Bureaucratic Turnover Under New Governments: The Moderating Effect of Bureaucratic and Political Layering

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Abstract

Politically motivated personnel turnover affects government bureaucracy's legitimacy and performance. To understand the conditions of meritocracy, the article explores how variability in hierarchy moderates the effect of government transitions on bureaucratic turnover. Event history analysis of the careers of 948 Norwegian senior bureaucrats (1884–2024) reveals that the organizational layers separating bureaucrats from ministers moderate the effect of government change differently depending on the layer's political or bureaucratic nature. Bureaucrats directly exposed to political appointees experience heightened turnover during government transitions, while the turnover of bureaucrats separated from appointees by an intervening layer of career employees is unaffected by government transitions. The article advances scholarship on the politicization of senior bureaucrats in merit bureaucracies by examining 140 years of politically induced turnover through a novel theory of how layering moderates political dynamics.

Keywords: politicization, principal-agent theory, bureaucratic turnover, political appointees

1 Introduction

In the last decade, scholars have shown that political change and personnel changes in the senior ranks of merit-based administrative systems are not necessarily independent of one another. Instead, the career trajectories of *senior bureaucrats*[1] in meritocratic administrative systems are influenced by political dynamics. Both their selection (Bach & Veit, 2018; Liu, 2024) and retention (Askim et al., 2022; Bolton et al., 2021; Christensen et al., 2014; Cooper, 2017, 2020; Dahlström & Holmgren, 2019; Geys et al., 2024) can shift following changes in elected leadership.

Absent political change, senior bureaucrat turnover in politicized systems like Hungary and Slovakia (Meyer-Sahling & Toth, 2020; Staroňová & Rybář, 2021) is similar to annual turnover rates in merit bureaucracies such

[1] This article uses *senior bureaucrats* as a collective term for bureaucrats formally appointed by ministers to government ministries or arm's-length agencies, positions for which political selection criteria are prohibited. This is labeled a meritocratic appointment system. The term *Political appointees*, on the other hand, is used to denote positions in the bureaucracy where the use of political criteria is legitimate and such appointment systems are thus considered politicized.

as Denmark, Sweden, Norway, and the UK, which typically range from 10–20 percent (Askim et al., 2022; Cooper, 2020; Dahlström & Holmgren, 2019). Bureaucracies differ primarily in politically induced turnover: while politicized systems experience near-complete senior bureaucrat replacement following elected leadership change (Hustedt & Salomonsen, 2014), with countries like Poland, Slovakia, and Hungary seeing 70–100 percent turnover reaching deep into the bureaucracy (Meyer-Sahling & Veen, 2012), merit systems typically remain at less than 30 percent. However, government changes produce surprisingly large relative turnover increases at the highest level of bureaucracy, even in meritocratic systems, with increases relative to years with government stability of 50 percent for Swedish agency heads (Dahlström & Holmgren, 2019), nearly 100 percent for British permanent secretaries (Cooper, 2020), and 71 percent for Norwegian permanent secretaries (Askim et al., 2022). Furthermore, there are growing concerns about political replacement in traditionally strong merit bureaucracies such as Denmark, where 75 percent of ministries gained new permanent secretaries within the Frederiksen government's first two and a half years (Lønstrup, 2022), and the UK, where Boris Johnson's "optimism on steroids"-rhetoric spawned concerns among civil servants about "defenestration or public shaming by ministers" if they presented inconvenient evidence (The Civil Servant, 2019).

In meritocratic systems, senior bureaucrats' careers should be void of any political dependence, especially from arbitrary meddling by elected politicians. The alignment of bureaucrats' and political principals' preferences is an advantage of politically motivated turnover, as it may enhance performance by streamlining communication and facilitating cooperation (Ebinger et al., 2019; Fiva et al., 2021; Goetz, 1997). However, these benefits are overshadowed by the potential weakening of the bureaucracy. Politically motivated turnover can have three negative practical implications for policy-making. First, removing bureaucrats misaligned with the government's agenda can make the bureaucracy overly responsive, losing critical policy perspectives (Lewis, 2008; Meyer-Sahling et al., 2018). Second, lower-level bureaucrats invest less in expertise development and exit earlier when they perceive political selection criteria (Fuenzalida & Riccucci, 2019; Kim et al., 2021). Third, instability and lack of experience in senior bureaucratic positions can deplete organizational memory and capacity for long-term planning (Bolton et al., 2021; Piper & Lewis, 2022). Furthermore, perceptions of politically motivated turnover—whether from ministerial replacement or strategic bureaucratic exits—may undermine the legitimacy of the bureaucracy and ultimately hurt citizens' trust in the fairness of government institutions (Askim et al., 2024; Peters & Pierre, 2004).

Against this backdrop, it is crucial to expand knowledge on how deep into hierarchies political dynamics of bureaucratic turnover run under meritocratic constraints. Studying the political dynamics of bureaucratic turnover in long-standing merit bureaucracies can provide insight into the conditions under which politics impact career bureaucrats. Hence, this article asks whether *layering*—the hierarchical layers of personnel separating a bureaucrat from the minister—moderates the impact of a change of government on bureaucratic turnover. In addition, does its type—whether comprised of a layer of senior bureaucrats or political appointees—affect how the layer moderates the likelihood of bureaucratic turnover after a change of govern-

ment?

Research on the political dynamics of senior bureaucrat turnover in meritocratic systems—summarized in Appendix A Table A.1—has primarily focused on only the top levels of ministry and agency hierarchies (see e.g., Askim et al., 2022; Christensen et al., 2014; Cooper, 2020). Hence, empirical insights into the patterns of bureaucratic turnover deeper into the bureaucracy following political events are scarce. The few studies that have looked below the highest rank of senior bureaucrats in a merit bureaucracy have usually made the implicit theoretical assumption that the effects of political change on senior bureaucrats' careers are the same regardless of variability in rank (Fleischer, 2016; Staroňová & Rybář, 2021).

One exception is Bolton et al., who took hierarchy into account when studying the political dynamics of bureaucratic turnover in the US federal bureaucracy. They found that there are "some pockets of responsiveness to political factors, particularly among career senior executives in agencies with views divergent from the president's" (Bolton et al., 2021, p. 451). However, they did not give theoretical attention to how elected principals' incentives to influence the staffing of senior bureaucrats are moderated by the bureaucrat's position in the organizational hierarchy. This article seeks to address these gaps in the literature by exploring how politically induced senior bureaucrat turnover changes depending on the presence or absence of bureaucratic and political layers separating bureaucrats from ministers. Bureaucratic layering is theorized to buffer lower-level bureaucrats from political dynamics, while top-level bureaucrats are expected to face increased turnover risk since they are more exposed to the political level. Conversely, political layering should amplify senior bureaucrat turnover following government transition by increasing the minister's political capacity for control and reducing the transitional importance of bureaucrats.

Empirically, the article draws on a large new dataset of political events and the top two ranks of bureaucrats in Norwegian ministries from 1884 to 2024 to show how deep into the ministerial hierarchy politicization runs in meritocratic appointment systems. Norway is a European parliamentary system with a classical ministerial structure, separation of politics and administration, and a level of politicization that is comparable to Westminster systems and other countries in the Nordic administrative tradition (Cooper, 2021; Nistotskaya et al., 2021). Since the Norwegian political and administrative system has remained fairly stable since the introduction of parliamentarism in 1884 (Bach et al., 2025), the article draws on a large number of senior bureaucrat careers and political events that are comparable over time. This reduces the risk that findings are influenced by contextual confounders that might bias results when examining only a few changes of government, strengthening inferences about whether layering impacts the connection between new governments and bureaucratic turnover.

Two major changes in the ministerial hierarchy during the studied period are leveraged to examine how layering impacts the turnover of senior bureaucrats. First, Norway introduced administrative permanent secretaries as the highest-level bureaucrats in all ministries between 1922 and 1987. Second, political state secretaries were implemented in all ministries between 1947 and the early 1970s. Crucially, the staggered rollout

of these bureaucratic and political layers serves to make Norway a laboratory to study whether and when the hierarchical distance between senior bureaucrats and the minister buffers senior bureaucrats from politicized turnover. The key finding is that the turnover of the new administrative secretaries was subject to political dynamics from the moment they were introduced, whereas the previous layer of highest-ranking bureaucrats was not, neither before nor after. Moreover, whereas a layer of bureaucrats buffers the political dynamics of senior bureaucrat turnover, a layer which takes the form of political appointees functions as an amplifier for the politically induced turnover of the highest level of senior bureaucrats. Lastly, the analysis of different types of political change suggests that ideology, not personality, drives bureaucratic turnover: changing ministers without a change in government ideology produces no significant effect on bureaucratic turnover in the Norwegian context.

2 Politicization and Turnover in Meritocratic Systems

When assuming office, ministers are faced with a delegation problem: they must rely on bureaucrats to draft and implement the government's desired policy, but cannot be certain that these agents share the same preferences as the government and that they will not attempt to move policy toward their own preferences (Bach & Veit, 2018). Political selection and deselection of senior bureaucrats can improve the administration's responsiveness to the government's political agenda (Limbocker et al., 2022). Ministers may generally want to hire staff with "particular professional qualifications that are traditionally not provided for by the ministerial bureaucracy (professionalization) or merely staff which the minister prefers as advisers from a personal point of view (personalization)" (Hustedt & Salomonsen, 2014, p. 749). Politicization may also take the form of patronage appointments motivated by rewarding partisan or nonpartisan allies (Panizza et al., 2019).

In politicized appointment systems, turnover after a change of government is a swift process, unless appointments need to pass the scrutiny of parliament (Limbocker et al., 2022). The US and European countries in the Napoleonic, Central European, or Continental administrative traditions have a larger number of politically appointed bureaucratic positions compared to countries in the Nordic and Westminster administrative traditions (Bach et al., 2020). Studies of appointments to these politicized positions have largely found that new governments use their formal discretion to replace senior bureaucrats for political control or patronage (Mamshae, 2025; Meyer-Sahling & Veen, 2012; Panizza et al., 2019; Staroňová & Rybář, 2021).

When using political criteria is legitimate for staffing a senior bureaucrat position, the political costs of replacing senior bureaucrats are the same regardless of the position's hierarchical distance to the political principal. Hence, research on political appointees has largely overlooked this question. Instead, attention has focused on where political appointee positions are created within the bureaucracy (Lewis, 2008), the characteristics of the appointees (Hollibaugh Jr. et al., 2014; Hong & Kim, 2019; Staroňová & Rybář, 2021) and the purpose (Doherty et al., 2019; Staroňová & Rybář, 2023) and the effects of the appointments (Peters et al., 2022; Piper & Lewis, 2022; Story et al., 2023).

The literature poses two main strains of theoretical explanations for the political dynamics of senior bureaucrats' careers in meritocratic systems: a *strategic exit perspective* and a *political control perspective*. Table A.1 in Appendix A shows that the literature mainly focuses on the latter.

2.1 The Political Control Perspective

The political control perspective emphasizes that a change of government involves not only a change in the person controlling the ministry but also an ideological change. Political principals are expected to follow the ally principle when delegating to senior bureaucrats. To maximize their policy gains and minimize the monitoring costs incurred by delegating, political principals delegate more autonomy to senior bureaucrats the greater their ideological agreement (Ennser-Jedenastik, 2016). New ministers are expected to have lower levels of trust in incumbent senior bureaucrats, even in those who are formally selected based on meritocratic criteria and are expected to be politically neutral (Hustedt & Salomonsen, 2014). Therefore, new ministers want to select new senior bureaucrats who are ideologically aligned with the new government.

In merit-based systems, established practices and formal rules against politicizing the selection and dismissal of senior bureaucrats limit the discretion of political principals to replace them and the degree to which appointments are politicized. However, these constraints do not change the incentives of politicians to use appointments to seek political control over the ministry (Christensen et al., 2014). The degree to which ministers act on a preference to remove unwanted senior bureaucrats depends on the pressure they can impose on them to resign (Peters et al., 2022) and how the bureaucrats react to such pressure (Limbocker et al., 2022). In other words, the minister must rely on the responsiveness of senior bureaucrats to explicit or implicit political turnover requests (Hustedt & Salomonsen, 2014). Furthermore, the minister must evaluate the cost of the move in the eyes of the public, which can depend on the senior bureaucrat leaving willingly.

Although a tenured senior bureaucrat is not required to submit to dismissal requests from a minister, empirical studies have shown that senior bureaucrats remain loyal to the minister's decisions even in these situations (Rhodes, 2005). Having the minister's trust is a necessity to be included in communications and carry out the responsibilities of a senior bureaucrat (Ebinger et al., 2019). Furthermore, senior bureaucrats are socialized to believe that "the greatest crime in the civil service canon is to betray one's minister" (Rhodes, 2005, pp. 15–16). Hence, if senior bureaucrats receive an indication from the minister that they are no longer wanted, they will likely not only comply, but do so gracefully, setting the minister and their replacement up for success during the transitional time.

Research has consistently found that a change of government leads to higher turnover rates among senior bureaucrats in ministries in meritocratic systems (Askim et al., 2022; Cooper, 2017, 2020); the exception is Denmark, where changes in government have not affected the tenure of permanent secretaries (Askim et al., 2022; Christensen et al., 2014).

2.2 The Strategic Exit Perspective

The strategic exit perspective emphasizes that the ideological change of government affects the preference of the incumbent senior bureaucrats to stay or leave their positions (Doherty et al., 2019). Senior bureaucrats who do not share the new government's policy preferences can leave on their own initiative, as they anticipate that they will no longer be able to pursue their preferred policy solutions (Rattus & Randma-Liiv, 2019). Similarly, senior bureaucrats may exit strategically if the new government curtails their autonomy and ability to influence decisions (Bolton et al., 2021). Strategic departure can also reflect efforts to avoid intensified political control over their work, with senior bureaucrats anticipating informal pressure from the new minister to vacate their position for someone more aligned with the government's agenda. Furthermore, political shifts cause the workload of senior bureaucrats to increase (Rhodes, 2005), which alone can increase the likelihood that senior bureaucrats leave their positions voluntarily.

In either perspective, a change of government that results in an entirely new group of ministers from new parties—and thus constitutes an ideological change in the policy agenda in the ministries—should increase the rates at which senior bureaucrats leave their positions; however, it should not be expected to impact all senior bureaucrats equally. As discussed in the next section, the layering between them and the minister should be expected to impact ministers' payoffs from politicizing turnover and incentives for strategic exits.

2.3 Hypotheses

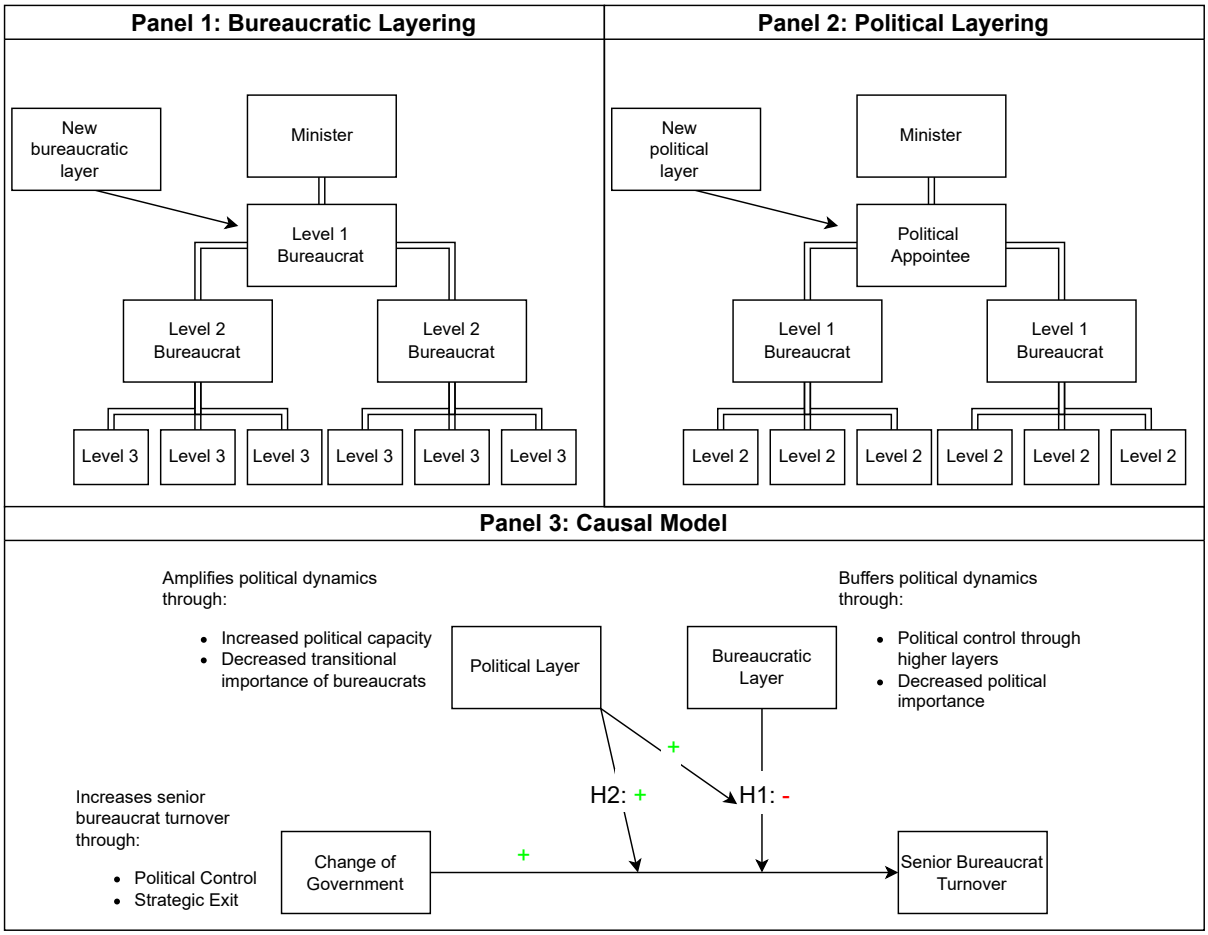

Figure 1: Overview of how bureaucratic layering (Panel 1) and political layering (Panel 2) reshape the ministerial hierarchy and how these structural changes produce buffering and amplifying effects on senior bureaucrat turnover after change of government (Panel 3).

Ministerial hierarchies are made up of political and bureaucratic layers organized in vertical authority relationships (see panels 1-2 in Figure 1). Hierarchies can be more or less thick depending on the height (number of layers) and width (number of positions within the same layer) of the organization (Light, 1995). The relationship between layers can be conceptualized as a chain of delegation, where the authority to carry out and oversee increasingly specific tasks is delegated downwards while accountability runs upwards towards the minister as the ultimate principal of the ministry.

The political control perspective holds that ministers—motivated by policy objectives and reelection incentives (Strom, 1990)—require a bureaucracy that is both competent and responsive to implement their agenda and maintain office. Because citizens hold political principals accountable for bureaucratic performance (Peters & Pierre, 2004), ministers worry about electoral punishment for the actions of incompetent agents or for competent but unresponsive agents who shirk policy delivery. Ministers also face time and capacity constraints (March & Simon, 1993): they can directly supervise only a limited number of agents and must rely on those agents to oversee actors at lower layers. As a result, newly appointed ministers have stronger in-

centives to replace bureaucrats in positions closest to the political leadership, generating a pattern of top-down politicization in which political replacement diminishes with hierarchical distance. These incentives operate through two mechanisms: the risk of adverse selection and the importance of the senior bureaucratic position.[2]

Information asymmetries between ministers and bureaucrats regarding responsiveness and competence create a risk of adverse selection for newly appointed ministers (Miller, 2005). If ministers were concerned solely with maximizing responsiveness, adverse selection would be minimal, as they could simply appoint trusted partisans to all senior positions. However, because ministers also depend on bureaucratic competence, they must make selection decisions under conditions of imperfect information and within a compressed transition period (Goetz, 2014). It is more difficult for ministers to acquire reliable information about the suitability of bureaucrats further down the hierarchy, with whom they have fewer direct interactions. Consequently, Level 2 bureaucrats are less likely to be replaced after a change of government than Level 1 bureaucrats.

The importance of the senior bureaucratic position further reinforces ministers' focus on higher-level roles. In merit bureaucracies, ministers are constrained in ensuring political control of the ministerial hierarchy through selection, as they cannot excessively substitute merit criteria for political criteria in recruitment. Instead, they rely on their capacity for ex-post control and may quietly seek to influence turnover in the most important positions (Askim et al., 2022). These efforts are directed primarily at Level 1 bureaucrats, who possess the greatest delegated authority and interface directly with the political leadership—either the minister or intervening political appointees. Because Level 1 bureaucrats monitor and coordinate the work of Level 2 bureaucrats, any risks associated with imperfect matches at lower levels are partially mitigated (Miller, 2005). As a result, ideological compatibility is especially important at Level 1, where tasks are more politically sensitive than those performed at Level 2.

The political importance of Level 1 bureaucrats is not uniform; their roles vary across ministries and institutional contexts. Some Level 1 positions are more functionally politicized and therefore more valuable to political principals (Hustedt & Salomonsen, 2014). In systems with few political appointees—such as Norway, Denmark, and the UK, where ministers typically have only a small number of advisers—Level 1 bureaucrats perform a broader range of politically salient tasks, including political-tactical advice (Askim et al., 2022; Christensen et al., 2014; Cooper, 2020). By contrast, in ministerial-cabinet systems such as France or Belgium, where ministers commonly employ 10–30 political advisers, political-tactical functions are handled primarily by appointees, and Level 1 bureaucrats focus more on specialized administrative duties (Hustedt & Salomonsen, 2014).

