replacement and using a caliper of 0.05. The exercise focuses only on co-workers of managers in state-owned companies. Standard deviations in parentheses. See Table 1 and text for details and definition of the variables.

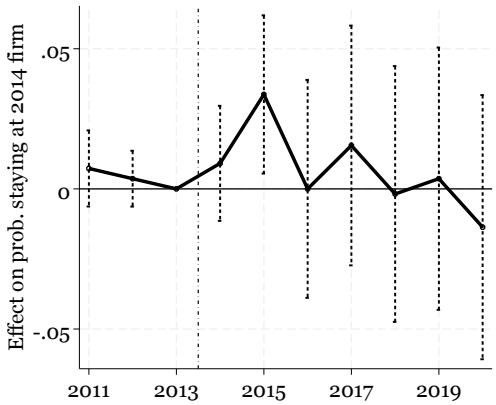
Figure B1. The Effects of the 2014 Salary Cap on Public Managers, Raw Means



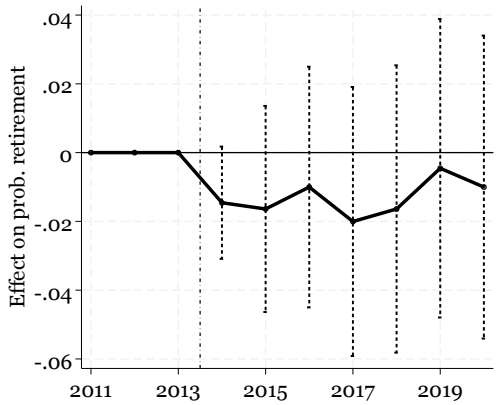
Notes: Raw means for the matched sample of top public managers, where each treated manager earning above the €240,000 cap in 2014 is compared with a control manager earning between €150,000 and €240,000 in 2014 within the same age*gender*pre-2014 private sector experience cell (Section 4). The dash-dot vertical line marks the introduction of the salary-cap reform. Means are shown separately for treated managers (dashed line) and control managers (solid line). Panel A: The outcome is an indicator variable equal to one if the worker stays at the 2014 employer and zero otherwise. Panel B: The outcome is an indicator variable equal to one if the worker has retired in that year. Panel C: The outcome is an indicator variable equal to one if the worker is employed in the private sector, conditional on being employed.

Figure B2. Event Study Results, Robustness Tests, Spillovers

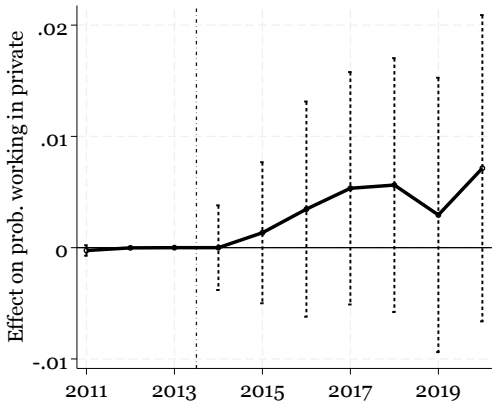
A) Staying at the 2014 Firm



B) Retirement

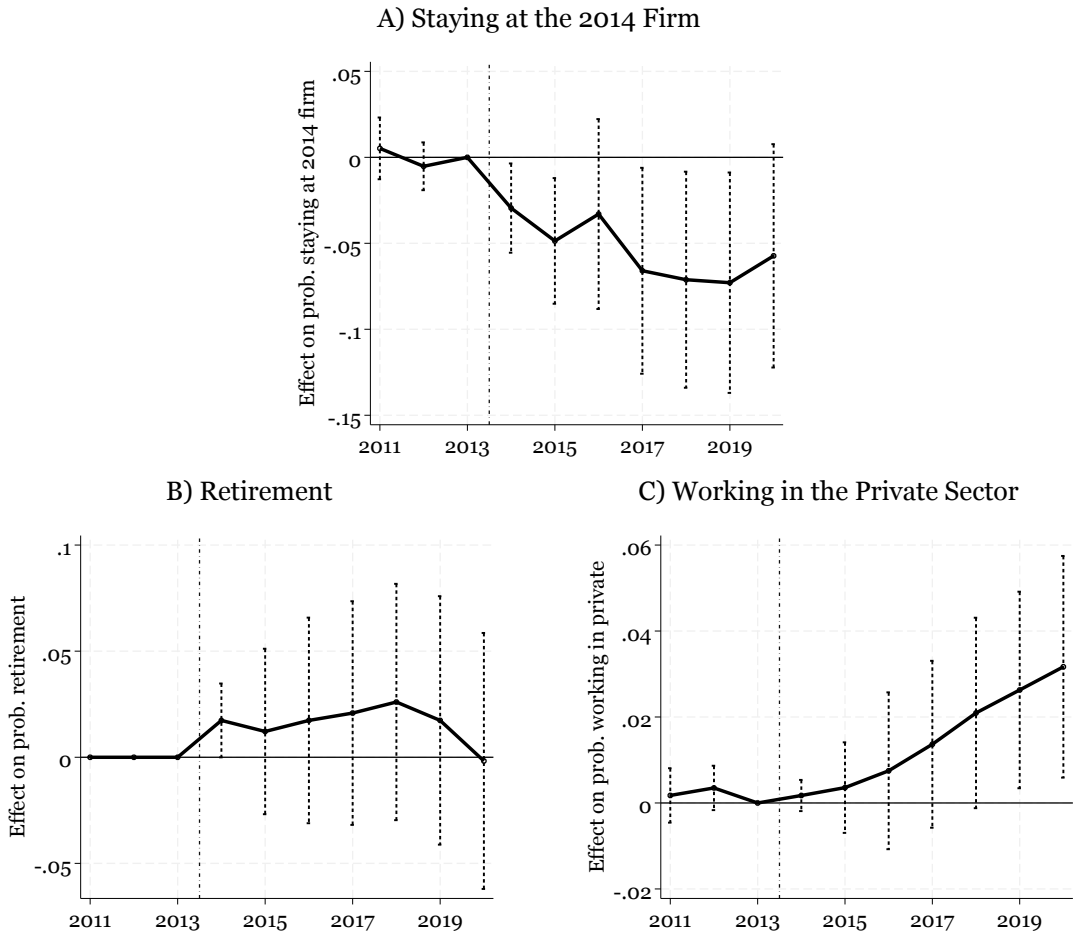


C) Working in the Private Sector



Notes: Event study coefficients resulting from the estimation of Equation 1 on the matched sample of top public managers, where each public manager earning between €200,000 and €240,000 in 2014 is compared with a public manager earning between €150,000 and €200,000 in 2014 within the same age*gender*pre-2014 private sector experience cell (Section 4). The omitted year is 2013 and the dash-dot vertical line marks the introduction of the salary-cap reform. Panel A: The outcome is an indicator variable equal to one if the worker stays at the 2014 employer and zero otherwise. Panel B: The outcome is an indicator variable equal to one if the worker has retired in that year. Panel C: The outcome is an indicator variable equal to one if the worker is employed in the private sector, conditional on being employed. Standard errors clustered at the worker level. The vertical capped bars denote 95% confidence intervals. See Section 5.2 for details.

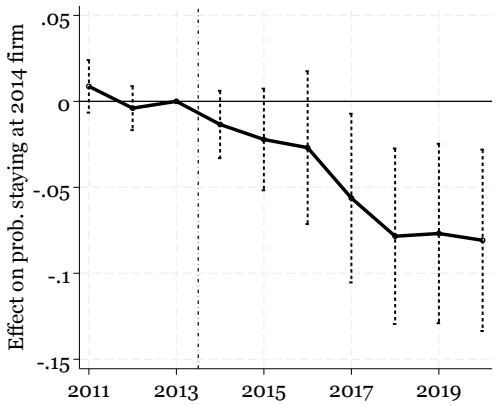
Figure B3. Event Study Results, Robustness Tests, Controls Above €200,000



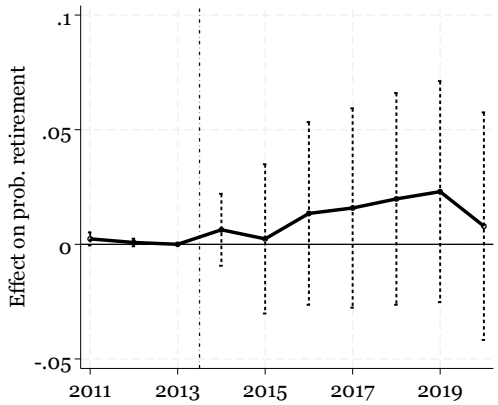
Notes: Event study coefficients resulting from the estimation of Equation 1 on the matched sample of top public managers, where each treated manager earning above the €240,000 cap in 2014 is compared with a control manager earning between €200,000 and €240,000 in 2014 within the same age*gender*pre-2014 private sector experience cell (Section 4). The omitted year is 2013 and the dash-dot vertical line marks the introduction of the salary-cap reform. Panel A: The outcome is an indicator variable equal to one if the worker stays at the 2014 employer and zero otherwise. Panel B: The outcome is an indicator variable equal to one if the worker has retired in that year. Panel C: The outcome is an indicator variable equal to one if the worker is employed in the private sector, conditional on being employed. Standard errors clustered at the worker level. The vertical capped bars denote 95% confidence intervals. See Section 5.2 for details.