The distribution of politically important tasks within the administrative hierarchy also depends on how wide or narrow the Level 1 layer is (Light, 1995). When Level 1 is departmentalized across several bureaucrats who head separate policy departments, political tasks are dispersed and the political importance of each indi-

[2] To simplify the presentation of these mechanisms, the discussion focuses on the difference between Level 1 and Level 2 bureaucrats, as these are the most important senior positions in the ministries and the layers on which the hypotheses are tested empirically.

vidual is reduced (March & Simon, 1993). Conversely, when administrative leadership is centralized in a single Level 1 position—such as the permanent secretary in Denmark, Norway, and the UK—the politically important functions become concentrated in that role, allowing the minister to influence the bureaucracy's central coordinating node for the ministry's policy departments through a single appointment. In Norway, this centralization occurred with the introduction of permanent secretaries, replacing a system in which ministers relied on multiple Directors General as their closest administrative counterparts. Because the permanent secretary position was itself a politically motivated innovation designed to strengthen ministerial steering (Grønlie, 2009), its occupants face greater political exposure. As illustrated in Figure 1, adding a new bureaucratic layer centralizes political tasks in the new top position and shifts former Level 1 bureaucrats downward to Level 2, reducing their political importance. Even when Directors General and permanent secretaries both count as Level 1 positions, the permanent secretary role carries substantially greater political weight because it consolidates ministerial steering, coordination, and political-administrative interfacing. Accordingly, permanent secretaries should be more exposed to politically induced turnover than Directors General, not only because of their hierarchical placement but also because their functions carry greater political significance.

Beyond ministers' incentives, a change of government also affects how senior bureaucrats evaluate their own positions. A change of government modifies the policy outputs ministries are expected to pursue, potentially reducing senior bureaucrats' ability to advance their preferred policy solutions (Bolton et al., 2021). Although senior bureaucrats often adapt when their appointing party loses power (Geys et al., 2024; Harris et al., 2022), they hold their own policy preferences, which may align or conflict with those of the incoming government (Dahlström & Holmgren, 2019). Because Level 1 bureaucrats work directly with the political level and are more closely involved in politically sensitive tasks than Level 2 bureaucrats, preference misalignment is more salient for them. Their external career opportunities are similar, but their motivation to remain in their posts is more sensitive to shifts in political leadership (Rattus & Randma-Liiv, 2019).

When aligned with ministers, Level 1 bureaucrats can enjoy substantial influence over policy (Fiva et al., 2021), but when new ministers distrust them or exclude them from substantive processes, they may experience a loss of influence and reduced job satisfaction, creating greater incentives to exit (Bolton et al., 2021). Strategic departures may therefore reflect either conscientious withdrawal from advancing an agenda they do not support or anticipation of intensified political control by incoming ministers who would prefer to replace them.

The theoretical expectations from the political control and strategic exit perspectives regarding the buffering effect of bureaucratic layering on the relationship between a change of government and bureaucratic turnover are summarized in the hypothesis below.

H1: *The marginal effect of a change of government on bureaucratic turnover is* ***positive*** *and* ***higher*** *for Level 1 bureaucrats than for Level 2 bureaucrats.*

Administrative politicization—adding political layers or redefining senior bureaucratic positions as political appointments, as illustrated in Panel 2 of Figure 1—is a common strategy through which governments can amplify their political control over the bureaucracy (Hustedt & Salomonsen, 2014; Lewis, 2008; Light, 1995). Although typically understood as an expansion of ministers' organizational capacity for political steering, political layering also reshapes bureaucratic turnover dynamics: it alters both ministers' incentives to replace career bureaucrats and senior bureaucrats' incentives to exit strategically after a change of government.

From the political control perspective, adding a political layer signals that ministers perceive key bureaucratic tasks as politically important yet insufficiently controlled. The additional layer enables ministers to reallocate political tasks from senior bureaucrats to members of the new political layer inserted on top of the bureaucracy. Such political layers may constrain Level 1 bureaucrats' access to ministers and sieve their policy advice through a partisan filter (Hustedt & Salomonsen, 2014). Nevertheless, access to political appointees does not negate ministers' need for responsive Level 1 bureaucrats, as they still rely on the bureaucracy for expert advice that can be adapted for political purposes. Moreover, new ministers must fill political appointee positions upon taking office, which may extend the political replacement logic to bureaucratic positions—if ministers identify a surplus of suitable candidates for the political layer, they may seek to install some of these candidates as Level 1 bureaucrats instead. Without political layers, ministers may be less likely to consider replacing bureaucrats when entering office, as they are not actively recruiting candidates to fill political appointee positions and therefore lack a ready pool of suitable individuals who could be considered for bureaucratic roles (Askim et al., 2022).

Political layering also reduces ministers' transitional dependence on senior bureaucrats. Without political appointees, "the new minister's chance of getting off to a good start is vitally dependent on the incumbent [senior bureaucrats]" (Askim et al., 2022, p. 11). Political appointees provide an immediate alternative source of political support and portfolio-specific expertise, making senior bureaucrats more expendable during transitions. Appointees also help ministers acquire and process information about bureaucrats more rapidly, enabling ministers to assess ideological compatibility and competence under the tight time constraints of government transitions (Goetz, 2014; Lewis, 2008). By reducing information asymmetries and adverse selection risks, political layering increases ministers' ability to act on their established top-down politicization preferences and replace senior bureaucrats after a change of government.

From a strategic exit perspective, political layering also alters senior bureaucrats' incentives. When bureaucrats become less essential as transitional links, those with incompatible policy or partisan preferences can exit more readily (Geys et al., 2024). This should have a greater impact on Level 1 bureaucrats than on Level 2 bureaucrats, as Level 1 bureaucrats report directly to the new political layer. Their autonomy shrinks as the number of political superiors increases, and the intervening appointees intensify monitoring and may gatekeep access to the minister (Hustedt & Salomonsen, 2014). These conditions magnify the consequences of preference divergence for Level 1 bureaucrats, increasing their incentives to leave when they experience a

mismatch with the policy objectives of the new political leadership.

H2: *The marginal effect of a change of government on bureaucratic turnover is* ***positive*** *and* ***higher*** *for Level 1 bureaucrats when ministries employ political layers.*

Panel 3 of Figure 1 summarizes how political layering amplifies and bureaucratic layering buffers the relationship between changes of government and senior bureaucrat turnover. Government changes cause ideological shifts in leadership that increase ministers' replacement incentives and bureaucrats' exit propensities. Bureaucratic layers (H1) buffer this relationship: hierarchical distance decreases the political importance of lower positions, as ministers can exercise control through higher-level bureaucrats. Political layers (H2) amplify these mechanisms by enhancing ministerial control capacity and reducing bureaucratic transitional importance, facilitating political replacement or strategic exits.

3 The Research Context

Norway has a long-standing meritocratic administrative system that is subject to yearly scrutiny by the parliament, a tradition of minority governments, and a culture of a politically neutral bureaucracy with loyalty to changing governments (Bach et al., 2025). General elections are held at fixed intervals. There were 34 instances of a change of government—defined as a change in the party of the prime minister—between 1884 and 2024. 20 of these changes in government occurred without an election. Additional details on government types and changes to the electoral system are provided in Appendix C.

The power to appoint and dismiss senior ministerial bureaucrats is held by the Council of State. This formal decision-making power was in the hands of the Swedish King until the end of the Norwegian–Swedish union in 1905 (Kolsrud, 2001). Legal custom since the 1890s (Jacobsen, 1955) and civil service legislation since 2017 (Borgerud et al., 2020) have prohibited governments from using political criteria as the formal reason for the removal or recruitment of senior bureaucrats. However, the minister determines the meritocratic qualifications that should be considered when appointments are made and nominates the candidate to be appointed by the Council of State (Borgerud et al., 2020).

Senior bureaucrats can be dismissed by royal decree (Grunnloven, 1814), although this does not happen in practice. Instead, the exit of senior bureaucrats takes the form of resignations that appear to be voluntary. One notable instance of a senior bureaucrat being forced out, yet not departing quietly, was Anne Marie Storli. In 2015, Storli was asked to resign as Director General of the Communication Department in the Ministry of Transport after a policy disagreement with the minister. After taking the incident public, she later stated that the decision ruined her career (Aftenposten, 2016). Appendix B provides additional examples of politically motivated turnover.

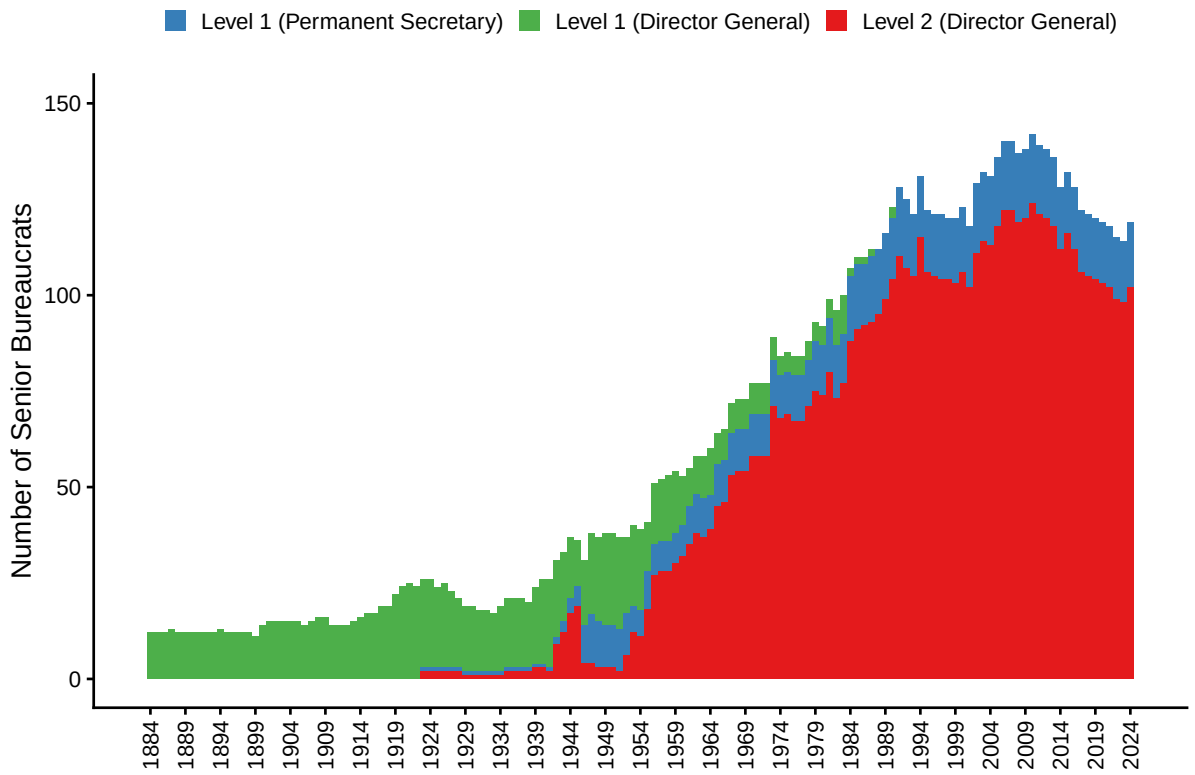

Figure 2: Number of senior bureaucrats in Norwegian ministries, 1884–2024, by position.

In 1884, the Norwegian central administration was modest in size. As shown in Figure 2, Level 1 consisted of only twelve directors general heading the ministry departments (Kolsrud, 2001). The specialization and expansion of the bureaucracy during the twentieth century increased the number of directors general reporting directly to each minister, with each director general responsible for only part of the minister's portfolio. After World War II, reorganization and administrative reforms sought to increase the political responsiveness of the central administration (Grønlie, 2009). One component of these reforms—the introduction of politically appointed state secretaries—was adopted quickly: more than half of the ministries employed state secretaries shortly after their legal introduction in 1947, and all ministries have had at least one since the 1970s.

By contrast, the creation of a unified administrative head in each ministry through the introduction of permanent secretaries unfolded more gradually. The practice of placing all directors general under a permanent secretary was first introduced at the Ministry of Foreign Affairs in 1922 and was not completed across ministries until the Prime Minister's Office adopted the model in 1987 (Kolsrud, 2001). This staggered expansion of permanent secretaries at Level 1 is illustrated in Figure 2. Additional information on the introduction of state secretaries and permanent secretaries in the various ministries is available in Appendix D.

4 Data and Methods

This article conducts an event history analysis of 948 senior bureaucrats employed at the two highest levels in Norwegian ministries between 1884 and 2024 to examine the moderating effects of bureaucratic and po-

litical layering on the relationship between a change of government and bureaucratic turnover. The dataset tracks Directors General throughout the period—before and after subordination to permanent secretaries and political state secretaries—plus permanent secretaries from the year of their introduction across ministries (1922–1987). Data on senior bureaucrat careers originate from the annual Norwegian register of government employees (Regjeringen, 2011) and minutes from the Council of State (Regjeringen, 2025a). Information on governments, ministers, and state secretaries has been gathered from the Norwegian government's webpages (Regjeringen, 2025b).

4.1 Model and Quantities of Interest

To test whether bureaucratic and political layering moderate the effect of a change of government on senior bureaucrat turnover, the regression model in Equation 1 is estimated using ordinary least squares (OLS). The analysis first examines how bureaucratic layering creates a *Bureaucratic Buffer*$_{it}$ by distinguishing between Level 2 bureaucrats—those subordinate to another senior bureaucrat in year t (coded 1)—and Level 1 bureaucrats, who report directly to the minister without an intervening bureaucratic layer (coded 0). Second, to assess whether adding political capacity through the introduction of a political layer amplifies the political dynamics of senior bureaucrat turnover, the variable *Political Amplifier*$_{it}$ is included, indicating whether a political state secretary was (1) or was not (0) employed in a ministry in year t. Descriptive statistics for all variables used in the analysis are reported in Appendix E.

Change of Government$_t$ is operationalized as a wholesale change of government in year t, defined as the simultaneous replacement of all ministers following a change in the party of the prime minister. Changes of government are coded in yearly intervals and exclude brief within-year transitions to short-lasting governments (less than one month), which do not have time to produce lasting changes in bureaucratic staffing. A change of minister within the same governing coalition—where the incoming minister is from the same party or a coalition partner—is also excluded, as the variable is intended to capture situations in which senior bureaucrats must work for a new minister from a new party with a new agenda. No distinction is made between the ideological direction of the transition relative to the ideological composition of the government that originally appointed the senior bureaucrat. However, to assess robustness and explore potential mechanisms, these alternative operationalizations are also considered.

$$
\begin{aligned}
\text{Senior Bureaucrat Turnover}_{it} = {} & \beta_1 \text{ Change of Government}_t + \beta_2 \text{ Bureaucratic Buffer}_{it} + \beta_3 \text{ Political Amplifier}_{it} \\
& + \delta_1 \text{ Change of Government}_t \times \text{Bureaucratic Buffer}_{it} \\
& + \delta_2 \text{ Change of Government}_t \times \text{Political Amplifier}_{it} \\
& + \delta_3 \text{ Bureaucratic Buffer}_{it} \times \text{Political Amplifier}_{it} \\
& + \delta_4 \text{ Change of Government}_t \times \text{Bureaucratic Buffer}_{it} \times \text{Political Amplifier}_{it} \\
& + \tau \text{ Time}_{it} + \zeta \text{ Decade}_t + \eta \text{ Ministry}_{it} \\
& + \theta_{\mathbf{c_{it}}} + \varepsilon_{it}
\end{aligned} \tag{1}
$$

The interaction effects implied by the hypotheses are evaluated by computing four group-average marginal effects (G-AMEs) from Equation 1. These G-AMEs are derived from the conditional marginal effect of a change of government, calculated by summing the relevant constitutive coefficients (Brambor et al., 2006), expressed as:

$$
\begin{aligned}
& \beta_1 \text{ Change of Government}_t \\
& \quad + \delta_1 \text{ Change of Government}_t \times \text{Bureaucratic Buffer}_{it} \\
& \quad + \delta_2 \text{ Change of Government}_t \times \text{Political Amplifier}_{it} \\
& \quad + \delta_4 \text{ Change of Government}_t \times \text{Bureaucratic Buffer}_{it} \times \text{Political Amplifier}_{it}
\end{aligned} \tag{2}
$$

Specifically, the analysis compares the marginal effect of a change of government (the difference between a year with and without government turnover) across four configurations of the ministerial hierarchy: Level 1 with a political amplifier, Level 1 without a political amplifier, Level 2 with a political amplifier, and Level 2 without a political amplifier. Examining these four G-AMEs makes it possible to identify whether bureaucratic layering buffers, and whether political layering amplifies, the impact of government transitions on senior bureaucrat turnover, as posited in H1 and H2.

4.2 Dependent Variable

The unit of observation is individual-year, with one observation per individual i who occupies a senior bureaucrat position at the start of year t (1 January). The outcome of interest is *Senior Bureaucrat Turnover*$_{it}$. Following the methodology of Askim et al. (2022), senior bureaucrats are organized into continuous employment spells j. For ease of notation, this spell index is suppressed in Equation 1, but is included in the formal definition below. Formally, *Senior Bureaucrat Turnover*$_{ijt}$ is defined as:

$$
\text{Senior Bureaucrat Turnover}_{ijt} = \begin{cases} 1 & \iff \max(\text{t}_{ij}) = t_{ij} \;\&\; \text{Age}_{ijt} < 70 \;\&\; \max(\text{t}_{ij}) \neq \max(\text{t}) \\ 0 & \text{Otherwise} \end{cases} \tag{3}
$$

An employment spell j for a senior bureaucrat i ends only if they no longer hold any senior bureaucratic positions from year t to year $t+1$. A change in ministry (e.g., from Finance to Foreign Affairs) or position (e.g.,

director general to permanent secretary) between years is not considered turnover. Following Christensen et al. (2014), bureaucrats are right-censored in the year they turn 70 due to mandatory retirement in Norway, as are those still in office as of 31 December 2024. This results in 1106 employment spells, of which 923 ended during the observation period. Of the total, 305 people had employment spells that involved being hierarchically placed directly under the minister, and 141 people had more than one employment spell. For robustness, models also consider alternative definitions of employment spells.

4.3 Estimator and Control Variables

OLS regression with fixed effects for $Time_{it}$ is used for the main models. $Time_{it}$, represents the duration of bureaucrat i's continuous service as a senior bureaucrat at the start of year t. It thus restricts comparisons to those with equivalent years of experience, since tenure likely influences exit trends. This approach is equivalent to duration modeling of the baseline hazard of turnover, such as Cox regression and logistic regression with cubic time splines, with the added benefit of producing results on the same scale as the data (Ward & Ahlquist, 2018). This makes for more intuitive inferences about the substantive effect sizes (Hellevik, 2009). Furthermore, the model implements fixed effects for ministry to account for ministry-specific factors that are constant over time and may impact both turnover and layering, and fixed effects for the decade to which year t belongs, to restrict comparisons of years with change of government to other years within the same decade.

Year fixed effects could address temporal changes that may confound the results, yet cannot be implemented as $Change\ of\ Government_t$ is a dummy variable for a change of government occurring in year t. There is no variation in any year t regarding whether a change of government occurred. Hence, $Change\ of\ Government_t$ would be perfectly multicollinear with the year fixed effects for the years t with a change of government. However, to adjust for unobserved year level factors the models are estimated with standard errors clustered on years.

The changes of government in 1940 and 1945 are omitted from the analysis in the main models, as these were not events of change of government in a democratic system, but rather events of regime change to and from autocratic occupation, where idiosyncratic dynamics are at play for turnover of senior bureaucrats (Kolsrud, 2004); this is evident from the outlier proportion of turnover in these years in Figure 3. Senior bureaucrats in office at the start of 1940 are right-censored to handle this.

$\theta_{\mathbf{c_{it}}}$ denotes a vector of additional variables to control for potentially confounding individual and temporal factors. Change of government is exogenous to the characteristics of individual senior bureaucrats. The effect of change of government on senior bureaucrat turnover should only be confounded by election years, as change of government is more likely following a parliamentary election, and senior bureaucrats may also be more likely to leave their positions in these years. Hence, $Election\ Year_t$ is included as a control. Furthermore, a control variable for whether an observation is in the 1884–1905 period is needed since Norway was still in a political union with Sweden in this period.

The analysis controls for three individual-level factors that potentially confound the relationship between

bureaucratic buffer and senior bureaucrat turnover: Age_{it}, $Gender_i$, and $Temporary\ Appointment_{it}$ can impact both the propensity of senior bureaucrats to be employed in a position directly below the minister and their risk of turnover.

5 Results

Before turning to the results of the regression, it is useful to see whether evidence of layering moderating the effect of change of government on bureaucratic turnover is present descriptively. The proportion of senior bureaucrat turnover over time is shown in Figure 3. The share of senior bureaucrat turnover each year has been between 5 and 20 percent, with the average percentage of turnover being 11 percent. The two outliers relate to the World War II occupation of Norway: 53 percent of senior bureaucrats left their positions in 1940, and 81 percent exited following the end of the occupation.