Figure B4. Event Study Results, Robustness Tests, 1:2 Matching

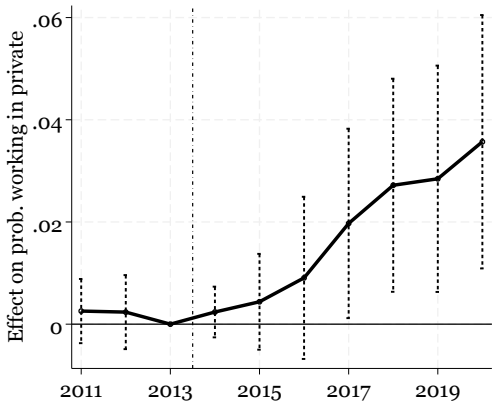
A) Staying at the 2014 Firm



B) Retirement

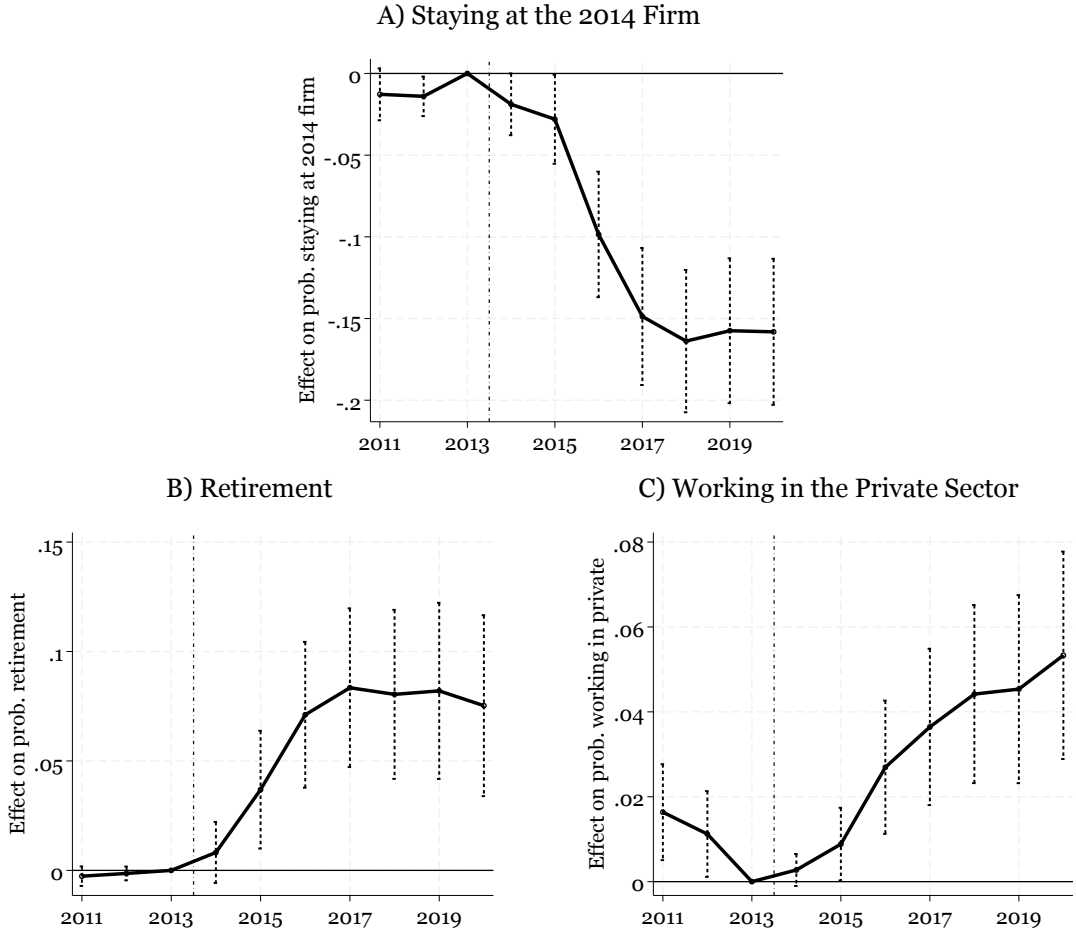


C) Working in the Private Sector



Notes: Event study coefficients resulting from the estimation of Equation 1 on the matched sample of top public managers, where each treated manager earning above the €240,000 cap in 2014 is compared with control managers earning between €150,000 and €240,000 in 2014 within the same age*gender*pre-2014 private sector experience cell (Section 4) using one-to-two (rather than one-to-one) matching. The omitted year is 2013 and the dash-dot vertical line marks the introduction of the salary-cap reform. Panel A: The outcome is an indicator variable equal to one if the worker stays at the 2014 employer and zero otherwise. Panel B: The outcome is an indicator variable equal to one if the worker has retired in that year. Panel C: The outcome is an indicator variable equal to one if the worker is employed in the private sector, conditional on being employed. Standard errors clustered at the worker level. The vertical capped bars denote 95% confidence intervals. See Section 5.2 for details.

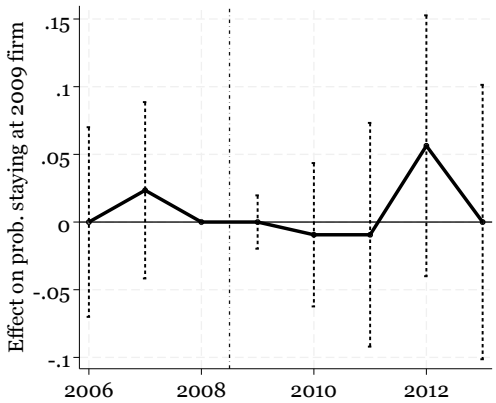
Figure B5. Event Study Results, Robustness Tests, No Matching



Notes: Event study coefficients resulting from the estimation of Equation 1 on the sample of top public managers. Here, no matching is performed and all treated managers earning above the €240,000 cap in 2014 are compared with control managers earning between €150,000 and €240,000 in 2014. The omitted year is 2013 and the dash-dot vertical line marks the introduction of the salary-cap reform. Panel A: The outcome is an indicator variable equal to one if the worker stays at the 2014 employer and zero otherwise. Panel B: The outcome is an indicator variable equal to one if the worker has retired in that year. Panel C: The outcome is an indicator variable equal to one if the worker is employed in the private sector, conditional on being employed. Standard errors clustered at the worker level. The vertical capped bars denote 95% confidence intervals. See Section 5.2 for details.

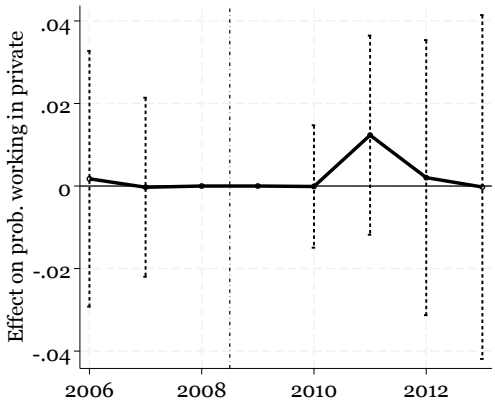
Figure B6. Event Study Results, Robustness Tests, 2009 Placebo Reform