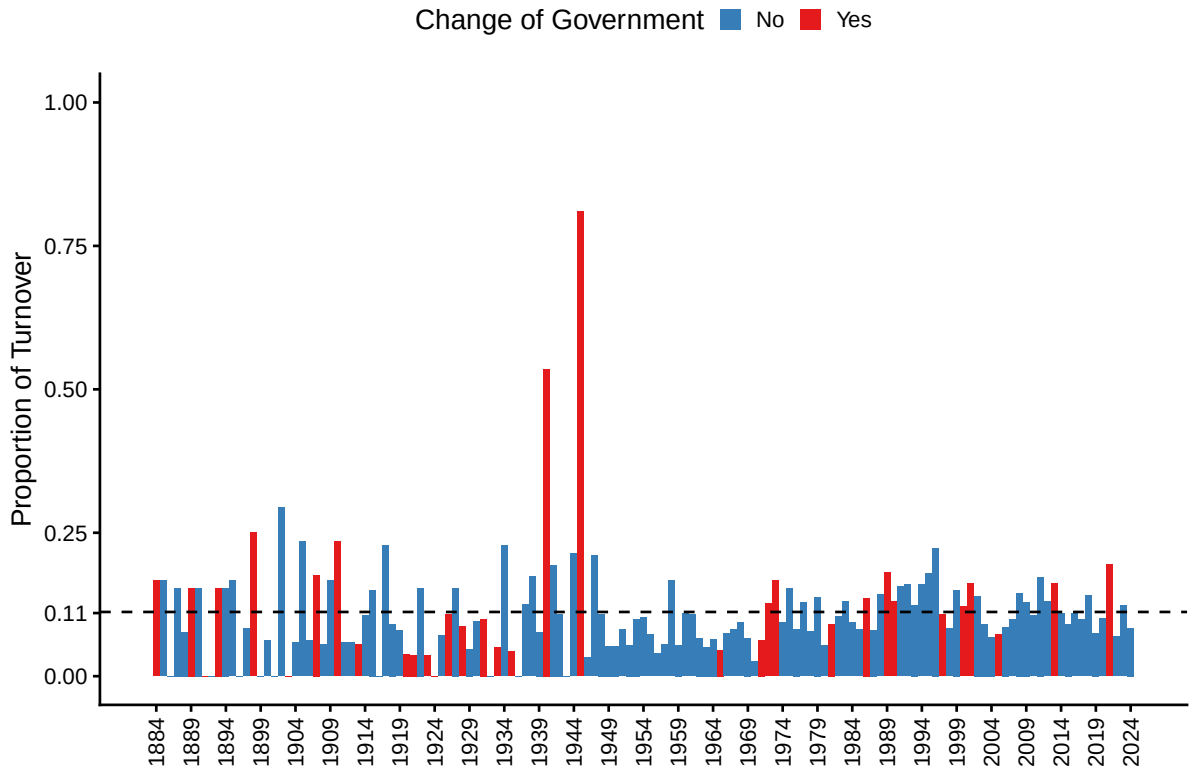

Figure 3: The proportion of senior bureaucrat turnover in Norwegian ministries, 1884–2024. The horizontal line depicts the average yearly proportion of senior bureaucrat turnover.

Figure 4 shows a 3.8 percentage point difference in the average yearly turnover of Level 1 bureaucrats in years with (11.3 percent) vs. without (7.5 percent) a change of government. For Level 2 bureaucrats, the difference in turnover rates is smaller and flipped, with the average being 11.8 percent in years without and 9.8 percent in years with a change of government. Moreover, for Level 1 bureaucrats, the figure indicates that the average turnover percentage during years with a change of government peaks at 14.2 percent when they face a political layer. There is little difference in turnover percentage in years with (9 percent) vs. without (8.1 per-

cent) a change of government in the absence of a political amplifier. For Level 2 bureaucrats, the introduction of a political layer increases turnover overall but does not create a relationship between government change and turnover.

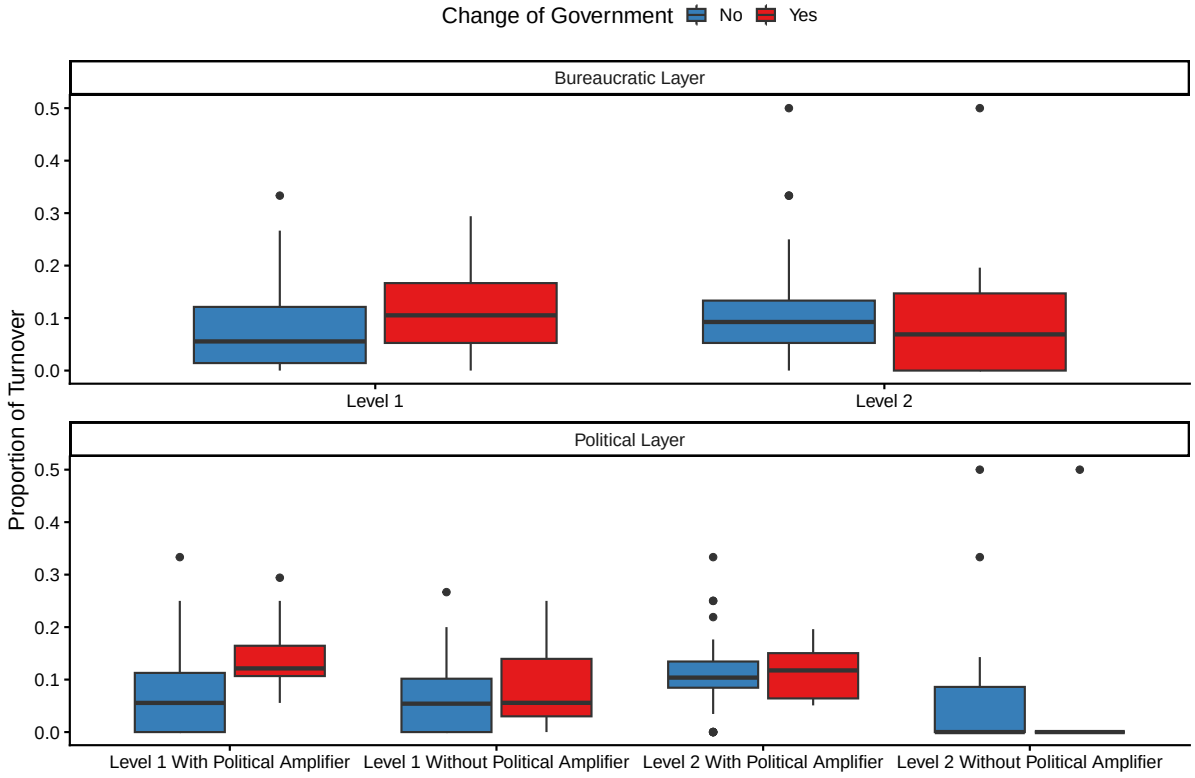

Figure 4: Boxplot of the proportion of senior bureaucrat turnover in years with and without change of government, by bureaucratic and political layering.

Table 1 reports the results from the three-way interaction model in Equation 1, along with three additional models that separately examine the moderating effects of bureaucratic and political layering; complete regression tables for all models are provided in Appendix G. The bureaucratic layering model shows that senior bureaucrats without a bureaucratic buffer (Level 1) experience a significant increase in turnover probability in years with a change of government ($\beta = 0.039,\ p < 0.01$). For Level 2 bureaucrats, the interaction term indicates that the estimated effect of government change is lower when a bureaucratic layer is present, although this difference does not reach conventional significance levels ($\beta = -0.031,\ p = 0.102$).

The political layering model shows that a change of government has a small, statistically insignificant effect for Level 1 bureaucrats without political appointees between them and the minister ($\beta = 0.006,\ p > 0.75$). In contrast, the *Change of government* × *Political amplifier* coefficient ($\beta = 0.065,\ p < 0.05$) demonstrates that Level 1 bureaucrats subject to a political layer face a significantly higher probability of turnover in conjunction with a change of government. For Level 2 bureaucrats, a change of government has no statistically significant effect on turnover, either in the presence or absence of political appointees.

Table 1: Regression results:

	Dependent Variable: Turnover of senior bureaucrat			
	Bureaucratic Layer	Political Layer (Level 1)	Political Layer (Level 2)	Full Model
Change of Government	0.039** (0.014)	0.006 (0.018)	-0.008 (0.045)	0.011 (0.019)
Bureaucratic Buffer	0.023* (0.009)			0.007 (0.026)
Political Amplifier	0.017 (0.015)	0.018 (0.024)	0.012 (0.026)	0.004 (0.019)
Election Year	0.002 (0.008)	-0.020+ (0.011)	0.008 (0.010)	-0.001 (0.008)
Age	0.004*** (0.001)	0.002 (0.001)	0.004*** (0.001)	0.004*** (0.001)
Gender	0.011 (0.010)	-0.009 (0.040)	0.015 (0.011)	0.011 (0.010)
Temporary Appointment	0.264*** (0.027)	0.145*** (0.038)	0.333*** (0.037)	0.263*** (0.027)
Before-1906	0.014 (0.048)	-0.005 (0.047)		0.011 (0.048)
Change of Government × Bureaucratic Buffer	-0.031 (0.019)			-0.080 (0.054)
Change of Government × Political Amplifier		0.065* (0.028)	0.016 (0.046)	0.056* (0.027)
Bureaucratic Buffer × Political Amplifier				0.023 (0.028)
Change of Government × Bureaucratic Buffer × Political Amplifier				0.024 (0.058)
FE: Time	X	X	X	X
FE: Ministry	X	X	X	X
FE: Decade	X	X	X	X
N	8501	2476	6013	8501
R2	0.07	0.08	0.08	0.07
Number of Senior Bureaucrat Spells	1065	303	847	1065
Number of Events	866	198	668	866
Average Senior Bureaucrat Turnover Probability	0.102	0.08	0.111	0.102

Note: OLS estimates with robust standard errors clustered on year reported in brackets. Variation in N is due to model 2-3 only including Level 1 or Level 2 bureaucrats respectively. +=.1, *=.05, **=.01, ***=0.001

The effect of government transitions on the turnover of the different groups of senior bureaucrats in the full model is difficult to interpret from the regression coefficients; hence, marginal effects and group comparisons are computed and shown in Figure 5. Figure 5 shows that the marginal effect of change of government increases the probability of bureaucrat turnover by 6.7 percentage points for Level 1 bureaucrats with a political amplifier (significant at $p < 0.001$), whereas for Level 1 bureaucrats in the absence of political appointees and all Level 2 bureaucrats, there is no significant difference in turnover between years with vs. without change of government. Without political amplifiers, Level 2 bureaucrats appear to be more likely to stay in their positions in years with a change of government (−6.9 percentage points); however, this effect is not significant at conventional levels. Comparing the marginal effect of change of government for Level 1 and Level 2 bureaucrats when they are subject to a political layer, the figure shows that the marginal increase in turnover probability is −5.6 percentage points less for Level 2 bureaucrats (significant at $p < 0.05$). Similarly, without political amplifiers, the difference in the marginal effect of a change of government between Level 2 and Level 1 bureaucrats is also negative (−8 percentage points), but not significant ($p = 0.14$). Thus, in line with H1, the effect on bureaucratic turnover of a change of government decreases with bureaucratic buffering, but only

when the ministry employs political appointees on top of Level 1 bureaucrats.

The marginal effects in Figure 5 show that Level 1 bureaucrats with a political amplifier have a higher turnover probability following a change of government than Level 1 bureaucrats without a political amplifier. For Level 1 bureaucrats without a political amplifier, the marginal effect of change of government is 1.1 percentage points; this effect is not significant at conventional levels ($p = 0.44$). However, when there are political appointees working in the ministry, the turnover probability of Level 1 bureaucrats is 5.5 percentage points higher in years with change of government in comparison to other years, all else remaining equal (significant at $p < 0.01$). Moreover, the estimated difference-in-differences between Level 2 bureaucrats with vs. without political amplifier is also positive (7.9 percentage points), but not significant at conventional levels. In other words, in line with H2, the turnover effect of change of government increases for Level 1 bureaucrats when ministries employ political layers.

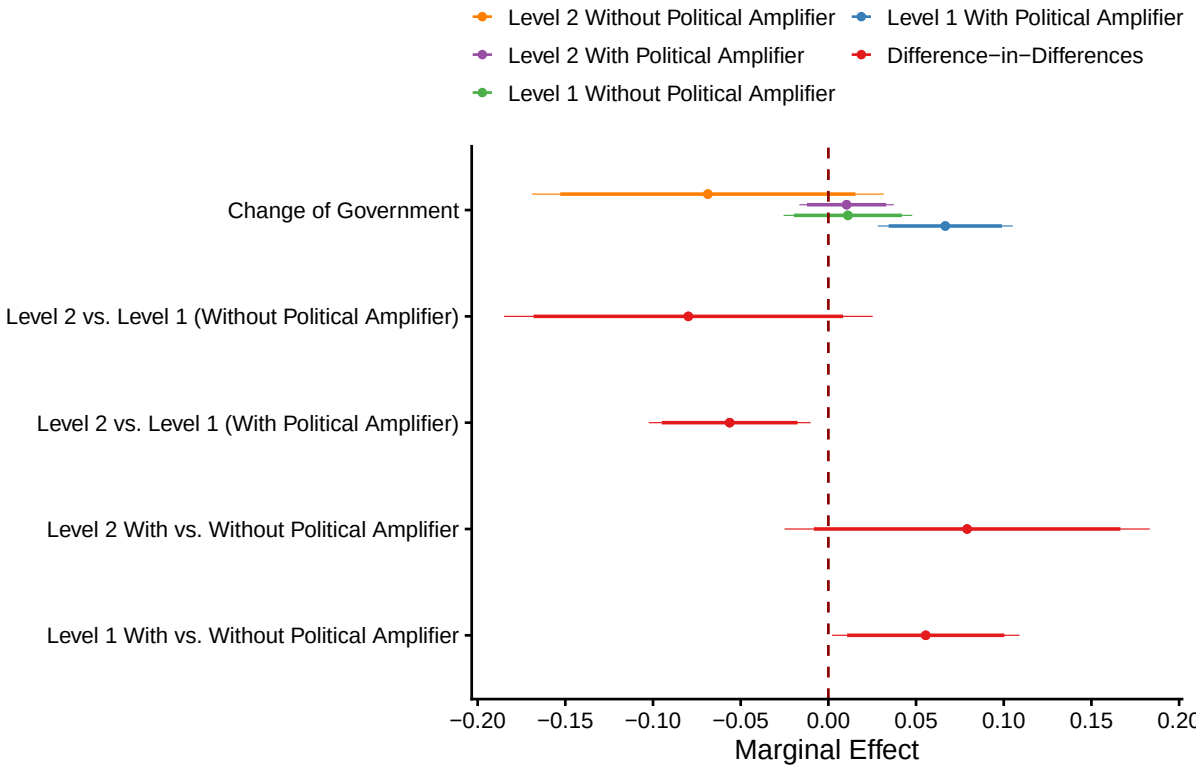

Figure 5: Marginal effects with 95% (small stroke width) and 90% (big stroke width) confidence bands of change of government on bureaucratic turnover probability conditional on bureaucratic and political layering obtained from predictions using the full model in Table 1. N = 1298 Level 1 with Political Amplifier, N = 1186 Level 1 without Political Amplifier, N = 5820 Level 2 with Political Amplifier, N = 197 Level 2 without Political Amplifier. Difference-in-Differences estimates are pairwise comparisons of the marginal effects of change of government.

The main findings are robust to the use of alternative estimators (i.e., Cox regression) and the inclusion of additional contextual factors in the model (i.e., ministerial institutionalization). Level 1 bureaucrats with a political amplifier remain the only group of senior bureaucrats whose turnover is consistently sensitive to government changes, even when transitions between ministries and hierarchical levels are incorporated into

the operationalization of turnover. However, when within-ministry rotation is treated as part of turnover, the marginal effect of a change of government becomes positive and statistically significant for Level 2 bureaucrats with a political amplifier.

Distinguishing between election-induced changes of government and within-term coalition breakdowns reveals additional heterogeneity among Level 1 bureaucrats without political amplification. Consistent with the idea that ministers without political appointees depend more heavily on senior bureaucrats during the early phase of a new government, these bureaucrats are increasingly likely to remain in office after an election-induced change of government. In contrast, their turnover rises when government changes occur within term. This may reflect incoming ministers attributing responsibility for the coalition collapse to senior bureaucrats, or bureaucrats voluntarily exiting if they feel accountable for the breakdown, thereby increasing turnover even in the absence of political appointees. Additional tables, figures, and robustness analyses supporting these results are provided in Appendix F.

6 Exploring Potential Mechanisms

6.1 Does Politicization Increase over Time?

A key question is whether the increased turnover risk for Level 1 bureaucrats following a change of government is driven by the introduction of political layers atop the ministerial hierarchy or, alternatively, a broader shift toward more politicized turnover dynamics in recent decades. Existing scholarship posits that the turnover of senior bureaucrats should have become more politicized in more recent periods (Bach et al., 2020; Hustedt & Salomonsen, 2014; Peters & Pierre, 2004), yet empirical studies to date provide limited evidence that politically induced turnover has intensified over time (Cooper, 2017, 2020). To examine whether the relationship between government change and bureaucratic turnover has strengthened over time, an alternative model specification removes the decade fixed effects and the political amplifier interaction. Instead, the model interacts government change with three historical periods that correspond to different stages in the adoption of political layers: no political layers (1884–1940), partial adoption (1945–1980), and universal adoption across all ministries (1981–2024). Figure 6 presents the marginal effects from this interaction model, illustrating how the relationship between government change and turnover varies across the three periods for Level 1 and Level 2 bureaucrats.

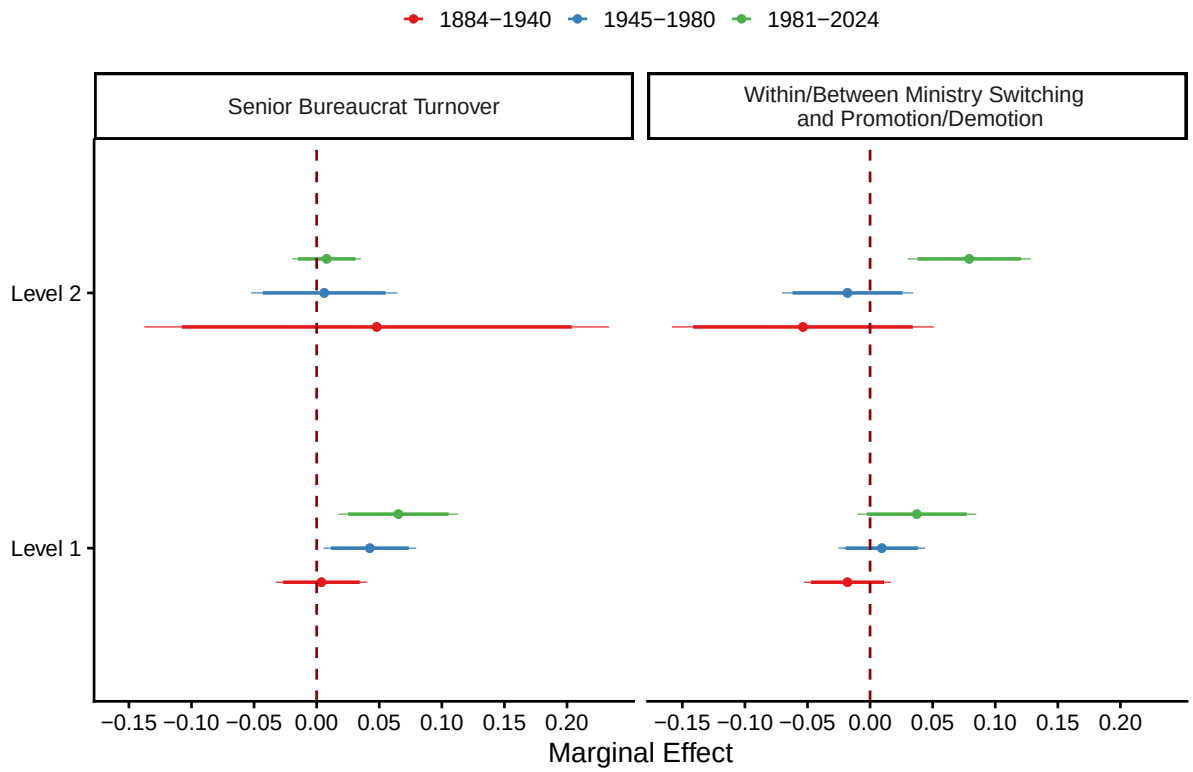

Figure 6: Marginal effects with 95% (small stroke width) and 90% (big stroke width) confidence bands for the marginal effect of change of government for Level 1 and Level 2 bureaucrats in three different periods.

The estimated marginal effect of the change of government on senior bureaucrat turnover is close to zero and does not reach statistical significance at conventional levels across all three time periods for Level 2 bureaucrats. This indicates that having a bureaucratic buffer appears to insulate Level 2 bureaucrats from politically induced turnover equally across time. However, the second panel in Figure 6 illustrates that, between 1981–2024, Level 2 bureaucrats are more likely to be reshuffled into other Level 2 bureaucrat positions within the same ministry after a change in government. This marginal effect is only positive and statistically significant at conventional levels in the last 40 years. This might imply that increased political responsiveness has been sought further down the ministerial hierarchy in the last 40 years through quieter politicization mechanisms, such as the reshuffling of untrusted Level 2 bureaucrats into less important departments. However, the observed reshuffling pattern may not reflect quiet politicization, but rather the general intensification of organizational restructuring over time. The merging, splitting, and renaming of ministerial departments has accelerated in recent decades (Fleischer et al., 2023), creating bureaucratic reshuffling that coincides with but is not necessarily driven by government changes.

For Level 1 bureaucrats, the estimates in Figure 6 indicate that the effect of a change in government first gains statistical significance in the post-World War II period. Moreover, while this marginal effect estimate is 2 percentage points higher in the 1981–2024 period than between 1945–1980, this difference is not statistically significant at conventional levels ($p = 0.52$). When the political amplifier interaction is added to the 1945–1980

period (see Appendix F Figure F.6), only Level 1 bureaucrats with political amplifiers are at increased risk of turnover following a government change. This demonstrates that political layering is a necessary condition for politically induced turnover among Level 1 bureaucrats and that the gradual adoption of political layers—from no ministries (1884–1945) to all ministries (1981–2024)—likely drives the observed temporal increase in turnover risk after a change of government.

6.2 Does the Senior Bureaucrat's Role Affect Turnover Risk?

Is the moderating effect of bureaucratic buffering driven by Level 2 bureaucrats' distance to the political level or by the varying roles of Level 1 bureaucrats over time? Figure 7 shows marginal effects by breaking the senior bureaucrats into directors general (labeled Level 1 or Level 2 depending on the presence of a permanent secretary) and permanent secretaries (always Level 1 as administrative heads). The results clarify the mechanisms underlying H1 by revealing that political turnover dynamics vary by Level 1 bureaucrat roles. Government change significantly increases turnover for Level 1 Permanent Secretary positions ($\beta = 0.072, p < 0.001$), while showing no significant effect for Level 1 Director General positions or Level 2 Director General positions ($p > 0.1$).