A) Staying at the 2009 Firm



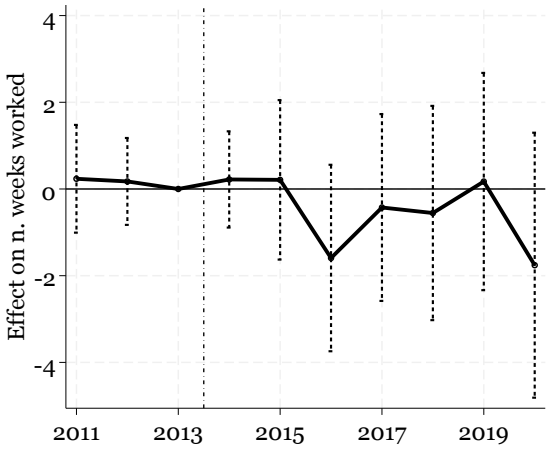
B) Retirement

C) Working in the Private Sector



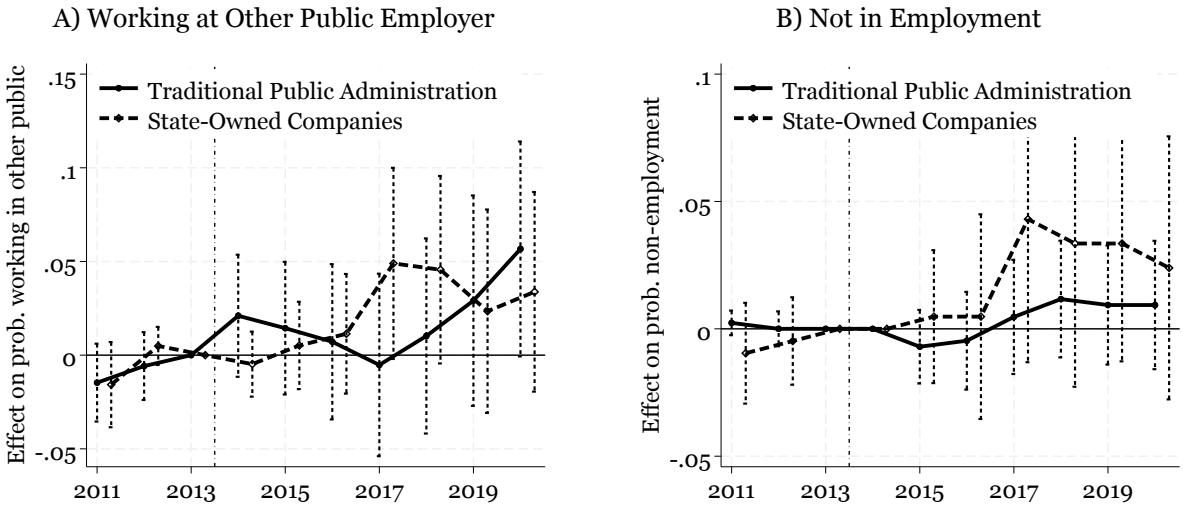
Notes: Event study coefficients resulting from the estimation of Equation 1 on the matched sample of top public managers. Here, we perform a placebo reform exercise, where each public manager earning above €240,000 in 2009 is compared with a public manager earning between €150,000 and €240,000 in 2009 within the same age*gender*pre-2009 private sector experience cell. The exercise is conducted only for managers of state-owned companies, who are observed before 2014. The omitted year is 2008 and the dash-dot vertical line marks the introduction of the placebo reform. Panel A: The outcome is an indicator variable equal to one if the worker stays at the 2009 employer and zero otherwise. Panel B: The outcome is an indicator variable equal to one if the worker has retired in that year. Panel C: The outcome is an indicator variable equal to one if the worker is employed in the private sector, conditional on being employed. Standard errors clustered at the worker level. The vertical capped bars denote 95% confidence intervals. See Section 5.2 for details.

Figure B7. Effect on Number of Weeks Worked, State-Owned Companies



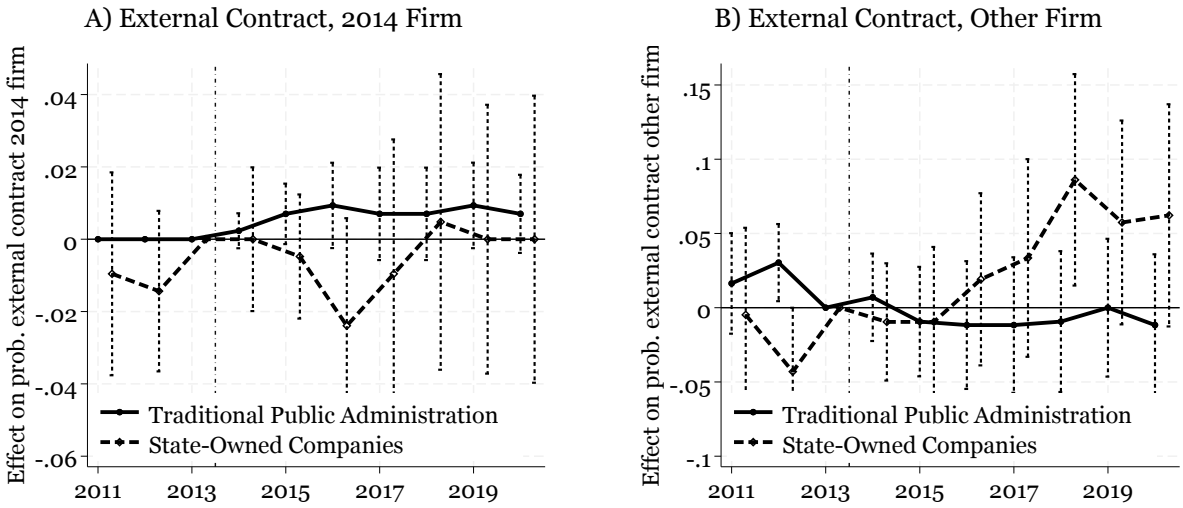
Notes: Event study coefficients resulting from the estimation of Equation 1 on the matched sample of top public managers, where each treated manager earning above the €240,000 cap in 2014 is compared with a control manager earning between €150,000 and €240,000 in 2014 within the same age*gender*pre-2014 private sector experience cell (Section 4). The omitted year is 2013 and the dash-dot vertical line marks the introduction of the salary-cap reform. The outcome is the number of weeks worked in that year, conditional on being employed. Coefficients are estimated only for the sample of managers of state-owned companies, as weeks are observed before 2014 only for these managers. Standard errors clustered at the worker level. The vertical capped bars denote 95% confidence intervals.