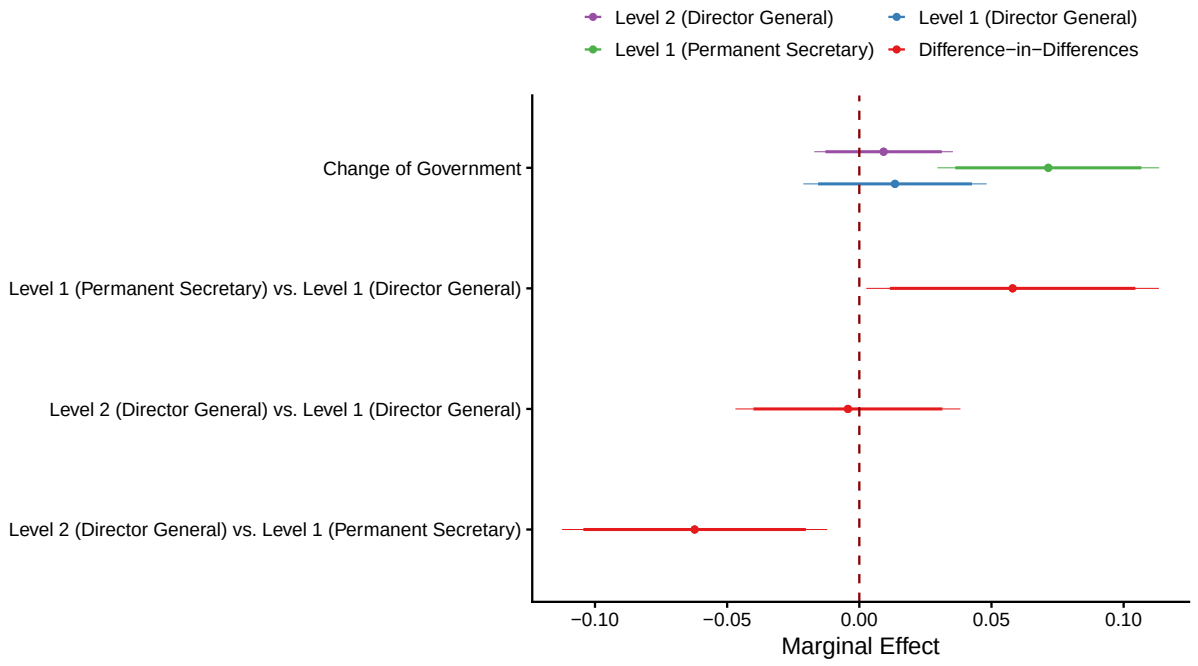

Figure 7: Marginal effects with 95% (small stroke width) and 90% (big stroke width) confidence bands of change of government on bureaucratic turnover probability conditional on bureaucratic layering and position type obtained from predictions using an OLS model with fixed effects for time, decade, and ministry, and a vector of control variables. N = 1367 Level 1 (Director General), N = 1117 Level 1 (Permanent Secretary), N = 6017 Level 2 (Director General). Difference-in-Differences estimates are pairwise comparisons of the marginal effects of change of government.

While Level 1 directors general show slightly higher estimated marginal effects than Level 2 directors general, the pairwise difference-in-differences comparisons reveal no significant difference at $p < 0.1$. However,

both comparisons involving Level 1 permanent secretary positions—whether contrasted with Level 2 directors general or Level 1 directors general—show statistically significant positive differences at $p < 0.05$. This indicates that the turnover effect for permanent secretaries is meaningfully larger than for directors general regardless of their level of bureaucratic buffering. Event study results using staggered implementation timing across ministries strengthen confidence in the introduction of the permanent secretary position driving this effect, as politicized turnover appears right after permanent secretaries become Level 1 bureaucrats (See Appendix F Figure F.5). This suggests that bureaucratic buffering may operate through two mechanisms: the hierarchical distance from ministers and the centralization of politically salient tasks at the top level. Turnover dynamics appear politicized only when politically important responsibilities are concentrated in a single Level 1 position rather than dispersed across multiple Level 1 bureaucrats.

These findings nuance the support for H1, demonstrating that both bureaucratic buffering and Level 1 functional roles moderate political turnover dynamics. Direct political interface is necessary but insufficient for government change to increase senior bureaucrat turnover. Level 1 positions must also perform sufficiently politicized tasks. Permanent secretaries consolidate political-administrative interfacing and provide ministers with political-tactical advice, while directors general—even at Level 1—typically retain more specialized administrative duties. However, robustness tests examining the marginal effect of change of government on permanent secretary turnover in the absence of political layering do not produce statistically significant results (See Appendix F Figure F.7), suggesting that administrative politicization is also a necessary condition. Hence, evidence points toward both political appointees (amplifying the political environment) and functional politicization of the highest bureaucratic level (permanent secretaries) as necessary conditions for government change to affect senior bureaucrat turnover.

6.3 Considering Alternative Operationalizations of Change of Government

Existing research on political dynamics affecting senior bureaucrat turnover has used varying definitions of government change, capturing different dimensions of political shifts during transitions. Employing these operationalizations can help identify plausible mechanisms linking political change to senior bureaucrat turnover. Figure 8 presents marginal effects from four additional models in which the change of government variable, in the full model in Table 1, is replaced with alternative operationalizations.

Does the timing of senior bureaucrat departures indicate strategic anticipation of political change or reactions to government transitions? The marginal effects presented in Figure 8 suggest that bureaucrats typically do not leave office prematurely due to foreseeing a government transition. This inference is supported by the analysis of the marginal effects, which reveals no substantial impact of an impending government change in the subsequent year ($t+1$) on the likelihood of senior bureaucrat turnover within the current year (t), even when taking layering into account. The probability of bureaucratic turnover for Level 1 bureaucrats with a political amplifier is significantly higher only in the years in which a change of government takes place. Similarly, both Level 1 and Level 2 bureaucrats are neither more nor less likely to exit their positions in year t following

a change of government in $t-1$. The shock of a change of government does not have lingering effects on senior bureaucrat exit rates. The heightened level of turnover among senior bureaucrats is only observed in the year with the government transition, not in the following year. In other words, senior bureaucrats exit their positions shortly after the change of government.

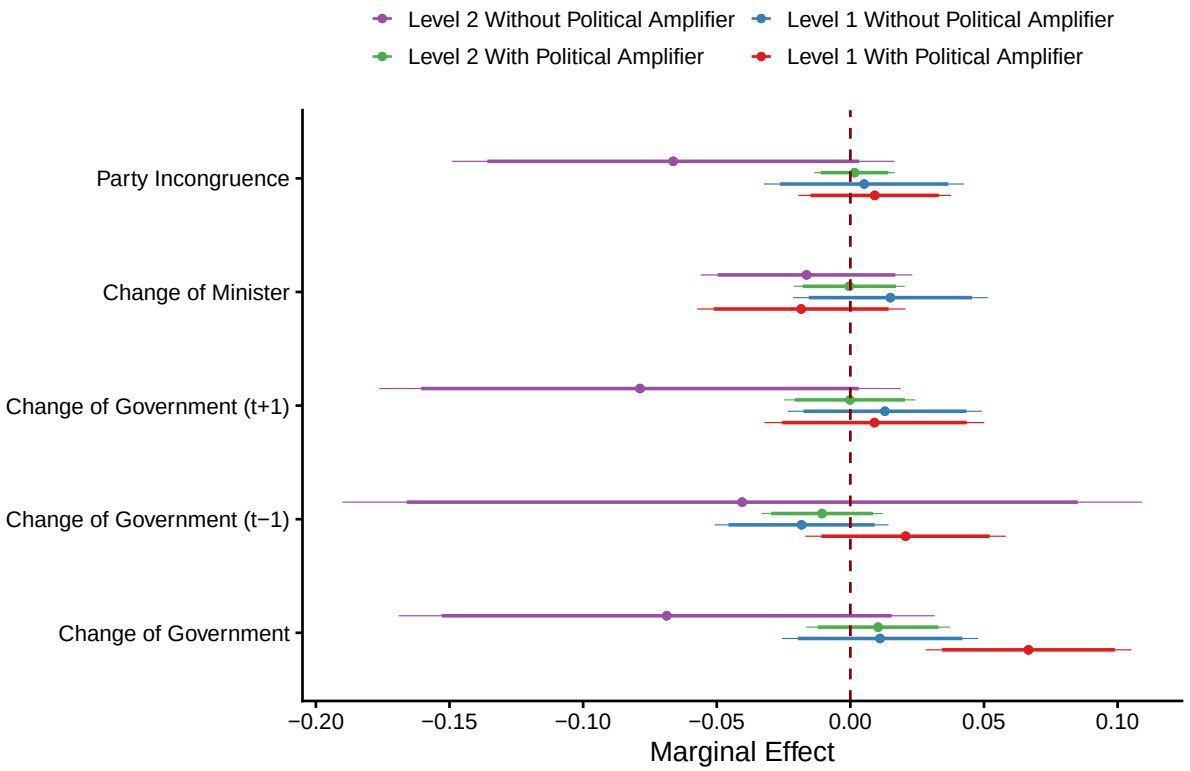

Figure 8: Marginal effects on bureaucratic turnover probability with 95% (small stroke width) and 90% (large stroke width) confidence bands for different operationalizations of change of government.

Do personal characteristics of individual ministers drive senior bureaucrat turnover? The marginal effects of minister turnover on bureaucratic turnover in Figure 8 reveal that there are no significant effects on bureaucratic turnover of a change in the minister in the absence of a change of government. This indicates that it is the ideological change in policy preferences brought on by a change of government that impacts Level 1 bureaucrats' turnover propensity, and not changes in the minister's personal characteristics.

Does the mechanism have to do with the alignment of ideological sympathies between Level 1 bureaucrats and governing parties? Operationalizing change of government as *party incongruence* between the appointing and dismissing government yields no significant results.[3]The estimated marginal effect of the appointing party's exit on senior bureaucrat turnover is nearly zero for Level 1 bureaucrats, with 95 percent confidence intervals spanning positive and negative values. This contrasts with the findings of Dahlström and Holmgren (2019), who found that agency heads in Sweden are less likely to be replaced when a government with the same ideological preferences as the appointing government is in power. One possible explanation for this difference is that the ideological sympathies of ministry bureaucrats are more malleable than those of agency heads (Geys

et al., 2024). Ministry bureaucrats may more readily align with the political preferences of changing governments as they operate more closely to the minister, within a culture of norms emphasizing ministerial loyalty. Conversely, agency heads operate with greater ministerial independence, in Sweden even more than in Norway, suggesting that their ideological sympathies should remain more stable over time (Geys et al., 2024). For Norwegian Level 1 bureaucrats, the results point toward only the short-term shock of an ideological change in the minister increasing turnover rather than static ideological sympathies.

7 Conclusion

Layering plays a central role in mediating the political dynamics of bureaucratic turnover under new governments, yet it affects turnover differently, depending on its form. Senior bureaucrats without a bureaucratic layer between them and the minister experience greater impact from government changes than their buffered counterparts. Political layering produces the opposite effect: Senior bureaucrat turnover increases with government changes when political state secretaries are positioned between senior bureaucrats and the minister.

Bureaucratic layers between senior bureaucrats and ministers buffer Level 2 bureaucrats from politically induced turnover. This adds to previous research suggesting bounded political influence on senior bureaucratic careers in merit bureaucracies (Askim et al., 2022; Bach & Veit, 2018; Dahlström & Holmgren, 2019). The permanency of bureaucrats below the highest rank is not threatened by a change of government.

Senior bureaucrats' job security is not affected by "just" a change in the minister. The results showed that a change of government is necessary for Level 1 bureaucrat turnover to increase as a consequence of a political change. This aligns with research suggesting that in meritocratic systems with a strong party tradition, politicization of bureaucratic turnover is primarily driven by partisan motives (Askim et al., 2022; Ennser-Jedenastik, 2016), rather than personal loyalty, as can be the case in politicized systems (Staroňová & Rybář, 2021).

Norwegian Level 1 and Level 2 bureaucrats are largely unaffected by political dynamics, except during the initial year of a new government. For Level 1 bureaucrats, the findings suggest that an ideological shift in ministers causes only a temporary increase in turnover, as they can adapt to any political leadership. This aligns with past research showing that senior bureaucrats who remain after a government change often align their ideological sympathies with the new administration (Geys et al., 2024).

Analysis of different time periods and senior bureaucratic roles shows that layering alone does not fully explain political influence on careers. Positions must be both hierarchically exposed (lacking bureaucratic buffering), functionally politicized (involved in tasks that are strategically important to political leadership), and subject to administrative politicization (by being under the purview of political appointees) to be vulnerable to politically motivated turnover. Together, these requirements explain why senior bureaucrats do not all experience similar levels of political dynamics, despite similar organizational placements.

[3] Party incongruence is defined as a dummy variable that keeps the value 0 for individual i in employment spell j in years t where the party of the prime minister is the same as in the year when individual i was appointed "min(t)", and 1 in years in which the prime minister hails from a different party. Alternative ways of measuring the variable, such as differences in the minister's party, whether the appointing minister's party is in the governing coalition, or categorizing governments as left or right-leaning, produce similar null results.

The top-down politicization pattern should generalize to contexts with hierarchical organization and meritocratic recruitment. However, weaker merit restrictions likely produce more extensive turnover that reaches deeper into the hierarchy than observed in Norway. Because positions closer to leaders are more prestigious, top-down politicization should occur even in patronage systems. Surveys of bureaucrats in eight Eastern European countries found that turnover after elections decreases as hierarchical distance from the political level increases, supporting this generalization (Meyer-Sahling & Veen, 2012).

The findings on political layering have limited external validity, as Norway introduced only one type of political appointee within a narrow time frame. Further research should examine contexts where political layers have been introduced more extensively and recently than in Norway. Such contexts include systems where political appointees span various hierarchical levels and organizational types beyond ministries, allowing assessment of whether increased political capacity consistently affects senior bureaucrat turnover or whether political layering can buffer bureaucrats by reallocating political functions away from them. A promising avenue for future research is exploring how meritocratic norms, functional politicization, and institutional context shape cross-national variation in bureaucratic turnover across hierarchical levels.

The general implication of the findings is that even if a country is successful in establishing a merit bureaucracy with a clear division between political and bureaucratic positions and a strong culture against patronage appointments, changes in government and the turnover of senior bureaucrats will not be fully disconnected. Bureaucratic careers at the highest level of the hierarchy can still be subject to political dynamics. When new governments find that the political value of controlling a position outweighs the costs of deviating from merit institutions, political influence may still occur. Similarly, if the tasks and autonomy embedded in bureaucratic positions are closely tied to the political level, bureaucrats whose preferences diverge from new governments may choose to resign during transitions. The functional design of bureaucratic roles and their political environment shapes their vulnerability to political dynamics. When bureaucratic roles become functionally politicized, so do the dynamics of their selection and retention.

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Appendices

Contents

A Literature Review Summary

Table A.1 provides an overview of the existing literature on political dynamics affecting senior bureaucrat selection and turnover within merit-based administrative systems, with studies organized by publication year. The *Case* column summarizes the empirical context, including the specific bureaucratic positions examined (their names, types, and numbers) and the countries studied, which are used to categorize the hierarchical level within organizations and the type of organization where these positions are located. The *Methods* column distinguishes between qualitative and quantitative approaches and identifies the type of bureaucratic behavior analyzed (i.e. turnover versus selection). The *Theory* column summarizes each study's theoretical assumptions about the political motivations of political principals and bureaucratic agents. The *Findings* column provides concise summaries of the main insights from each study.

Table A.1: Overview of the main findings from key studies on the political dynamics of senior bureaucrat selection and turnover in merit bureaucracies.

Study	Case	Positions	Methods	Theory	Findings
Christensen et al. (2014)	789 City Managers (1970–2005), 157 Agency Heads and 63 Permanent Secretaries (1970–2009) in Denmark	Level 1 (ministry, agency and municipality)	Quantitative (Cox proportional hazards), observational, turnover	Politicians: seek political control; Bureaucrats: no politically induced agency	For the local level: New mayor from the same party increases the turnover probability of city managers; new mayor from another party only significantly increases turnover when the new party also wins an absolute majority in the city council. For the national level: Party difference between appointing and dismissing minister has no significant effect on turnover of permanent secretaries or agency heads.
Ennser-Jedenastik (2014)	1671 Board Members in 87 State Owned Enterprises (Government majority owned SOEs) in Austria 1995–2010	Level 1 (SOE)	Quantitative (Cox proportional hazards), observational, turnover	Politicians: seek political control; Bureaucrats: no politically induced agency	Opposition-affiliated board members are twice as likely to be switched out than non-partisan board members. Board members from bigger parties are less likely to be switched out. Those affiliated with the minister's party face the lowest risk of being replaced. Non-partisans and managers affiliated with the non-departmental government party face similar risk of replacement.
Ennser-Jedenastik (2016a)	700 Agency Heads in 16 West European countries between 1996 and 2013	Level 1 and Level 2 (agency)	Quantitative (Hierarchical mixed-effects logistic regression), observational, selection	Politicians: seek political control through appointments when formal control mechanisms are limited; Bureaucrats: no politically induced agency	Higher levels of formal agency independence strongly associated with increased appointment of government party affiliates. Probability of government partisan appointment rises from 3% to 26–28% across the empirical range of independence (0–87 index). Effect holds after controlling for agency resources, age, political constraints, rule of law, and country/domain variation. CEO positions three times more likely to be politicized than other senior roles. "Reversed ally principle" where reduced formal control leads to greater reliance on ideological alignment through partisan appointments, potentially undermining de facto independence despite formal autonomy.
Ennser-Jedenastik (2016b)	134 Secretaries-General in Dutch ministerial bureaucracies 1945–2013.	Level 1 (ministry)	Quantitative (ANOVA), selection	Politicians: seek political control and consociational representation; Bureaucrats: no politically induced agency	Party membership congruence between senior bureaucrats and the government is common. Of senior bureaucrats with party membership, 77% are appointed while their party is in government; only 45% are from the same party as their minister. The share of co-partisans correlates largely with the electoral share of the party. Only about 30% had no party affiliation. Governments have become more willing to appoint Level 1 bureaucrats with incongruent party colors over time. Also higher turnover-rates over time due to fixed term contracts (seven-year term limit).

Fleischer (2016)	301 Administrative State Secretaries in Germany 1949–2013	Level 1 (ministry)	Quantitative (Cox proportional hazards), observational, turnover	Politicians: seeks political control; Bureaucrats: no politically induced agency	Distance in number of days from when the minister had their first appointment to office and when the state secretary were appointed had no significant effect on turnover (proxy for personal politicization). If the minister and the state secretaries party matches or not, finding higher turnover rates when the minister and the state secretary are from the same party vs. from different parties (counter intuitive). However, when the state secretary is affiliated with another party that is in a coalition government, their tenure seem to be longer.
Cooper (2017)	Deputy Ministers in Canadian provincial bureaucracies 1920–2013	Level 1 (Ministry)	Quantitative (logistic regression with time splines), observational, turnover	Politicians: seeks political control; Bureaucrats: no politically induced agency	In the pre-1980 only a change of first minister and party resulted in higher rates of bureaucratic turnover. After 1980 just a change in the first minister is enough to increase turnover. Arguing that power has been increasingly centralized in the hands of the first minister, and thus a move towards personal politicization and not just party politicization.
Petrovsky et al. (2017)	247 Agency Heads in the UK 1989–2012	Level 1 (Agency)	Quantitative (Cox proportional hazards), observational, turnover	Politicians: seeks political control; Bureaucrats: can self-select (both have agency, but not tested as different dynamics)	Change in overseeing minister this year has no significant effect on bureaucratic turnover. Change in party control (also include a lagged version of this variable); Lagged change in party control is significantly negative ($p < 0.1$) indicating reduced risk of turnover the year after a change in government.
Bach and Veit (2018)	477 Directors General and Agency Heads serving as candidate pool for promotion to state secretary positions in German federal ministries 1997–2015.	Level 1 (Agency, Ministry) and Level 2 (Ministry)	Quantitative (Cox proportional hazards), observational, selection	Politicians: seek political control over bureaucracy; Bureaucrats: no politically induced agency (assumed to want promotion and thus signal loyalty)	Ministers consistently prefer politically loyal candidates (276% increased hazard of promotion for government party loyalists vs. non-loyalists). Political craft and selected managerial competencies (inter-sectoral mobility) also matter, but partisan loyalty trumps other qualifications. Ministers likely to trade-off loyalty against professional qualifications. “Bounded politicization” pattern where top officials recruited internally ensures baseline competency while political criteria supplement merit-based selection.

Dahlström and Holmgren (2019)	2355 Agency Heads in Sweden 1960–2014	Level 1 (Agency)	Quantitative (Cox proportional hazards), observational, turnover	Politicians: seek political control; Bureaucrats: can self-select (both have agency, but not tested as different dynamics)	Studying the effects of cabinet turnover (measured as 1 if the government in power in year t has a different ideological orientation (social democratic or liberal-conservative) than the government that appointed the agency head) and policy incongruence (policy distance between appointing and sitting government using manifesto project data). Finding that increased ideological distance correlates with increased hazard of turnover. For the cabinet turnover measure effect is estimated to be about 50–58% increase in hazard of turnover. Agency head member of a political party (1/0) finding higher turnover rates for party associated agency heads. Before or after 1987 reform that gave more formal power to ministers to transfer agency heads for organizational reasons; finding lower turnover rates before the reform.
Rattus and Randma-Liiv (2019)	16 Secretary Generals, 73 Deputy Secretary Generals and 46 Agency Heads in Estonia 2009–2013, with 53 departures analyzed through semi-structured interviews (70% response rate)	Level 1 and Level 2	Qualitative (semi-structured interviews), interviews, turnover	Politicians: seek political control; Bureaucrats: can self select	Personal loyalty—including personal fit and trust among political leaders and senior bureaucrats—is as important as political loyalty in analyzing senior bureaucrat turnover (78% voluntary departures). Involuntary turnover (22%) primarily due to cooperation problems with ministers and political loyalty issues. Voluntary departures driven mainly by "push factors" (62%): working too long in same position causing exhaustion, cooperation problems with superiors, low civil service reputation. Job insecurity combined with individual unwritten public service bargains creates role ambiguity and conflicts. Personal loyalty as important as political loyalty in a relatively stable political environment. Limited correlation between turnover and electoral changes, indicating non-political factors dominate.
Doherty et al. (2019)	821 career Senior Executive Service (SES) in US federal ministries and agencies 2015–2017. Turnover linked to survey responses from the same bureaucrats.	Unclear which levels (Ministry and Agency)	Quantitative (probit duration models), observational, turnover	Politicians: seek control over key positions; Bureaucrats: strategic exit decisions based on anticipated conflict with incoming administration (finds supporting evidence)	285 of 821 (35%) departed during study period. Senior bureaucrats with broader policymaking responsibilities more likely to depart after 2016 election. Strong evidence that liberal executives significantly more likely to depart than conservatives after Trump election, while ideology had no effect before election. Strategic exit occurred between election and inauguration as liberals anticipated conflict with incoming Trump administration. Monthly departure probability 15% for liberals vs. 6% for conservatives in first 6 months of Trump administration. Presidential transitions create "natural break points" where civil servants assess outside opportunities regardless of ideology.

Cooper (2020)	Permanent Secretaries in the United Kingdom 1949–2014	Level 1 (Ministry)	Quantitative (logistic regression with time splines), observational, turnover	Politicians: seeks political control; Bureaucrats: no politically induced agency[4]	Looking at the relationship between a change in prime minister with vs. without a change in party and re-election of a prime minister. Finding that only a change in prime minister and party correlates with increased bureaucratic turnover and that this relationship has not increased over time.
Bach et al. (2020)	Senior Public Managers from central government ministries and agencies in 18 European countries.[5] Survey conducted 2012–2014, 6,197 respondents.	Level 1, Level 2 (Ministry), Level 3 (Ministry and Agency)	Quantitative (OLS with country fixed effects), survey of bureaucrats, appointment influence	Politicians: seek political control over bureaucracy; Bureaucrats: no politically induced agency	Cross-national patterns correspond to administrative traditions with Napoleonic and CEE countries most politicized, Anglo-Saxon and Scandinavian least politicized. No evidence for compensation thesis—higher organizational autonomy associated with *lower* politicization. Management tools serve as alternative control mechanism (negative relationship with politicization). Ministries significantly more politicized than agencies (0.8 unit difference on 1–7 scale). "Vertical specialization" through agencification effectively shields bureaucrats from political influence.
Bolton et al. (2021)	Over 3 million federal employees in the US 1988–2011	All levels (Ministry, Agency)	Quantitative (linear probability models), observational, turnover	Politicians: seek control over bureaucracy; Bureaucrats: motivated by policy influence. Political transitions may reduce influence and create policy misalignment, affecting job satisfaction.	Presidential transitions increase turnover among career SES employees by 1.6 percentage points (21.1% increase) in first year of new administrations. Ideological mismatch between agency mission and presidential ideology increases turnover for career SES. Lower-level employees (GS 13–15) show decreased turnover during transitions, suggesting promotion opportunities from senior departures. "Bounded responsiveness" where only top career executives respond to political factors while broader workforce remains stable.

[4] "[T]urnover following a political event is the political motivations of governments to increase control. Factors such as retirement, death, and illness likely affect turnover. Importantly, however, there are no reasons to believe that these non-political factors are more likely in years following a political than in other years. In other words, presuming that non-political factors likely affect turnover equally in years following an event and years in which no event has occurred, we can gain the ability to see the influence of politics by comparing years following a political event with years in which there is no political events." (Cooper, 2020, p. 316)

[5] Austria, Croatia, Denmark, Estonia, Finland, France, Germany, Hungary, Iceland, Ireland, Italy, Lithuania, Netherlands, Norway, Portugal, Spain, Sweden, UK

Fiva et al. (2021)	1632 Municipal Managers in Norway 1991–2015	Level 1 (municipality)	Quantitative (regression discontinuity design), observational, senior bureaucrats' wage increases	Politicians: seek political control (increase wage of aligned bureaucrats); Bureaucrats: policy motivated (alignment impacts productivity and willingness to accept lower pay)	Using close elections for inference in a regression discontinuity analysis, the authors find that partisan alignment between politicians and retained senior bureaucrats significantly increases senior bureaucrats' wage.
Staroňová and Rybář (2021)	11,160 Top Managerial Civil Servants (general directors, directors, heads of units) in Slovak ministries 2010–2018.	Level 1, Level 2, Level 3 (Ministry)	Quantitative (ANOVA), observational, turnover	Politicians: seek control over bureaucracy (ministers as autonomous agents vs. party agents in patronage decisions); Bureaucrats: no politically induced agency	Four modalities of ministerial alterations: replacing, successive, incumbent, and switching ministers. No hypothesis about different effects for different hierarchical levels. "Successive ministers" from same party replace 21% of civil servants vs. 28% for "replacing ministers" from different parties—difference not statistically significant. Patronage occurs as individualized power resource of autonomous ministers exercising influence independently of political parties. Bureaucratic turnover 4.5 times higher in immediate 6-month term after ministerial change than in subsequent periods. Personal rather than party patronage dominates in one of the most politicized countries in Europe.
Askim et al. (2022)	Permanent Secretaries in Denmark (157) and Norway (108) 1970–2020	Level 1 (Ministry)	Quantitative (Cox proportional hazards), observational, turnover	Politicians: seek political control; Bureaucrats: No politically induced agency (but opens up for political dynamics to be a result of both push and pull factors, however not tested empirically)	Positive effect of changes of government on senior bureaucrat turnover in Norway, no significant effect in Denmark. A change in minister is not sufficient to trigger a replacement of the incumbent permanent secretary. Difference between Norway and Denmark attributed to Denmark not having state secretaries.

Geys et al. (2024)	951 US Agency Heads 1964–2008 (9.1% of the population of agency heads in the period)	Level 1 (agency)	Quantitative (first-difference regression models with ordered logistic regression, individual fixed effects), observational, partisan identification change	Politicians: use rhetoric and actions to influence subordinate identity salience; Bureaucrats: instrumental motivation, psychological conformity to avoid cognitive dissonance, and need for belonging drive partisan reorientation	Senior bureaucrats that are *retained* (58% of sample) after a change in government reorient their partisan preferences towards the partisan preferences of the new government. The shift in partisan preferences is larger for agency heads with more frequent contact with the political principal, and those directly appointed by their political principal compared to when appointment power is delegated. Partisan malleability constitutes important "coping strategy" challenging assumptions of fixed bureaucratic partisan identity. Adaptive adjustments reflect "ideological pragmatism" and "serial loyalty" toward elected officials.

B Examples of Politically Motivated Senior Bureaucrat Turnover

Most of the replacement of senior bureaucrats in Norway takes place quietly. One of the few examples of a senior bureaucrat being forced out, but not leaving quietly, was Anne Marie Storli. In 2015, Storli was asked to resign as Director General of the Communication Department in the Ministry of Transport after a policy disagreement with the minister. After taking the incident public, she later stated that the decision ruined her career (Aftenposten, 2016). Another politically motivated exit that received media attention occurred after a change of government in 2001, the conservative party's Victor Norman was appointed to head the Ministry of Administration. Norman quickly clashed with the permanent secretary in the ministry, Karin Moe Røisland, who, apart from being a career bureaucrat, had also been active in local politics as a member of the socialist left party. Røisland was subsequently moved to other positions within the state administration, first returning to her position as permanent secretary after Norman's departure (Ystad, 2004).

Some senior bureaucrats in Norwegian ministries have been removed or have left in the aftermath of crises that have revealed lapses in bureaucratic organization and government attention. Notably, Karl Skjerdal was temporarily dismissed from his position as the permanent secretary in the Ministry of Industry in 1964 following a public inquiry into a mining accident—which claimed the lives of 21 miners and spawned a political crisis that ousted the Labor party government from office for 28 days—at the government operated Kings Bay mines. Skjerdal later sued the government for unlawful dismissal and won, regaining his permanent secretary position in 1966 but never properly reentered the position (Nyhamar, 1966). Similarly, after the 22 July terrorist attack in 2011, which claimed 77 lives, both the permanent secretary and the deputy permanent secretary in the Ministry of Justice were forced to resign from their positions by the new minister of Justice after reports indicated that the ministry's steering of national crisis preparedness was found to be insufficient (Johnsen & Ertesvåg, 2012).

Most of the Norwegian bureaucrats at the top two levels of the ministerial hierarchy are able to serve and be responsive to multiple ministers from different parties. Nevertheless, some of the longest lasting senior bureaucrats chose to exit their positions in the year following a change of government. For instance, Permanent Secretary Eivind Erichsen, having survived 13 changes of ministers and 7 changes of government, still decided to end his 28-year-long tenure as the highest level administrative bureaucrat in the ministry of Finance, 50 days after a change of government, with one year still left to go before reaching the mandatory retirement age (Erichsen, 1999). Similarly, on May 24th, 1935, less than three months after the ascension of the first Labor party government, the first ever permanent secretary in Norway, August Esmarch, left his position in the Ministry of Foreign Affairs.

Around 8 percent of senior bureaucrats have also held political office during their careers. While 43 percent of these senior bureaucrats were appointed by governments in which their party participated, there is limited evidence showing that partisanship could be a factor in turnover after elections (see Røisland example above). Instead, some individuals moved from political office back into senior bureaucratic positions when

their party exited government. The prominent example here is Erik Himle who spent his career revolving between senior bureaucratic and political positions. Himle started out as a career bureaucrat reaching the level of director general in the Defense Ministry in 1956 before being appointed as State Secretary for the Labor party in the same ministry (1958–1961). Until the Labor party government lost office in 1965 his political career advanced ultimately serving as the Minister for Transport (1964–1965), yet after the change of government the political opposition's trust in the neutrality of the senior bureaucracy meant that not only could he return to his permanent secretary position, he was also encouraged to do so by the new Defense Minister (Erichsen, 1999). A position he once again left for political reasons in 1971 as his party regained office and he served as State Secretary at the Prime Ministers Office (1971–1972) before spending the remainder of his career in senior bureaucratic positions retiring at the age of 70 in 1994.

C Electoral System and Types of Government

General elections are held at fixed intervals in Norway, taking place in September every four years (until 1936, they were held every three years). The electoral system changed from a system of indirect elections with plurality rule in 1814 to direct elections in single-member districts between 1906 and 1918, replaced by a multimember district closed-list proportional representation system that has been in place since 1918 (Fiva & Smith, 2017). If a change of government occurs after a general election, the norm is for the change to take place as soon as the sitting government has submitted its budget proposal for the coming year, usually by mid October. Twenty of these changes in government occurred without an election. Figure C.1 provides an overview of the types of governments and their parliamentary support. Seventy-nine percent of the governments formed have been minority governments, accounting for 54.9 percent of the days between 1884 and 2024. Furthermore, 55.9 percent of the governments have been single-party governments, accounting for 60.2 percent of the years in the period.

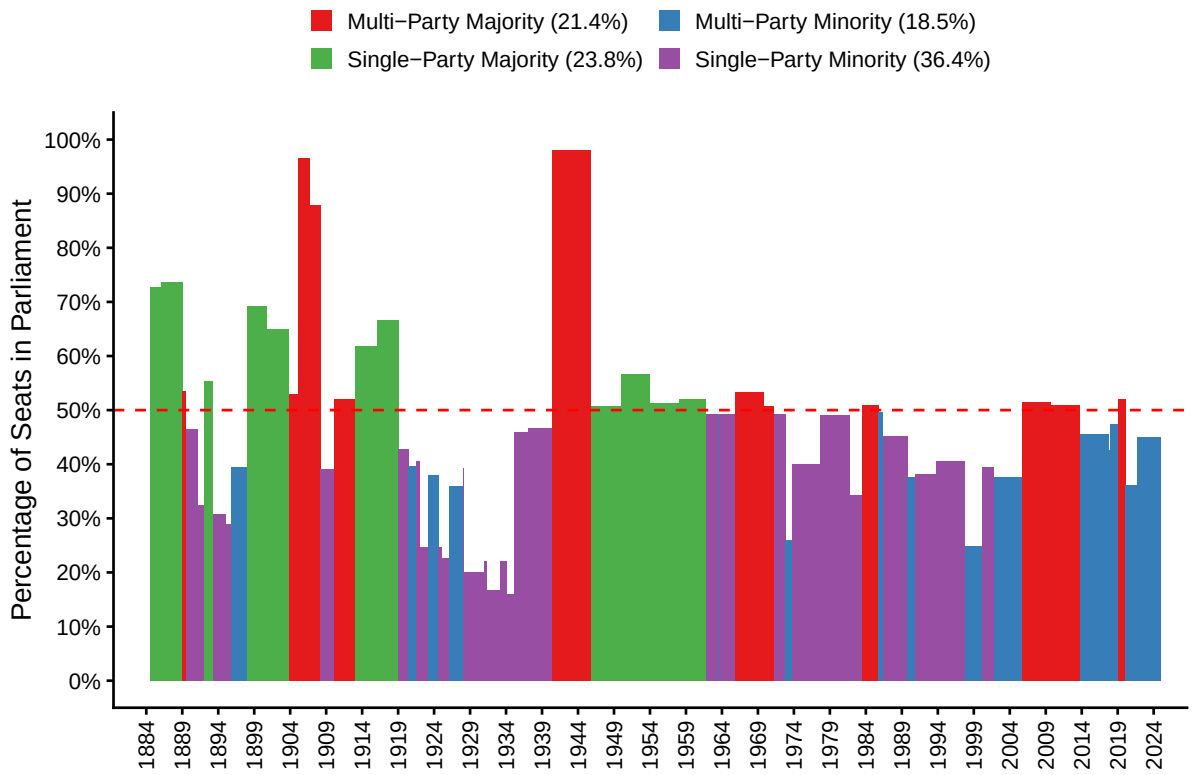

Figure C.1: Types of government in Norway 1884–2024.

D The Introduction of Secretaries and Changes of Government

Figure D.1 shows how Norway gradually introduced permanent secretaries as the highest level of senior bureaucrat in all ministries between 1922 and 1987. Politically appointed state secretaries were quickly employed in over half of the ministries following their legal introduction in 1947, and at least 1 state secretary has been employed in all ministries since the 1970s. From the figure, it is also evident that changes of government occur when a varying number of ministries employ state secretaries and permanent secretaries. This staggered rollout of these positions relative to the changes in government can be utilized to eliminate the possibility that changes in the turnover pattern of Level 1 bureaucrats are just a product of yearly trends. The staggered implementation of permanent secretaries across ministries, with 1 ministry implementing the change as early as 1922 and 25% of ministries after 1965, provides suitable variability in the number of senior bureaucrats at risk in ministries with and without permanent secretaries at different instances of change of government, making inference more robust from temporal changes.

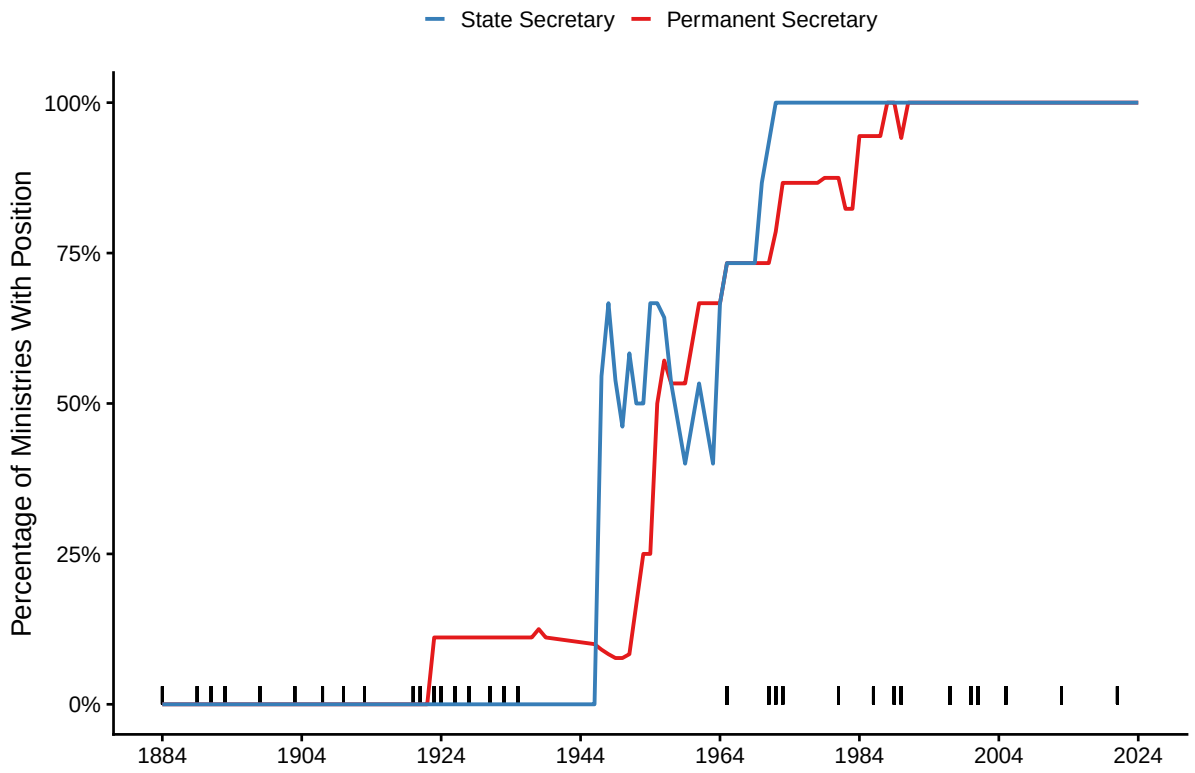

Figure D.1: The percentage of ministries employing at least 1 state secretary and/or 1 permanent secretary over time. Vertical bars on the x-axis denote years with change of government.

Figure D.2 provides stylized organizational charts for the four primary variants of political-administrative hierarchies at the top layers of Norwegian ministries 1884–2024. The names of the Level 1 and Level 2 bureaucrats, as well as the political appointee positions included in the dataset, are explicitly written in the organizational charts. The next bureaucratic layer beneath the included positions is also shown to illustrate how the hierarchies expand downwards, with more positions at each level. Note that whereas no ministry has ever employed more than one permanent secretary, the number of directors general of ministry departments varies between 1 and 9 (median = 2.1) when they are the top level bureaucrats in the ministry, and between 1 and 19 (mean = 5.7) in ministries that have introduced the permanent secretary position at Level 1. The number of state secretaries in ministries is 1–9 (mean = 1.7).

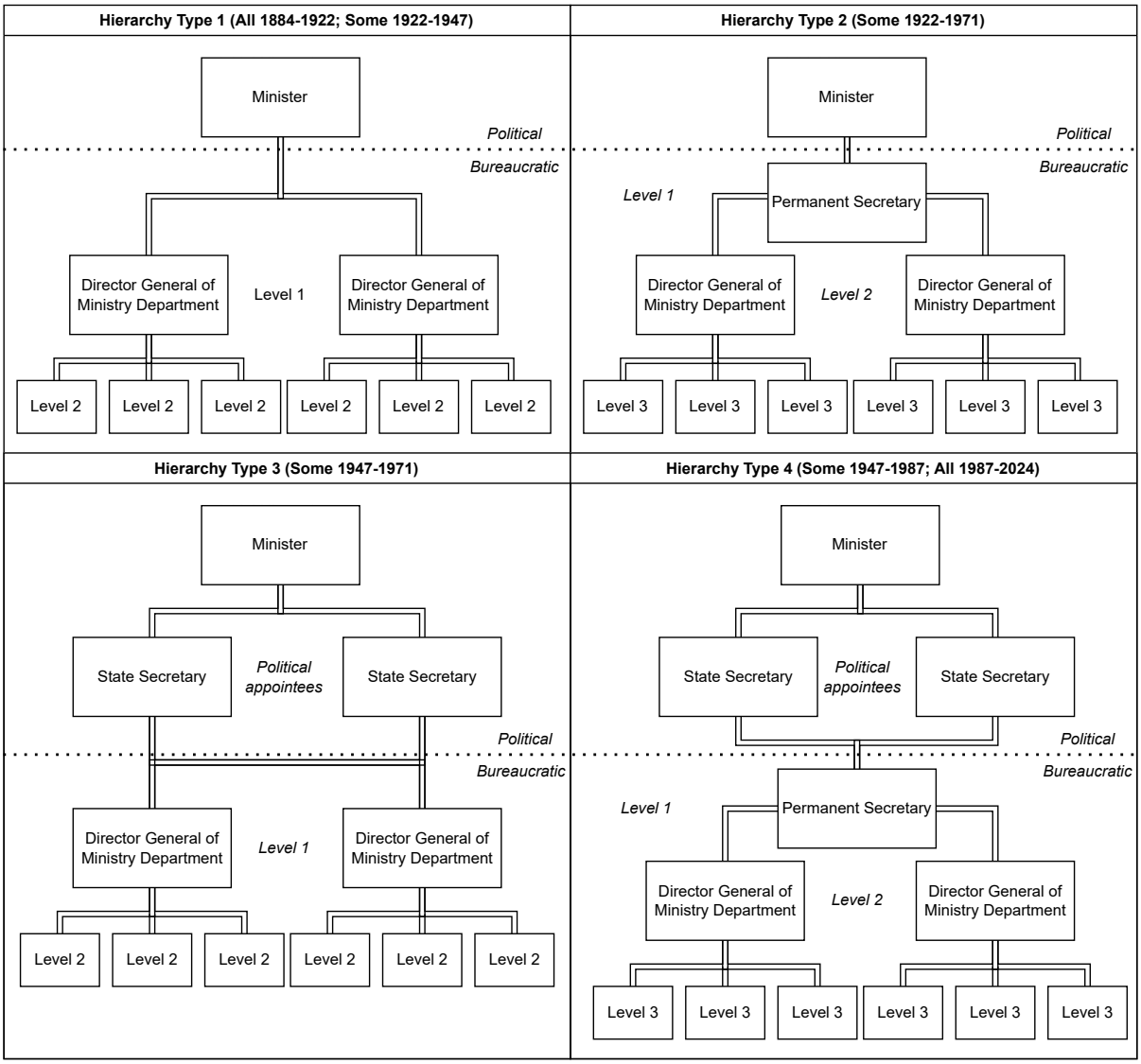

Figure D.2: Organizational charts for the four types of hierarchies at the top layers of Norwegian ministries 1884–2024.