Figure B8. Effects on Other Career Outcomes



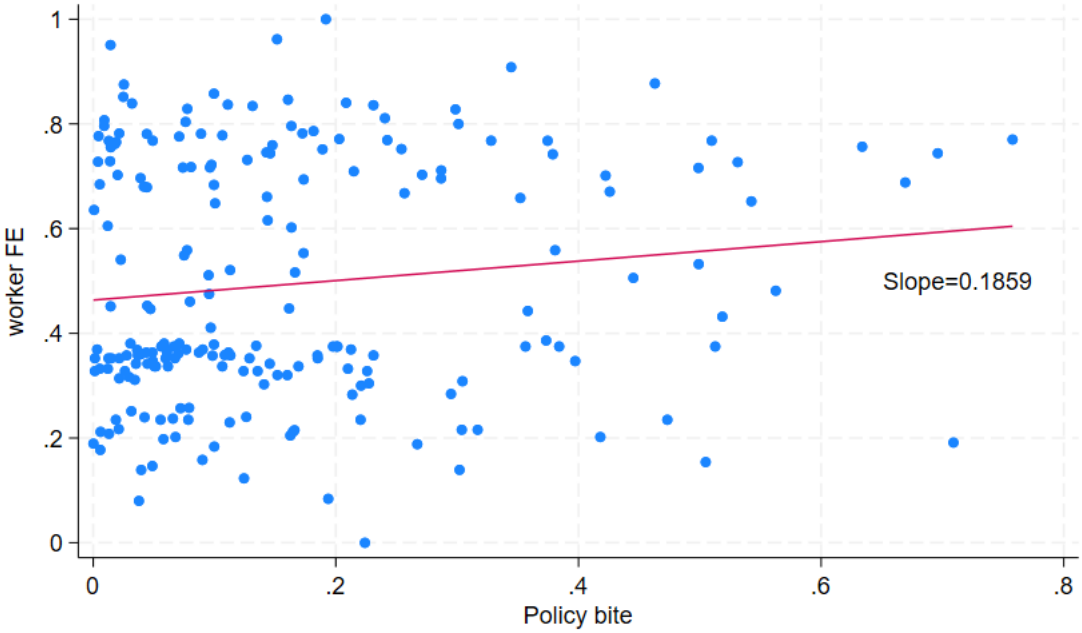
Notes: Event study coefficients resulting from the estimation of Equation 1 on the matched sample of top public managers, where each treated manager earning above the €240,000 cap in 2014 is compared with a control manager earning between €150,000 and €240,000 in 2014 within the same age*gender*pre-2014 private sector experience cell (Section 4). The omitted year is 2013 and the dash-dot vertical line marks the introduction of the salary-cap reform. Effects estimated separately for the sample of managers in traditional public administration jobs ("Traditional Public Administration", solid lines) and managers of state-owned companies ("State-Owned Companies", dashed lines). Section 2.2 provides a description of the different datasets. Panel A: The outcome is an indicator variable equal to one if the worker is employed at a public employer different from the 2014 one, conditional on being employed. Panel B: The outcome is an indicator variable equal to one if the worker is not employed in that year. Standard errors clustered at the worker level. The vertical capped bars denote 95% confidence intervals.

Figure B9. Effects on the Probability of Working as an External Contractor



Notes: Event study coefficients resulting from the estimation of Equation 1 on the matched sample of top public managers, where each treated manager earning above the €240,000 cap in 2014 is compared with a control manager earning between €150,000 and €240,000 in 2014 within the same age*gender*pre-2014 private sector experience cell (Section 4). The omitted year is 2013 and the dash-dot vertical line marks the introduction of the salary-cap reform. Effects estimated separately for the sample of managers in traditional public administration jobs ("Traditional Public Administration", solid lines) and managers of state-owned companies ("State-Owned Companies", dashed lines). Section 2.2 provides a description of the different datasets. Panel A: The outcome is an indicator variable equal to one if the manager works as external contractor ("collaboratore") for their 2014 employer and zero otherwise. Panel B: The outcome is an indicator variable equal to one if the manager works as external contractor ("collaboratore") for another employer and zero otherwise. Standard errors clustered at the worker level. The vertical capped bars denote 95% confidence intervals.

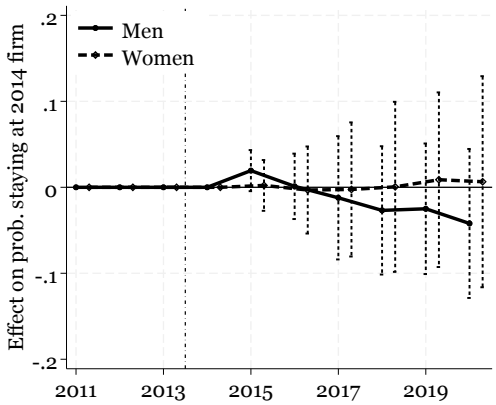
Figure B10. Wage Cap Bite vs. Estimated Worker Ability



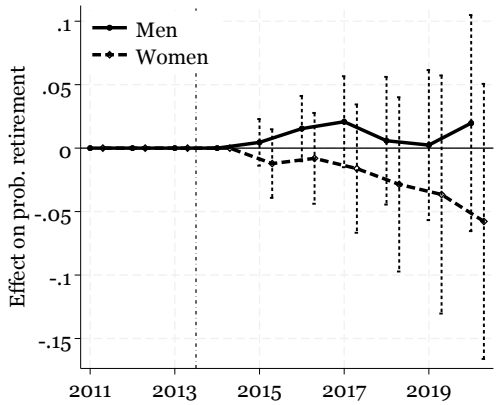
Notes: The scatter plot shows the policy bite on the horizontal axis and managers' estimated ability on the vertical axis. The sample is restricted to treated managers of state-owned companies. The policy bite is computed as the difference between a manager's 2014 wage and the €240,000 cap, relative to the 2014 wage. Managerial ability is proxied by individual fixed effects estimated through AKM regressions and normalized between 0 and 1, see Appendix D for details.