E Descriptive Statistics

Table E.1 shows the descriptive statistics for all the variables used in the analysis for all senior bureaucrats. Table E.2 presents descriptive statistics for Level 1 bureaucrats, while Table E.3 pertains to Level 2 bureaucrats.

Table E.1: Descriptive statistics: All senior bureaucrats

Statistic	N	Mean	St. Dev.	Min	Max
Senior Bureaucrat Tenure in Years	8,690	13.665	7.839	1	36
Senior Bureaucrat Turnover	8,690	0.106	0.308	0	1
Change of Government	8,690	0.218	0.413	0	1
Bureaucratic Buffer	8,690	0.700	0.458	0	1
Political Amplifier	8,690	0.866	0.341	0	1
Election Year	8,690	0.249	0.433	0	1
Age	8,690	54.064	7.800	29	70
Gender	8,690	0.152	0.359	0	1
Temporary Appointment	8,690	0.048	0.214	0	1
Exposed to Change of Government	8,690	0.923	0.267	0	1
Ministry of Foreign Affairs	8,690	0.096	0.295	0	1
Before-1906	8,690	0.032	0.177	0	1
PM-Party's Share of Cabinet Seats	8,690	0.727	0.272	0.111	1.000
Time Since Ministry Created	8,690	69.030	59.460	0	206
Ministry Terminated	8,690	0.022	0.145	0	1

Table E.2: Descriptive statistics: Level 1 Bureaucrats

Statistic	N	Mean	St. Dev.	Min	Max
Senior Bureaucrat Tenure in Years	2,611	15.528	8.083	1	36
Senior Bureaucrat Turnover	2,611	0.091	0.287	0	1
Change of Government	2,611	0.230	0.421	0	1
Political Amplifier	2,611	0.590	0.492	0	1
Election Year	2,611	0.260	0.439	0	1
Age	2,611	54.658	8.309	30	70
Gender	2,611	0.067	0.251	0	1
Temporary Appointment	2,611	0.076	0.265	0	1
Exposed to Change of Government	2,611	0.924	0.265	0	1
Ministry of Foreign Affairs	2,611	0.046	0.210	0	1
Before-1906	2,611	0.108	0.310	0	1
PM-Party's Share of Cabinet Seats	2,611	0.813	0.263	0.111	1.000
Time Since Ministry Created	2,611	58.379	49.941	0	206
Ministry Terminated	2,611	0.016	0.127	0	1

Table E.3: Descriptive statistics: Level 2 Bureaucrats

Statistic	N	Mean	St. Dev.	Min	Max
Senior Bureaucrat Tenure in Years	6,079	12.864	7.593	1	35
Senior Bureaucrat Turnover	6,079	0.113	0.316	0	1
Change of Government	6,079	0.212	0.409	0	1
Political Amplifier	6,079	0.984	0.124	0	1
Election Year	6,079	0.245	0.430	0	1
Age	6,079	53.808	7.557	29	70
Gender	6,079	0.188	0.391	0	1
Temporary Appointment	6,079	0.037	0.188	0	1
Exposed to Change of Government	6,079	0.923	0.267	0	1
Ministry of Foreign Affairs	6,079	0.118	0.323	0	1
Before-1906	6,079	0.000	0.000	0	0
PM-Party's Share of Cabinet Seats	6,079	0.690	0.267	0.200	1.000
Time Since Ministry Created	6,079	73.605	62.558	0	206
Ministry Terminated	6,079	0.024	0.153	0	1

Figure E.1 shows the distribution of employment spell duration. The median length of an employment spell was five years. However, a significant number of employment spells also lasted more than 10 years, and the longest employment spell was 36 years. There are limited changes to the tenure of senior bureaucrats over the 140-year period. Senior bureaucrats who were appointed before 1940 had a median employment time of 7 years; between 1950 and 1980, the median rose to 8 years, whereas it has fallen to 6 years for senior bureaucrats appointed between 1980 and 2009.

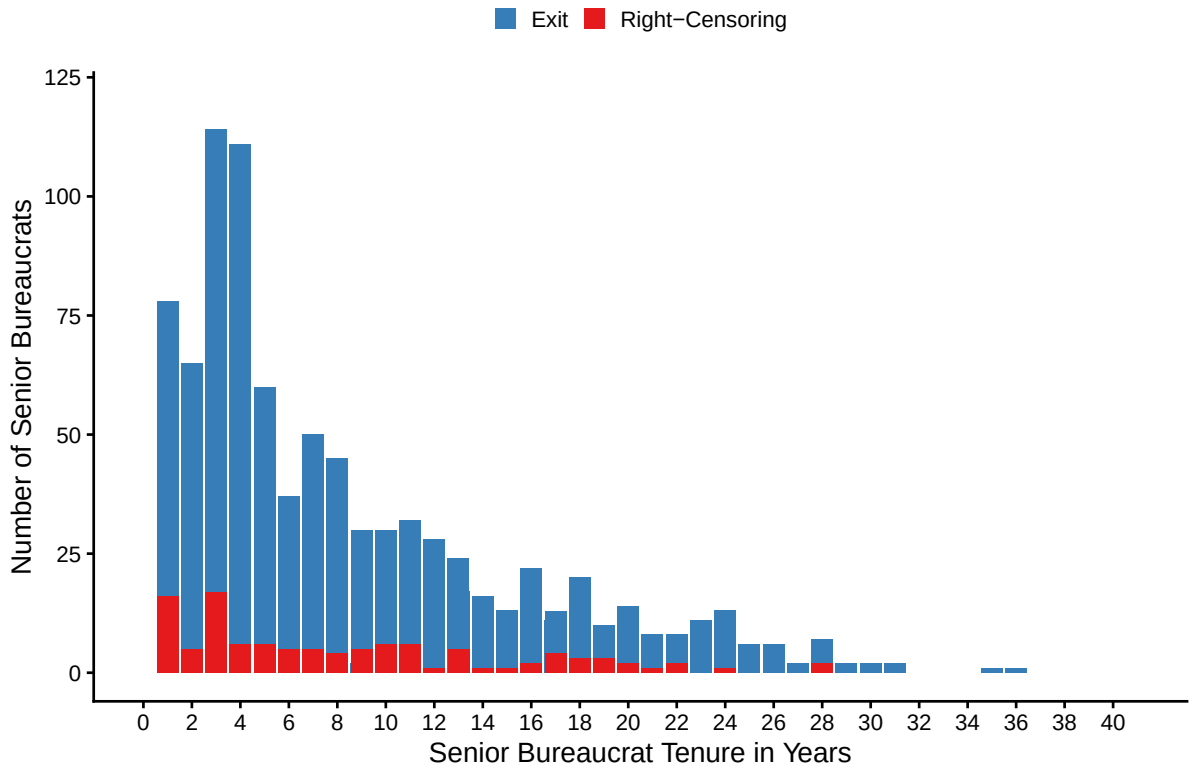

Figure E.1: The number of senior bureaucrats that exited their position at different intervals of tenure in years. For Right-censored employment spells the figure shows tenure length in years at point of censoring.

E.1 Kaplan-Meier Curves

In addition to change of government and layering, Kaplan-Meier survival curves take into account the length of employment of senior bureaucrats[6]. For senior bureaucrats without bureaucratic buffering, a growing gap in survival probability becomes visible in the survival curve when their tenure exceeds 5 years, comparing years with change of government to those without; the survival probability over their employment spell being lower in the latter case. For Level 2 bureaucrats, no such gap exists (neither with or without a political amplifier). When it comes to the effect of political layering, the results run opposite, with a higher survival probability for Level 1 bureaucrats in years with a change of government, when they have between 4 and 8 years of tenure and no political amplifier.

[6]Calculated for each employment spell time t with an instance of senior bureaucrat turnover in the change of government and organizational buffer group, as a product of the proportion of all senior bureaucrats that were at risk and not dismissed at time t and the survival proportion at times $t_i < t$. Therefore, the combination of people that make up each group at each time of the employment spell t will vary, as a Level 1 bureaucrat in a year with change of government $t = 1$ will not be in this group in $t = 2$ if there is no change of government at that time, but may be so again at a later point in their employment spell $t = i$. This implies that the estimated survival curve is only a product of the observed turnover proportion in a group at time $t_i < t$ and not affected by different senior bureaucrats entering and exiting the group without an event, nor by right-censored employment spells.

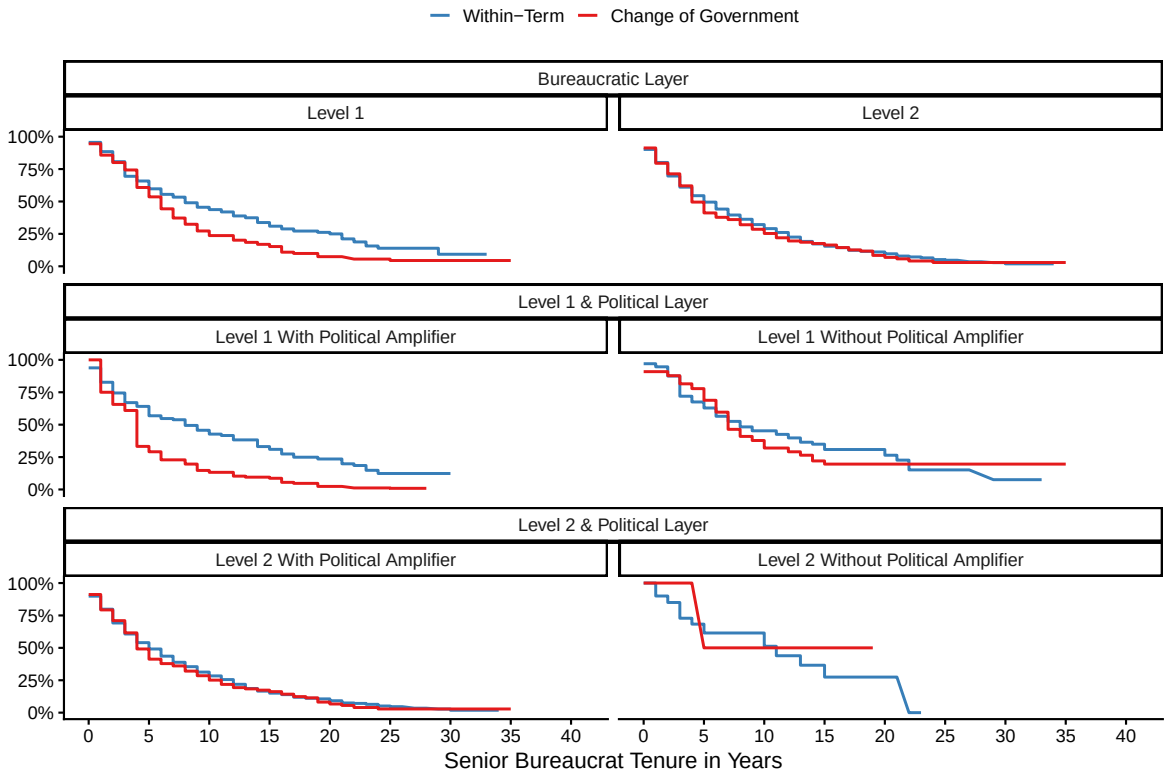

Figure E.2: Kaplan-Meier survival curves for senior bureaucrats in years with vs. without change of government, subset by bureaucratic and political buffering.

F Robustness Tests

A number of robustness tests were conducted to assess the sensitivity of the primary results to various model specifications and to explore effect heterogeneity.

F.1 Stepwise Introduction of Control Variables

The sensitivity of the marginal effects reported in Figure 5 to the inclusion of the control variable and fixed effects is examined in Figure F.1. The control variables are included to purge omitted variable bias because these factors may confound the marginal effect of a change in government under different configurations of organizational layering and senior bureaucrat turnover. However, it is still worthwhile to assess the stepwise inclusion of these controls, as unexpected changes in estimates or confidence intervals from their inclusion may point towards the model being misspecified or variables not being measured correctly. The figure shows that the direction and inferences about the statistical significance of the marginal effects for the four groups of senior bureaucrats are unaffected by the inclusion and exclusion of specific control variables.

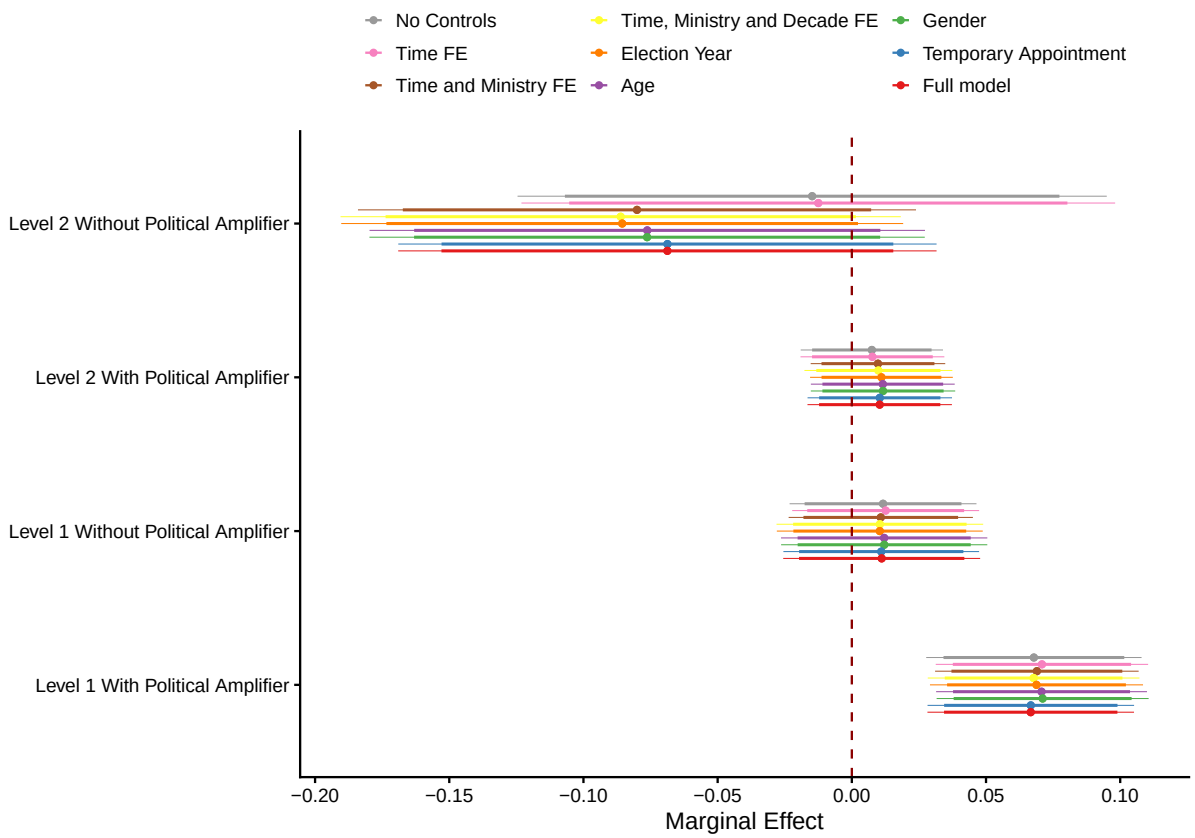

Figure F.1: Marginal effects with 95% (small stroke width) and 90% (big stroke width) confidence bands for the marginal effect of change of government on senior bureaucrat turnover. When control variables are introduced stepwise from no controls to the full model in Table 1.

F.2 Alternative Estimators

To verify that the outcomes are not contingent on the choice of estimator, the models have been recalculated using two different estimators common in event-history analyses of senior bureaucrat careers: Cox proportional hazards regression (Askim et al., 2022; Christensen et al., 2014; Cox, 1972; Dahlström & Holmgren, 2019; Fleischer, 2016; Petrovsky et al., 2017) and conditional logistic regression with time splines (Carter & Signorino, 2010; Cooper, 2020). Altering the estimator does not affect the direction of the marginal effects or their statistical significance (see Figure F.2).

As can be gleaned from Figure F.2 re-estimating the main regression models with Cox regression does not change the direction of the effects nor their level of significance, neither does logistic regression with time splines instead of fixed effects for spell year. The marginal effect of change of government is robustly positive and significant at $p < 0.05$ across alternative estimators for Level 1 bureaucrats with a political amplifier, and it is not significant for Level 2 bureaucrats and Level 1 bureaucrats without a political amplifier.

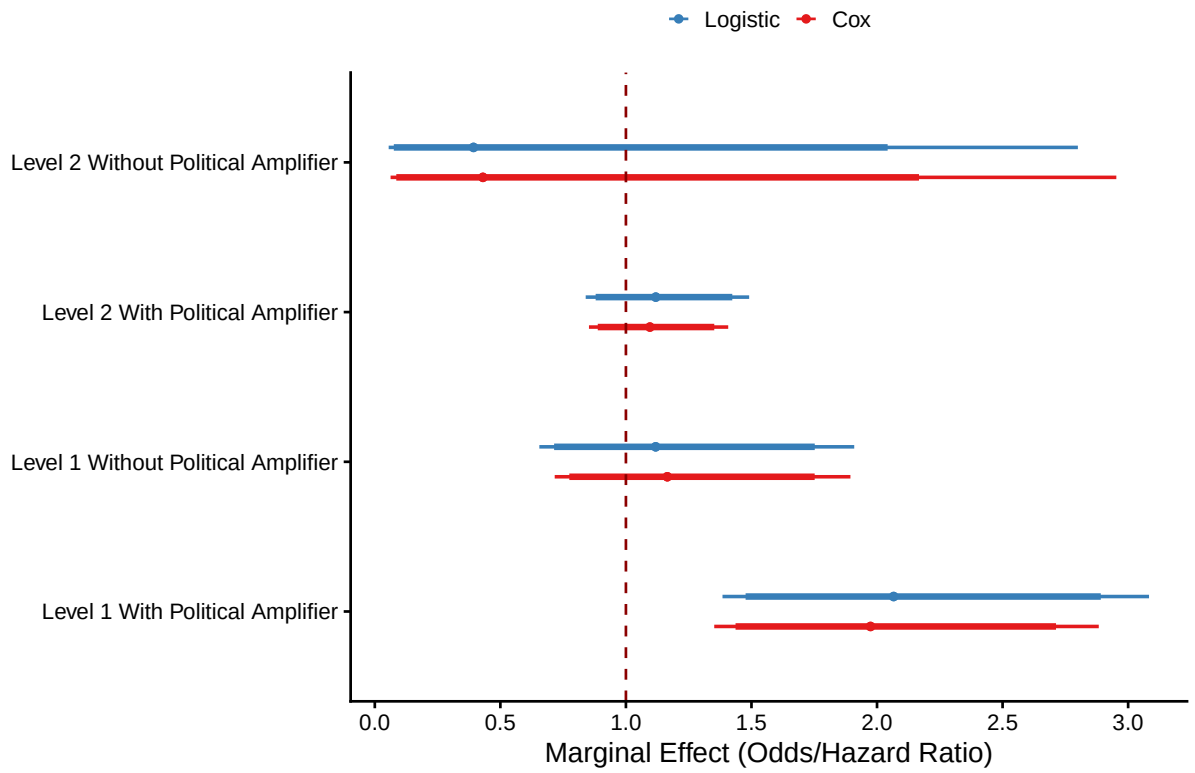

Figure F.2: Hazard/Odds ratios with 95% (small stroke width) and 90% (big stroke width) confidence bands for the marginal effect of change of government when estimating the effect with alternative estimators. Both Hazard ratios and Odds ratios can range from $0 \rightarrow \infty$, with the value 1 indicating no difference in Odds/hazard. Values below 1 indicate a negative effect with a decrease in the chance for bureaucrat turnover in years with change of government compared to years without (all else equal). Conversely, values above 1 indicate a positive effect and an increase in the probability of bureaucratic turnover.

Performing the significance tests with standard errors that are clustered on the ministry within which an employment spell is located in a given year, to adjust for ministry-specific heterogeneity a choice that Cooper (2020) and Dahlström and Holmgren (2019) make, does not change the results. Similarly, adjusting for individual-level heterogeneity not captured by the controls, such as some individuals having multiple employment spells, by clustering the standard errors on the individual also does not change the findings.