Figure B11. Event Study Results, Effects on Co-Workers

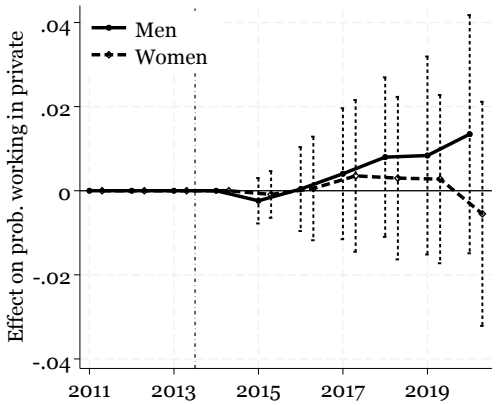
A) Staying at the 2014 Firm



B) Retirement

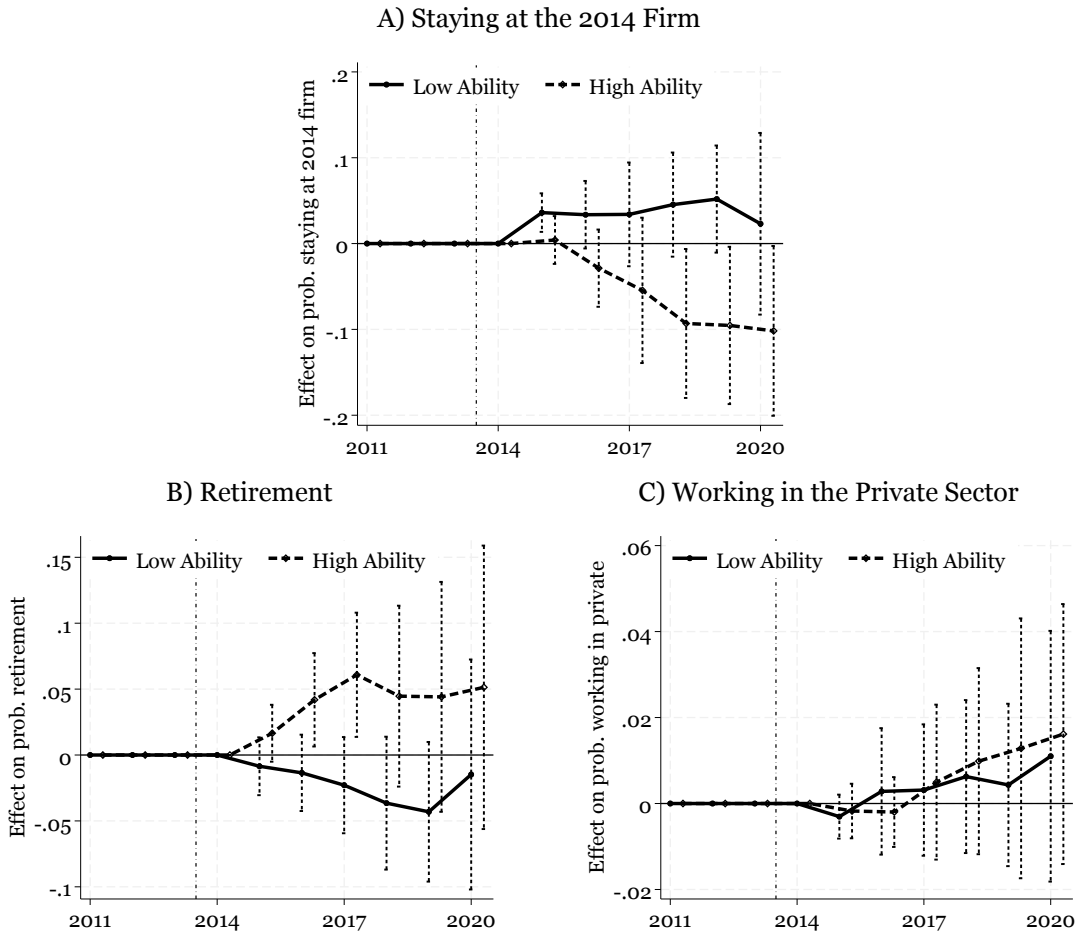


C) Working in the Private Sector



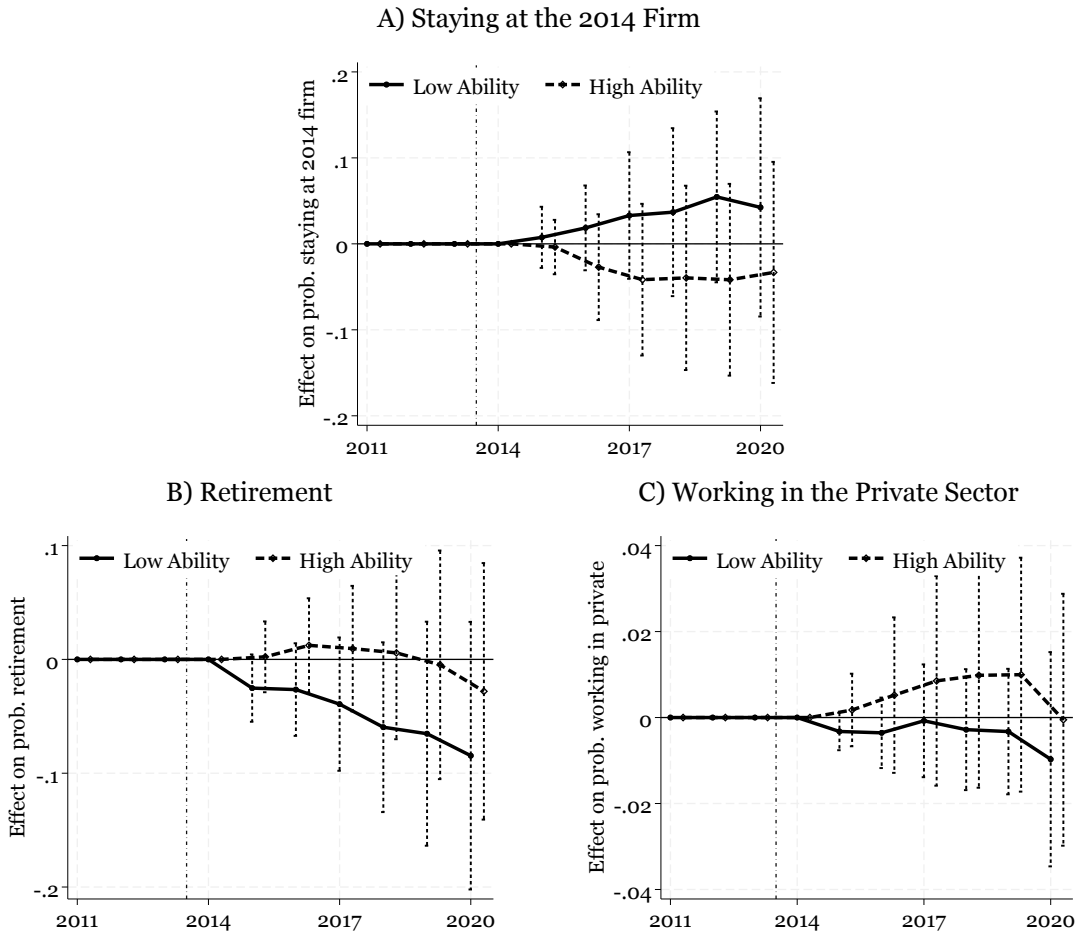
Notes: Event study coefficients resulting from the estimation of Equation 2 on the matched sample of co-workers of public managers, where a co-worker of a treated manager is matched to a co-worker of a control manager using a propensity score matching algorithm based on pre-reform characteristics (age, gender, earnings, and location). We restrict the sample to employees who had worked at their 2014 firm since at least 2011 (Section 4). The omitted year is 2013 and the dash-dot vertical line marks the introduction of the salary-cap reform. The exercise focuses only on co-workers of managers in state-owned companies. Estimation conducted separately for men (solid lines) and women (dashed lines). Co-workers defined as managers and mid-managers below the cap in 2014 in the same firm*municipality as the managers of interest. Panel A: The outcome is an indicator variable equal to one if the worker stays at the 2014 employer and zero otherwise. Panel B: The outcome is an indicator variable equal to one if the worker has retired in that year. Panel C: The outcome is an indicator variable equal to one if the worker is employed in the private sector, conditional on being employed. Standard errors clustered at the firm*municipality level. The vertical capped bars denote 95% confidence intervals. See Section 6.3 for details.