F.3 Alternative Dependent Variables

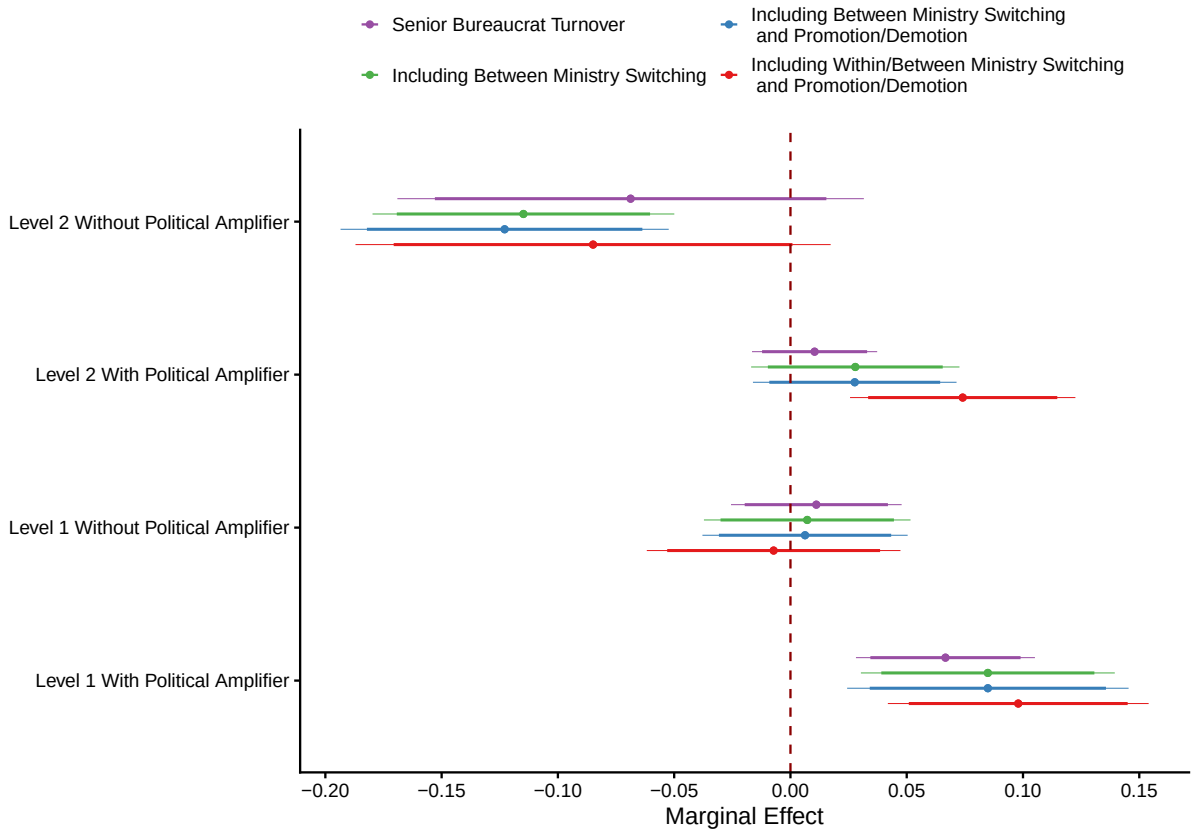

Figure F.3: Marginal effects with 95% (small stroke width) and 90% (big stroke width) confidence bands for the marginal effect of change of government on alternative specifications of the dependent variable: senior bureaucrat turnover.

What happens when different operationalizations of employment spells are considered? Figure F.3 shows how the main result reported in Figure 5 (labeled "senior bureaucrat turnover") changes when senior bureaucrats' movements to other senior bureaucrat positions are included in the operationalization of senior bureaucrat turnover. The main results for Level 1 bureaucrats with and without political amplifier remain unchanged across all operationalizations. In the context of bureaucratic buffering, once the measurement of senior bureaucrat turnover incorporates transitions between ministries and levels, the negative estimate for Level 2 bureaucrats without political amplification turns statistically significant ($p < 0.05$), however this estimate is very uncertain and loses statistical significance when within ministry switching is included in the dependent variable.

The difference between the marginal effects of Level 1 and Level 2 bureaucrats (with political amplifier) becomes less pronounced, but it is still only the Level 1 bureaucrats that have a statistically significant ($p < 0.05$) higher probability of turnover after a change of government unless within ministry switching is considered in the turnover measure. In the final model where not only senior bureaucrats moving to a different ministry and promotions/demotions are considered as turnover, but also Level 2 bureaucrats being shuffled into new de-

partments within the same ministry, change of government also has a positive effect on the turnover of Level 2 bureaucrats that is significant at $p < 0.05$. This phenomenon may largely be attributed to the fact that governmental changes often lead to ministry structures being renamed or reorganized (Fleischer, Bezes, James, & Yesilkagit, 2023; Fleischer, Bezes, & Yesilkagit, 2023). Ministerial reorganization is a legitimate way for new governments to express and pursue their policy preferences once they reach office (Fleischer, Bezes, James, & Yesilkagit, 2023). Consequently, Level 2 incumbents might continue their tenure within a different ministry department post-government change. In a political control perspective, such reorganizations can also be a less visible way to temporarily remove or neutralize unwanted senior bureaucrats by shuffling them into departments that are less crucial to the new government's policy agenda (Lewis, 2008). In other words, whereas senior bureaucrats further away from the political leadership in merit bureaucracies may be buffered from exiting their positions at higher rates after a change in government, their positions may be subject to more subtle forms of political dynamics for political principals to increase their control.

F.4 Additional Mediator Variables

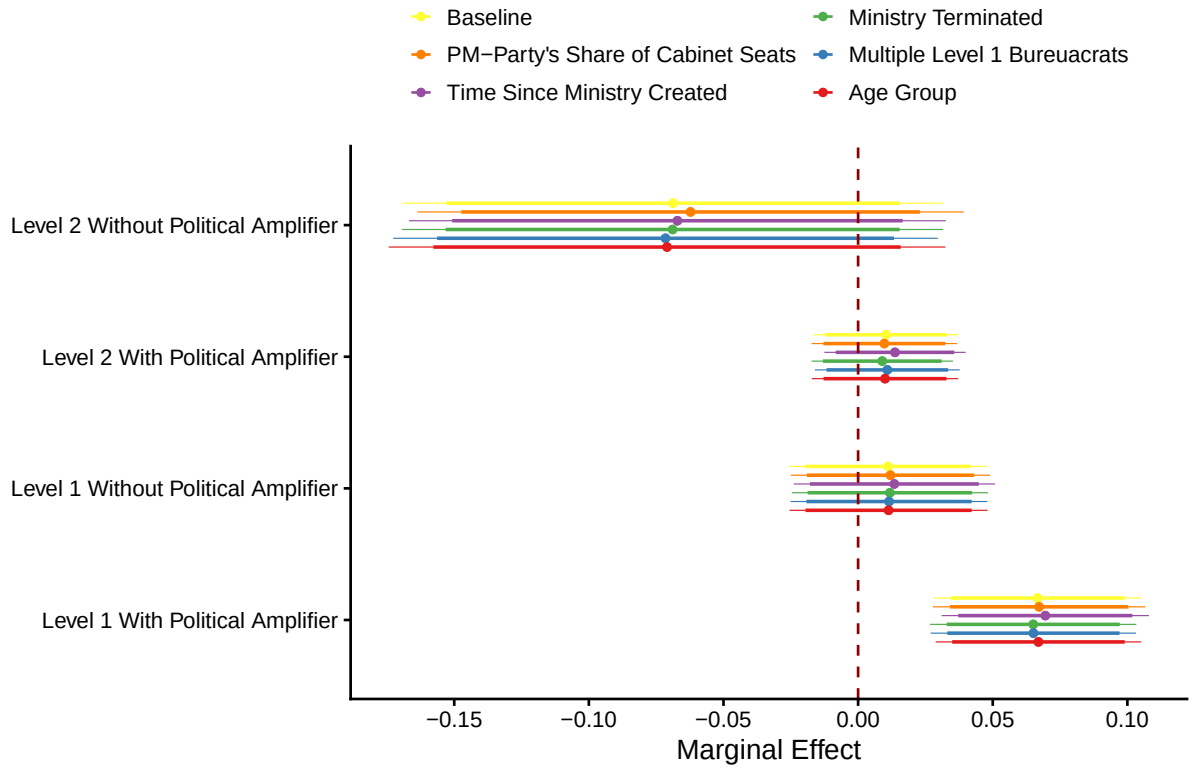

Figure F.4: Marginal effects with 95% (small stroke width) and 90% (big stroke width) confidence bands for the marginal effect of change of government, When additional mediator variables are added to the models in Table 1 (labeled "Baseline").

The study covers 140 years, so it is reasonable to ask if the findings are robust to the inclusion of additional mediator variables that consider heterogeneity within ministerial contexts over time. Figure F.4 shows that

this is the case when including 5 variables that have been considered influential on the political dynamics of senior bureaucrat turnover by previous research.

First, a government's ability to politicize senior bureaucrat turnover may vary with its party composition, as coalition governments will have more heterogeneous preferences (Dahlstrom & Niklasson, 2013). Do marginal effects differ between single-party and fragmented coalition governments? Controlling for the percentage of cabinet portfolios that are in the hands of the prime minister's party and thus the type of government does not alter results.

Secondly, Governments' preferences for organizational control can shift with their degree of institutionalization (Cooper, 2017; Ennser-Jedenastik, 2016a). Introducing a variable that increments by one for every year since the ministry's founding does not affect the results. Similarly, excluding senior bureaucrat turnover caused by ministerial termination, by controlling for a year being the last year that a ministry existed does not significantly alter the results.

Third, the instrumental value of politicizing senior bureaucrat turnover to ministers operating under meritocratic restraints may not only be impacted by the hierarchical placement and functional politicization of the senior bureaucrat position, but also by the degree of fragmentation of power within the same hierarchical level (Christensen & Opstrup, 2018). The political control benefit of interfering in the staffing of Level 1 bureaucrats after a change in government may thus be higher when the hierarchical authority of the ministry is condensed in one Level 1 bureaucrat, instead of being spread between multiple Level 1 bureaucrats. However, controlling for the existence of multiple Level 1 bureaucrats within a ministry does not change the fact that governments are only more likely to replace Level 1 bureaucrats when the ministry also employs political appointees.

F.5 The Introduction of Permanent Secretaries an Event Study

Is it the implementation of permanent secretaries at the top of the ministerial hierarchy that drives the moderating effect of bureaucratic buffering by being a more functionally politicized position? Or is it just a symptom of the relationship between change of government and Level 1 bureaucrat turnover being more politicized in the last half-century (Peters & Pierre, 2004)? The staggered implementation of permanent secretaries across ministries between 1922 and 1987, with 25 percent of ministries implementing permanent secretaries after 1965, provides suitable variability in the number of senior bureaucrats at risk in ministries with and without permanent secretaries at different instances of change of government, enabling inference that is robust from within-year factors possibly affecting turnover in both groups.

Grouping years of observations into time periods of fifteen to twenty years relative to the year ministries implemented permanent secretaries, the difference in the marginal effect of change of government on the turnover of directors general in the periods before and directly after receiving bureaucratic buffering can be investigated.[7] Likewise, the marginal effects for directors general at Level 1 can be compared with those of the

[7] Limited statistical power results in the need to group observations. Grouping the observations also allows for the assessment of the

new permanent secretary positions.

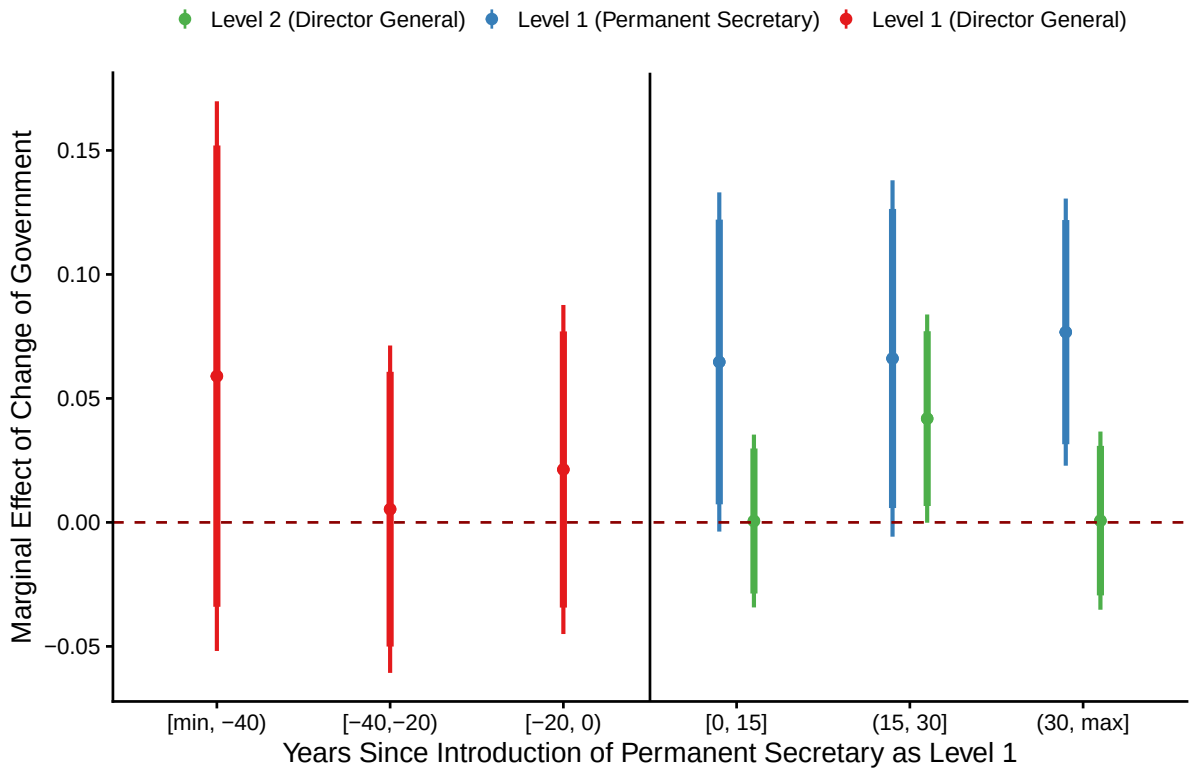

Figure F.5: Event study estimates with 95% (small stroke width) and 90% (big stroke width) confidence bands of the changing marginal effect of change of government on bureaucratic turnover in three periods before and after the introduction of permanent secretaries as the only Level 1 bureaucrat in a ministry; distinguishing between the effect on old and new Level 1 bureaucrats, and Level 1 bureaucrats that are moved down to Level 2. Observations in ministries that never introduced the position of permanent secretary before being terminated are excluded from the model (N = 222). The X-axis shows the time intervals in number of years relative to the introduction of permanent secretaries in a ministry. For instance, the interval *[-20, 0)* includes all bureaucrat–year observations in the interval of twenty years to one year before a permanent secretary is appointed for the first time in their ministry (N = 511), and *[0, 15]* all bureaucrat–year observations in the first fifteen years after a permanent secretary is appointed. Each bureaucrat-type-interval has at least 200 observations total; with 55–596 of these observations being from years with change of government. Min(year) = −77 and max(year) = 101. Standard errors clustered on ministry.

The event study results are displayed in Figure F.5. This figure shows that the marginal effect of a change of government on the turnover probability of Level 1 bureaucrats only has a positive effect that is significant at conventional levels when the permanent secretary positions become the Level 1 position in the ministry. A change of government increases the turnover probability of permanent secretaries by about 6.54 percentage points ($p = 0.059$) in the first fifteen years after the position is introduced at Level 1 in a ministry. This effect remains positive and statistically significant at $p < 0.1$ in ministries that have had a permanent secretary for fifteen to thirty years and in ministries where more than thirty years have passed since the introduction of the position.

When directors general were the highest-level bureaucrats in the ministries, their turnover rates did not

effect of bureaucratic buffering in the short, medium, and long term on both the Level 1 and Level 2 bureaucrats.

significantly vary with changes of government. For Level 2 bureaucrats, the marginal effect of change of government is close to zero and insignificant in the short term after the introduction of a permanent secretary as an organizational buffer and in the long term. In the intermediate time interval of fifteen to thirty years after the introduction of the organizational buffer, change of government appears to have a positive effect of 4.2 percentage points (significant at $p < 0.05$) on the turnover probability of Level 2 bureaucrats. One possible explanation is that adding an extra layer between senior bureaucrats and the political level does not promptly trigger the departure of demoted bureaucrats. However, it can influence directors general to consider strategic exits following a government change in the medium term. This has also been found to be the case when layering is deliberately used as a politicization technique to get rid of unwanted bureaucrats (Lewis, 2008).

F.6 Do Permanent Secretaries Experience Heightened Turnover Without Subjection to Political Layers?

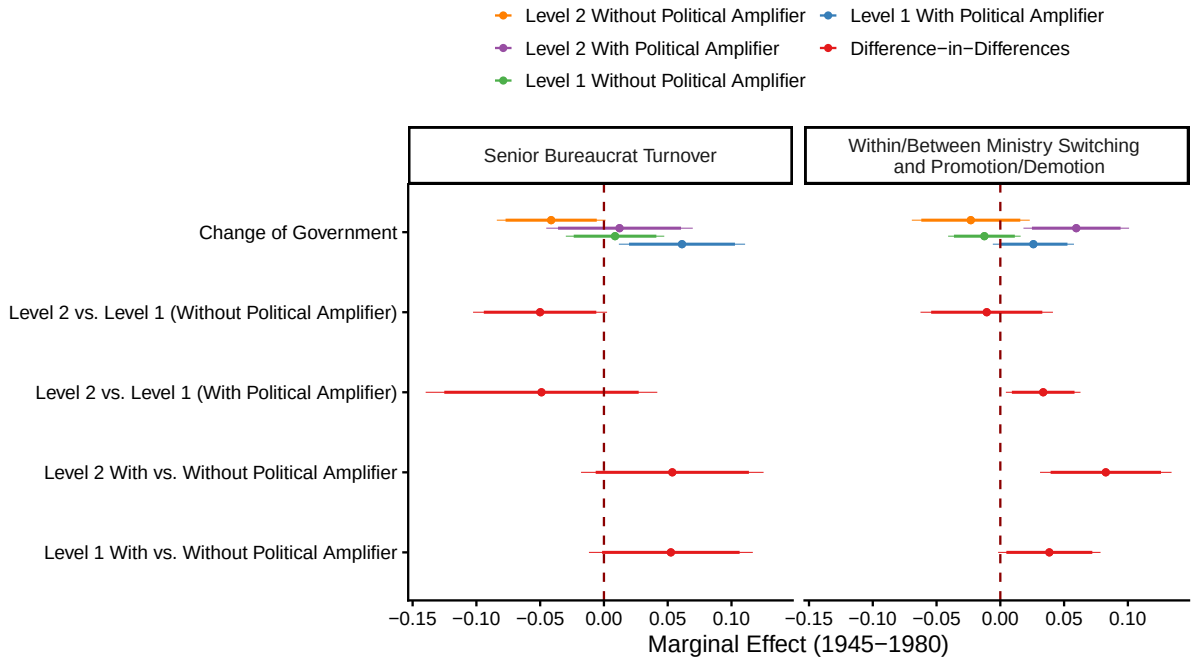

Figure F.6: Marginal effects of change of government on bureaucratic turnover probability conditional on layering in the 1945–1980 period obtained from predictions using OLS models with fixed effects for tenure year, decade, and ministry, and a vector of control variables.

Figure F.6 shows marginal effects of change of government when estimating the full model from Table 1 only in the 1945 to 1980 period. For Level 2 bureaucrats the risk of being reshuffled after a change of government is positive and statistically significant only when subject to a political amplifier. For Level 1 bureaucrats, the estimates in Figure F.6 indicate that the effect of a change in government first gains statistical significance in the 1945–1980 period when they become subordinates of a layer of political appointees. This shows that administrative politicization is a necessary condition for politically induced senior bureaucrat turnover.

Figure F.7 shows marginal effects of change of government when estimating the full model only on either the Director General or the Permanent Secretary type of bureaucrat. The figure shows that change of government only has a significant and positive effect on permanent secretary turnover when the ministry also employs political appointees. However, the estimate for permanent secretaries without political appointees is also positive, but highly uncertain and not significant at conventional p-levels. This is likely due to few observations of permanent secretaries in ministries without political appointees in years with government turnover, as only the ministry of Foreign Affairs had a permanent secretary for the seven changes of government in the 1922–1945 period, and only one more change of government occurred in the post-1945 period before every ministry with a permanent secretary also employed political state secretaries. Furthermore,

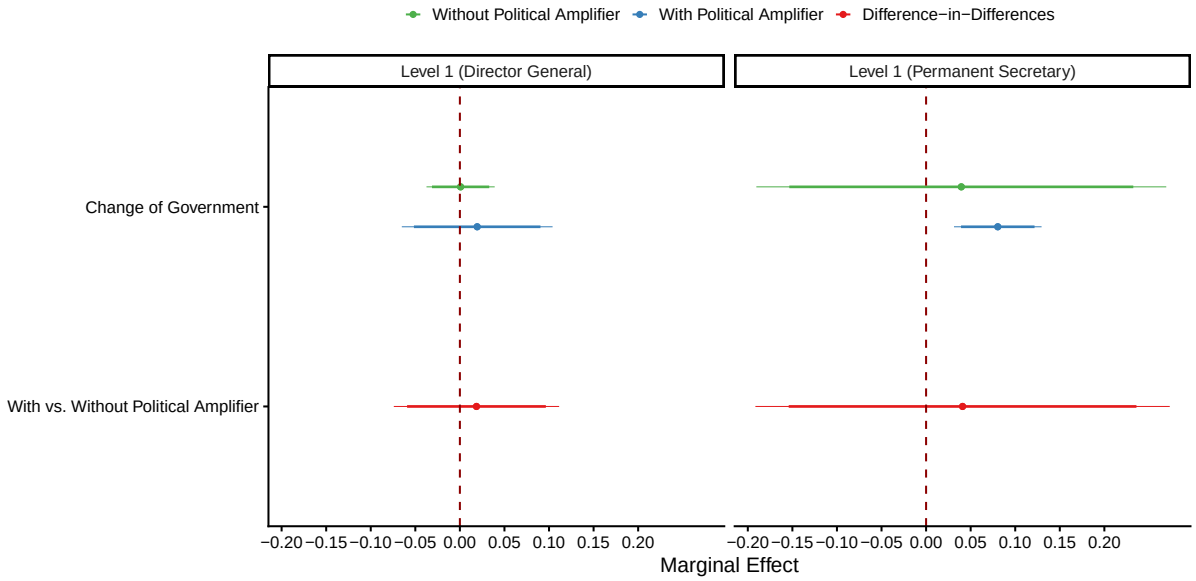

Figure F.7: Marginal effects of change of government on bureaucratic turnover probability conditional on political layering for permanent secretaries obtained from predictions using OLS models with fixed effects for tenure year, decade, and ministry, and a vector of control variables.

From this, we can conclude that the evidence in the Norwegian case points towards both the amplification of the political employment environment through political appointees and the functional politicization of the highest level bureaucrat in the ministries (the introduction of the permanent secretaries) as necessary conditions for senior bureaucratic turnover to be affected by changes in government. We can however, not rule out that either mechanism would have been sufficient on its own due to the limited time frame without overlap in introduction.

F.7 Types of Government Transitions and Senior Bureaucrat Turnover

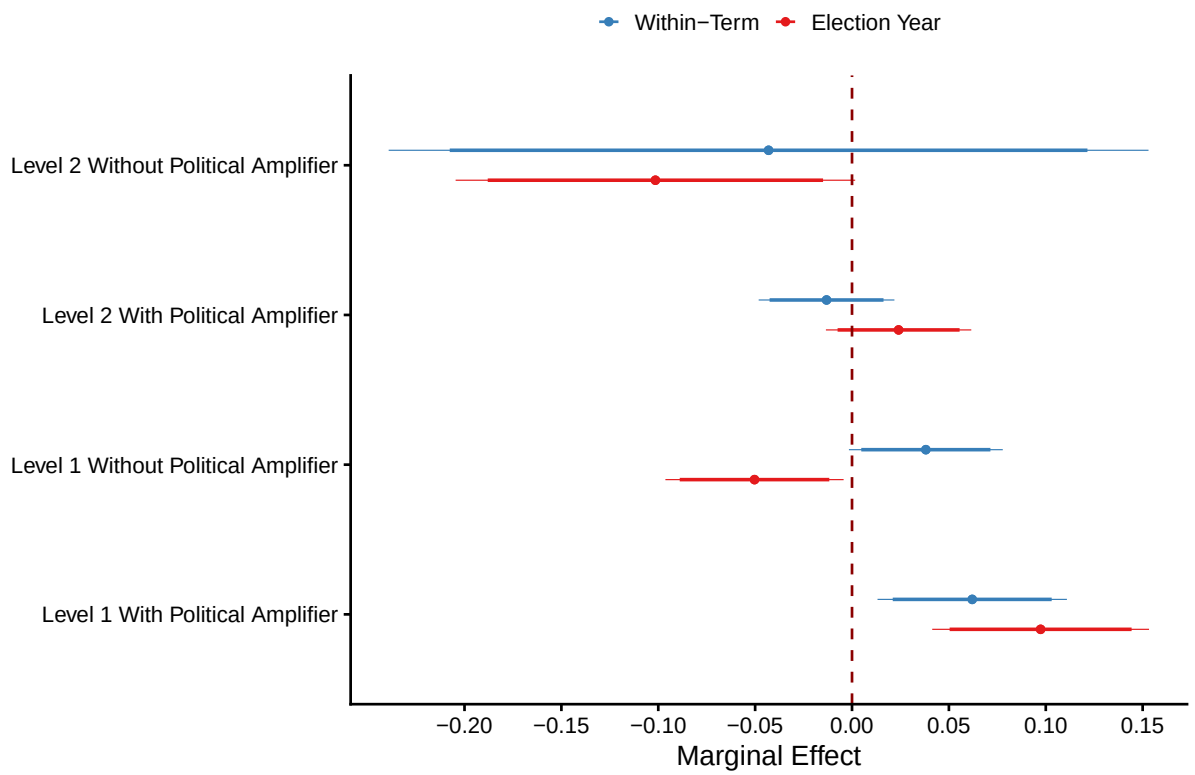

Figure F.8: Marginal effects of change of government on bureaucratic turnover probability conditional on layering and elections obtained from predictions using OLS models with fixed effects for tenure year, decade, and ministry, and a vector of control variables.

Do all changes of government have the same effect on senior bureaucrat turnover, or do patterns differ depending on the reason for government termination? The results presented in Figure F.8 approach this question by comparing the marginal effects of a change of government on bureaucratic turnover for Level 1 and Level 2 bureaucrats (with and without political layering) between election-induced and within-term government transitions. Norway's fixed election schedule allows bureaucrats to plan exits around predictable electoral changes, while unexpected coalition breakdowns are more difficult to plan careers around. Senior bureaucrats will have more information about the possibility of a change of government when it is triggered by a parliamentary election. Senior bureaucrats may, with this knowledge, plan their careers strategically around elections. They may view the end of an electoral term as a natural point to seek new job opportunities if the government is replaced. Senior bureaucrats may thus leave their positions anticipating a change to an ideologically opposed government after an election (Dahlström & Holmgren, 2019).

Looking at the difference in marginal effects of change of government conditional on elections for Level 2 bureaucrats subject to a political amplifier, the results presented in Figure F.8 show that the marginal effect of a change of government on bureaucratic turnover is only positive following an election. However, this effect is not significant at $p < 0.1$. Conversely, when the change of government occurs due to within-term coali-

tion breakdown, the estimate is negative but also not significant at conventional levels for Level 2 bureaucrats. When Level 2 bureaucrats are not employed in ministries with political layering, the negative marginal effect of change of government becomes statistically significant at $p < 0.05$. Similarly, for Level 1 bureaucrats without political amplification, change of government also significantly reduces the probability of turnover when government transitions are triggered by elections. This suggests that if the mechanism is career planning around elections, senior bureaucrats are unable to act on these incentives during government transitions in the absence of a layer of political appointees to aid in the transition. However, a complementary explanation is that ministers show restraint in replacing Level 1 bureaucrats due to their transitional importance when not aided by political appointees.

For Level 1 bureaucrats with a political amplifier, the estimated effect of a change of government in election years and within-term is positive and statistically significant at $p < 0.05$. The effect of within-term changes of government is lower than that of election induced changes of government, but it is not statistically significant at conventional p-values. Interestingly, even in the absence of a political amplifier, the marginal effect on Level 1 bureaucrat turnover is positive and significant at $p < 0.1$ when governments are replaced within-term. A potential explanation for this is that the preferences of new ministers regarding the replacement of senior bureaucrats could be expected to be higher for governments that come to power due to coalition breakdown. New governments may view the performance or actions of the bureaucracy as part of the reason for the within-term breakdown of the government, thus being willing to replace the most important bureaucrats even though it might hurt the efficiency with which they can transition. However, these senior bureaucrats may also want to leave their positions of their own accord if they think their actions contributed to government termination. While these findings provide some evidence that the increased Level 1 bureaucrat turnover following changes of government cannot be explained purely by the actions of bureaucrats, more research is needed to rule out alternative explanations.

G Regression Tables

This appendix section presents the complete regression tables for the models used to produce the marginal effects reported in the analysis.

Table G.1: Stepwise OLS regression results for bureaucratic layering:

	Dependent Variable: Turnover of senior bureaucrat								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	0.072								
	(0.007) ***								
Change of Government	0.035	0.037	0.036	0.040	0.040	0.042	0.042	0.039	0.039
	(0.015) *	(0.015) *	(0.014) *	(0.015) **	(0.014) **	(0.014) **	(0.014) **	(0.014) **	(0.014) **
Bureaucratic Buffer	0.038	0.038	0.024	0.017	0.017	0.023	0.023	0.023	0.023
	(0.007) ***	(0.007) ***	(0.008) **	(0.009) +	(0.009) +	(0.009) *	(0.009) *	(0.009) *	(0.009) *
Change of Government × Bureaucratic Buffer	-0.027	-0.029	-0.028	-0.032	-0.032	-0.033	-0.033	-0.031	-0.031
	(0.019)	(0.020)	(0.019)	(0.020)	(0.019)	(0.019) +	(0.019) +	(0.019)	(0.019)
Election Year			-0.001		0.001	0.001	0.001	0.002	0.002
			(0.008)		(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Age						0.003	0.003	0.004	0.004
						(0.001) ***	(0.001) ***	(0.001) ***	(0.001) ***
Gender							0.015	0.011	0.011
							(0.011)	(0.010)	(0.010)
Temporary Appointment								0.264	0.264
								(0.027) ***	(0.027) ***
Before-1906									0.014
									(0.048)
FE: Time		X	X	X	X	X	X	X	X
FE: Ministry			X	X	X	X	X	X	X
FE: Decade				X	X	X	X	X	X
N	8501	8501	8501	8501	8501	8501	8501	8501	8501
R2	0.00	0.01	0.04	0.04	0.04	0.04	0.05	0.07	0.07

Note: OLS estimates with robust standard errors clustered on year reported in brackets. Model 9 is equal to the bureaucratic layering model reported in Table 1.

+=.1, *=.05, **=.01, ***=0.001

Table G.2: Stepwise OLS regression results for political layering:

	Dependent Variable: Turnover of senior bureaucrat								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	0.068								
	(0.008) ***								
Change of Government	0.012	0.013	0.009	0.006	0.005	0.006	0.006	0.006	0.006
	(0.018)	(0.018)	(0.017)	(0.020)	(0.019)	(0.019)	(0.019)	(0.019)	(0.018)
Political Amplifier	0.007	0.007	0.015	0.016	0.016	0.016	0.016	0.018	0.018
	(0.012)	(0.012)	(0.015)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)
Change of Government × Political Amplifier	0.056	0.058	0.065	0.057	0.068	0.067	0.068	0.065	0.065
	(0.027) *	(0.026) *	(0.026) *	(0.030) +	(0.029) *	(0.029) *	(0.029) *	(0.028) *	(0.028) *
Election Year			-0.018		-0.020	-0.021	-0.021	-0.020	-0.020
			(0.011) +		(0.011) +	(0.011) +	(0.011) +	(0.011) +	(0.011) +
Age						0.001	0.001	0.002	0.002
						(0.001)	(0.001)	(0.001)	(0.001)
Gender							0.007	-0.009	-0.009
							(0.040)	(0.040)	(0.040)
Temporary Appointment								0.145	0.145
								(0.038) ***	(0.038) ***
Before-1906									-0.005
									(0.047)
FE: Time		X	X	X	X	X	X	X	X
FE: Ministry			X	X	X	X	X	X	X
FE: Decade				X	X	X	X	X	X
N	2484	2479	2476	2476	2476	2476	2476	2476	2476
R2	0.01	0.02	0.05	0.06	0.06	0.06	0.06	0.08	0.08

Note: OLS estimates with robust standard errors clustered on year reported in brackets. Model 9 is equal to the political layering model reported in Table 1.

+=.1, *=.05, **=.01, ***=0.001

Table G.3: Stepwise OLS regression results for political layering:

	Dependent Variable: Turnover of senior bureaucrat								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	0.067								
	(0.020) ***								
Change of Government	-0.015	-0.015	-0.080	-0.080	-0.013	-0.016	-0.010	-0.009	-0.008
	(0.056)	(0.058)	(0.054)	(0.053)	(0.043)	(0.044)	(0.044)	(0.044)	(0.045)
Political Amplifier	0.044	0.044	0.041	0.042	0.020	0.020	0.024	0.023	0.012
	(0.021) *	(0.021) *	(0.022) +	(0.021) *	(0.028)	(0.028)	(0.029)	(0.029)	(0.026)
Change of Government × Political Amplifier	0.022	0.021	0.087	0.087	0.025	0.024	0.019	0.019	0.016
	(0.057)	(0.058)	(0.055)	(0.054)	(0.045)	(0.045)	(0.045)	(0.045)	(0.046)
Election Year		0.004	0.004	0.006		0.006	0.006	0.006	0.008
		(0.010)	(0.009)	(0.009)		(0.010)	(0.010)	(0.010)	(0.010)
Age			0.004	0.004			0.004	0.004	0.004
			(0.001) ***	(0.001) ***			(0.001) ***	(0.001) ***	(0.001) ***
Gender			0.016	0.015				0.019	0.015
			(0.010)	(0.010)				(0.012) +	(0.011)
Temporary Appointment				0.332					0.333
				(0.037) ***					(0.037) ***
FE: Time		X	X	X	X	X	X	X	X
FE: Ministry			X	X	X	X	X	X	X
FE: Decade					X	X	X	X	X
N	6017	6013	6013	6013	6013	6013	6013	6013	6013
R2	0.00	0.00	0.04	0.08	0.04	0.04	0.05	0.05	0.08

Note: OLS estimates with robust standard errors clustered on year reported in brackets. Model 9 is equal to the political layering model reported in Table 1.

+=.1, *=.05, **=.01, ***=0.001

Table G.4: Stepwise OLS regression results for full model:

	Dependent Variable: Turnover of senior bureaucrat								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	0.068								
	(0.008) ***								
Change of Government	0.012	0.013	0.011	0.010	0.010	0.012	0.012	0.011	0.011
	(0.018)	(0.018)	(0.018)	(0.020)	(0.020)	(0.020)	(0.020)	(0.019)	(0.019)
Bureaucratic Buffer	-0.000	-0.001	-0.028	-0.001	-0.001	0.000	0.000	0.007	0.007
	(0.021)	(0.021)	(0.021)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)
Political Amplifier	0.007	0.007	-0.001	0.007	0.007	0.006	0.005	0.004	0.004
	(0.012)	(0.012)	(0.013)	(0.020)	(0.020)	(0.020)	(0.020)	(0.019)	(0.019)
Change of Government × Bureaucratic Buffer	-0.026	-0.025	-0.091	-0.097	-0.096	-0.088	-0.088	-0.080	-0.080
	(0.059)	(0.059)	(0.056)	(0.056) +	(0.056) +	(0.056)	(0.056)	(0.054)	(0.054)
Change of Government × Political Amplifier	0.056	0.058	0.058	0.057	0.058	0.059	0.059	0.056	0.056
	(0.027) *	(0.027) *	(0.026) *	(0.028) *	(0.028) *	(0.028) *	(0.028) *	(0.027) *	(0.027) *
Bureaucratic Buffer × Political Amplifier	0.036	0.037	0.056	0.026	0.026	0.031	0.031	0.023	0.023
	(0.025)	(0.025)	(0.026) *	(0.029)	(0.029)	(0.029)	(0.029)	(0.028)	(0.028)
Change of Government × Bureaucratic Buffer × Political Amplifier	-0.034	-0.038	0.032	0.039	0.038	0.029	0.029	0.023	0.024
	(0.065)	(0.065)	(0.061)	(0.061)	(0.061)	(0.061)	(0.061)	(0.058)	(0.058)
Election Year			-0.003		-0.002	-0.002	-0.002	-0.001	-0.001
			(0.007)		(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Age						0.003	0.003	0.004	0.004
						(0.001) ***	(0.001) ***	(0.001) ***	(0.001) ***
Gender							0.015	0.011	0.011
							(0.011)	(0.010)	(0.010)
Temporary Appointment								0.263	0.263
								(0.027) ***	(0.027) ***
Before-1906									0.011
									(0.048)
FE: Time		X	X	X	X	X	X	X	X
FE: Ministry			X	X	X	X	X	X	X
FE: Decade				X	X	X	X	X	X
N	8501	8501	8501	8501	8501	8501	8501	8501	8501
R2	0.00	0.01	0.04	0.04	0.04	0.05	0.05	0.07	0.07

Note: OLS estimates with robust standard errors clustered on year reported in brackets. Model 9 is equal to the full model reported in Table 1. +=.1, *=.05, **=.01, ***=0.001

Table G.5: OLS regression results for Figure 6:

	Dependent Variable:	
	Senior Bureaucrat Turnover	Within/Between Ministry Switching and Promotion/Demotion
Change of Government	0.004 (0.019)	-0.018 (0.018)
Bureaucratic Buffer	-0.146 (0.061) *	0.024 (0.056)
time_period1945-1980	-0.022 (0.017)	-0.006 (0.019)
time_period1981-2024	0.016 (0.023)	-0.028 (0.018)
Political Amplifier	0.011 (0.013)	0.003 (0.010)
Election Year	-0.003 (0.007)	0.013 (0.013)
Age	0.003 (0.001) ***	-0.001 (0.000) *
Gender	0.008 (0.009)	0.023 (0.010) *
Temporary Appointment	0.265 (0.027) ***	-0.008 (0.020)
Before-1906	0.059 (0.024) *	0.009 (0.024)
Change of Government × Bureaucratic Buffer	0.044 (0.095)	-0.036 (0.056)
GOV_turnover:time_period1945-1980	0.039 (0.027)	0.028 (0.025)
GOV_turnover:time_period1981-2024	0.061 (0.031) *	0.055 (0.030) +
bureaucratic_buffer:time_period1945-1980	0.178 (0.062) **	-0.020 (0.057)
bureaucratic_buffer:time_period1981-2024	0.169 (0.061) **	0.036 (0.057)
GOV_turnover:bureaucratic_buffer:time_period1945-1980	-0.081 (0.103)	0.008 (0.062)
GOV_turnover:bureaucratic_buffer:time_period1981-2024	-0.102 (0.099)	0.077 (0.059)
FE: Time	X	X
FE: Ministry	X	X
N	8501	8501
R2	0.07	0.07

Note: OLS estimates with robust standard errors clustered on year reported in brackets.+=.1, *=.05, **=.01, ***=0.001

Table G.6: OLS regression results for Figure 7:

	Dependent Variable: Turnover of senior bureaucrat
	(1)
Change of Government	0.013 (0.018)
Level 1 (Permanent Secretary)	0.001 (0.016)
Level 2 (Director General)	0.029 (0.014) *
Political Amplifier	0.017 (0.015)
Election Year	-0.001 (0.008)
Age	0.004 (0.001) ***
Gender	0.011 (0.010)
Temporary Appointment	0.264 (0.027) ***
Before-1906	0.011 (0.048)
Change of Government × Level 1 (Permanent Secretary)	0.058 (0.028) *
Change of Government × Level 2 (Director General)	-0.004 (0.022)
FE: Time	X
FE: Ministry	X
FE: Decade	X
N	8501
R2	0.07

Note: OLS estimates with robust standard errors clustered on year reported in brackets.+=.1, *=.05, **=.01, ***=0.001

Table G.7: OLS regression results for bureaucratic buffering in Figure 8:

		Dependent Variable: Turnover of senior bureaucrat			
	Change of Government	Change of Government (t-1)	Change of Government (t+1)	Change of Minister	Party Incongruence
Change of Government	0.011				
	(0.019)				
Bureaucratic Buffer	0.007	-0.001	0.008	-0.000	0.017
	(0.026)	(0.026)	(0.026)	(0.026)	(0.028)
Political Amplifier	0.004	0.004	0.010	0.013	0.009
	(0.019)	(0.019)	(0.019)	(0.020)	(0.021)
Change of Government × Bureaucratic Buffer	-0.080				
	(0.054)				
Change of Government × Political Amplifier	0.056				
	(0.027) *				
Bureaucratic Buffer × Political Amplifier	0.023	0.026	0.012	0.016	0.005
	(0.028)	(0.028)	(0.028)	(0.029)	(0.031)
Change of Government × Bureaucratic Buffer × Political Amplifier	0.024				
	(0.058)				
Election Year	-0.001	0.006	0.006	0.006	0.006
	(0.008)	(0.009)	(0.009)	(0.009)	(0.009)
Age	0.004	0.004	0.004	0.004	0.004
	(0.001) ***	(0.001) ***	(0.001) ***	(0.001) ***	(0.001) ***
Gender	0.011	0.011	0.010	0.010	0.010
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Temporary Appointment	0.263	0.264	0.264	0.265	0.266
	(0.027) ***	(0.027) ***	(0.027) ***	(0.027) ***	(0.028) ***
Before-1906	0.011	0.010	0.016	0.011	0.011
	(0.048)	(0.048)	(0.051)	(0.050)	(0.049)
Change of Government (t-1)		-0.018			
		(0.017)			
Change of Government (t-1) × Bureaucratic Buffer		-0.022			
		(0.073)			
Change of Government (t-1) × Political Amplifier		0.039			
		(0.025)			
GOV_turnover_lagged:bureaucratic_buffer:state_secretaries_NSDID		-0.009			
		(0.083)			
Change of Government (t+1)			0.013		
			(0.019)		
Change of Government (t+1) × Bureaucratic Buffer			-0.092		
			(0.050) +		
Change of Government (t+1) × Political Amplifier			-0.004		
			(0.027)		
GOV_turnover_lead:bureaucratic_buffer:state_secretaries_NSDID			0.082		
			(0.053)		
Change of Minister				0.015	
				(0.019)	
Change of Minister × Bureaucratic Buffer				-0.031	
				(0.028)	
Change of Minister × Political Amplifier				-0.033	
				(0.027)	
minister_turnover:bureaucratic_buffer:state_secretaries_NSDID				0.049	
				(0.035)	
Party Incongruence					0.005
					(0.019)
Party Incongruence × Bureaucratic Buffer					-0.071
					(0.043)
Party Incongruence × Political Amplifier					0.004
					(0.024)
match_start_end_PMparty_flipped:bureaucratic_buffer:state_secretaries_NSDID					0.064
					(0.049)
FE: Time	X	X	X	X	X
FE: Ministry	X	X	X	X	X
FE: Decade	X	X	X	X	X
N	8501	8501	8501	8501	8434
R2	0.07	0.07	0.07	0.07	0.07

Note: OLS estimates with robust standard errors clustered on year reported in brackets.+=.1, *=.05, **=.01, ***=0.001

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