Figure B12. Event Study Results, Effects on Co-Workers, High-Ability vs. Low-Ability Co-Workers, Men



Notes: Event study coefficients resulting from the estimation of Equation 2 on the matched sample of co-workers of public managers, where a co-worker of a treated manager is matched to a co-worker of a control manager using a propensity score matching algorithm based on pre-reform characteristics (age, gender, earnings, and location). We restrict the sample to employees who had worked at their 2014 firm since at least 2011 (Section 4). The omitted year is 2013 and the dash-dot vertical line marks the introduction of the salary-cap reform. The exercise focuses only on co-workers of managers in state-owned companies. Co-workers defined as managers and mid-managers below the cap in 2014 in the same firm*municipality as the managers of interest. The event-study plots show results separately for co-workers with above-median individual fixed effect ("High Ability", dashed lines) and below-median individual fixed effect ("Low Ability", solid lines). Individual fixed effects are estimated through AKM regressions, see Appendix D for details. Here, we show coefficients only for men. See Figure 2 for a definition of the outcomes. Standard errors clustered at the firm*municipality level. The vertical capped bars denote 95% confidence intervals. See Section 6.3 for details.

Figure B13. Event Study Results, Effects on Co-Workers, High-Ability vs. Low-Ability Co-Workers, Women



Notes: Event study coefficients resulting from the estimation of Equation 2 on the matched sample of co-workers of public managers, where a co-worker of a treated manager is matched to a co-worker of a control manager using a propensity score matching algorithm based on pre-reform characteristics (age, gender, earnings, and location). We restrict the sample to employees who had worked at their 2014 firm since at least 2011 (Section 4). The omitted year is 2013 and the dash-dot vertical line marks the introduction of the salary-cap reform. The exercise focuses only on co-workers of managers in state-owned companies. Co-workers defined as managers and mid-managers below the cap in 2014 in the same firm*municipality as the managers of interest. The event-study plots show results separately for co-workers with above-median individual fixed effect ("High Ability", dashed lines) and below-median individual fixed effect ("Low Ability", solid lines). Individual fixed effects are estimated through AKM regressions, see Appendix D for details. Here, we show coefficients only for women. See Figure 2 for a definition of the outcomes. Standard errors clustered at the firm*municipality level. The vertical capped bars denote 95% confidence intervals. See Section 6.3 for details.

C. Theoretical Framework

This Appendix formalizes the conceptual framework in Section 3. We develop a model illustrating how compensation constraints affect the allocation of managerial talent between the public and private sectors. The model delivers two key predictions. First, managers with skills transferable to the private sector are more likely to leave after the introduction of a salary cap, whereas managers with limited outside opportunities remain in the public sector. Second, higher-skilled managers are more likely to exit.

There are two sectors, public and private. The public sector consists of traditional public administration and state-owned companies, indexed by $s \in \{T, C\}$.

We take the pre-reform allocation of managers across sectors as given and study the exit decision of incumbent public-sector managers following the introduction of a salary cap. In the absence of the reform, these managers would remain in public employment.

C.1. Managerial skills and wages

Managers differ in general managerial ability, a, which has bounded support $a \in [0, \bar{a}]$ and increasing distribution $F(a)$. General managerial ability is valuable in both the public and private sectors. Managers also possess transferable managerial human capital, t, which is valued in the private sector but is not directly rewarded in the public sector, where compensation follows relatively rigid pay and promotion schemes.

The nature of managerial tasks differs across the two public subsectors. Managers of state-owned companies perform tasks that more closely resemble those in the private sector and therefore accumulate managerial skills that are more transferable outside the public sector. We capture this by assuming $t_s = \rho_s a$, $s \in \{T, C\}$, where $\rho_C > \rho_T \geq 0$ (e.g., Lazear, 2009, Gathmann and Schoenberg, 2010).

Thus, transferable skills increase with general managerial ability in both public subsectors, but more strongly in state-owned companies. To isolate the role of transferable skills, we assume managerial ability has the same distribution $F(a)$ across the two public subsectors.

Before the reform, public-sector compensation is

$$w_{pu}(a) = \mu + \beta_{pu} a,$$

where $\mu > 0$ denotes the net premium associated with public-sector employment, reflecting factors such as pension benefits, job security, non-pecuniary benefits, or labor-market rents, and $\beta_{pu} \geq 0$ is the return to general managerial ability in the public sector. The net premium μ is such that incumbent managers before the reform satisfy $w_{pu}(a) \geq w_{pr}^{s}(a)$ for all a and s.

The private-sector wage available to a manager from public subsector s is

$$w_{pr}^{s}(a) = \beta a + \gamma t_s,$$

where $\beta \geq 0$ is the direct private-sector return to general managerial ability and $\gamma > 0$ is the return to transferable managerial human capital. Substituting $t_s = \rho_s a$ gives

$$w_{pr}^{s}(a) = (\beta + \gamma \rho_s) a \equiv \beta_{pr}^{s} a,$$

where $\beta_{pr}^{s} \equiv \beta + \gamma \rho_s$ is the total slope of the private-sector wage with respect to managerial ability for managers from the public subsector s.

For simplicity, we assume identical direct returns to managerial ability in the two sectors ($\beta_{pu} = \beta$), so that differences in outside options arise solely from transferable human capital. It follows that

$$\beta_{pr}^{C} > \beta_{pr}^{T} \geq \beta_{pu} \geq 0.$$

Private-sector wages therefore increase more steeply with managerial ability for managers of state-owned companies than for managers in traditional public administration. This difference arises because managers of state-owned companies possess more transferable skills at a given level of general managerial ability.

The dashed line in Figure 1 shows the value of public-sector employment (w_{pu}), while the blue and red lines show the private-sector outside options of managers in state-owned companies (w_{pr}^{C}) and traditional public administration (w_{pr}^{T}), respectively.

C.2. The salary cap and exit

Following the reform, public-sector compensation is capped at $\overline{w}$ (the solid black line in Figure 1),[1] so that

$$w_{pu}^{R}(a) = \min\{\mu + \beta_{pu}a, \overline{w}\}.$$

Managers whose pre-reform compensation is below the cap are unaffected by the reform. For managers affected by the cap, public-sector compensation falls to $\overline{w}$. An affected manager in public subsector s leaves for the private sector whenever the private-sector outside option exceeds the capped public-sector wage: $w_{pr}^{s}(a) > \overline{w}$ or, using $w_{pr}^{s}(a) = \beta_{pr}^{s}a$, whenever $a > a_{s}^{*}$, where

$$a_{s}^{*} \equiv \frac{\overline{w}}{\beta_{pr}^{s}}.$$

Since incumbent managers would remain in public employment absent the reform, we have $w_{pu}(a) \geq w_{pr}^{s}(a)$. Therefore, whenever $w_{pr}^{s}(a) > \overline{w}$, it follows that $w_{pu}(a) > \overline{w}$. Hence every reform-induced exit necessarily comes from the set of managers whose pre-reform wage

[1] For the cap to be binding, we assume it satisfies $\overline{w} < \beta_{pr}^{C}\overline{a}$: it lies below the best private-sector outside option among managers of state-owned companies.

exceeded the cap. The condition $a > a_s^*$ is therefore sufficient to characterize reform-induced exits among incumbent managers.

Since $\beta_{pr}^C > \beta_{pr}^T$, the exit threshold is lower for managers of state-owned companies: $a_C^* < a_T^*$. An equally able manager is therefore more likely to leave a state-owned company than traditional public administration.

Because managerial ability has the same distribution $F(a)$ in the two public subsectors, the exit rate in subsector s is $P(exit \mid s) = 1 - F(a_s^*)$. Since $a_C^* < a_T^*$, $P(exit \mid C) > P(exit \mid T)$. The model therefore predicts a larger reform-induced exit response among managers of state-owned companies.

C.3. Selection of managers into exit

The framework also yields a prediction about which managers leave. Within each public subsector, exit occurs when $a > a_s^*$. This is shown in the blue-shaded region in Figure 1. Leavers are therefore positively selected on managerial ability: $E[a|exit] > E[a|stay]$.

Since transferable managerial human capital satisfies $t = \rho_s a$, leavers are also positively selected on transferable skills: $E[t|exit] > E[t|stay]$. Thus, the salary cap disproportionately induces managers with high managerial ability, high transferable skills, and strong private-sector earnings potential to leave public employment.

C.4. Empirical predictions

The framework generates two main empirical predictions. First, the salary cap produces a larger increase in exits from state-owned companies than from traditional public administration because managers in state-owned companies have more valuable private-

sector outside options. Second, exits are positively selected on managerial ability: the reform disproportionately induces higher-ability managers to leave public employment.

Finally, the model treats the public-sector premium, μ, as a parameter capturing the overall attractiveness of public-sector employment. One interpretation is that μ reflects labor-market rents. In that case, the salary cap reduces these rents for managers with limited outside opportunities, generating fiscal savings with little effect on retention or managerial quality.

D. Estimating Managerial Ability

To measure managerial ability, we estimate two-way AKM regressions (Abowd et al., 1999) on the universe of Italian public- and private-sector workers observed in the Uniemens data between 2005 and 2013 (Section 2). Among public-sector employees, the estimation sample only includes workers in state-owned companies, not those in the traditional public administration (PosPa-COB data), since we do not have wage information for the latter before the policy's implementation in 2014.

For each worker-year, we retain a single observation corresponding to the dominant employer, defined as the employer associated with the highest annual earnings (or, in case of ties, the greatest number of weeks worked). We then restrict the sample to the largest connected set of firms in our data, defined by worker mobility across firms (Abowd et al., 2002), and estimate the standard AKM specification:

$$log\ w_{i,t} = \alpha_i + \varphi_{j(i,t)} + X'_{i,t}\beta + r_{i,t} \qquad \text{(D1)}$$

Here, $log\ w_{i,t}$ is the logarithm of the weekly wage of a worker i in year t. The worker-fixed effect α_i captures the portable component of worker i's wage that is independent of the employer, while φ_j captures the systematic pay premium paid by firm j, conditional on worker selection into that firm, where $j(i,t)$ denotes worker $i's$ dominant employer in year t. The vector $X'_{i,t}$ includes year-fixed effects and a cubic in worker's age. As discussed in the main text, we use the estimated individual fixed effects, α_i, normalized to lie between zero and one, as our proxy for managerial ability.