Civil Service Reform*

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November 26, 2012

Abstract

Civil service rules governing the selection and motivation of bureaucrats are among the defining institutions of modern democracies. Although this is an active area of reform in the US and elsewhere, economic analyses of the issue are virtually nonexistent. This paper provides the first welfare evaluation of civil service reform. It describes the effect of reform on the interaction of politicians, voters, and bureaucrats, and shows that society often faces trade-offs between improving the bureaucracy or improving the performance of politicians. My results characterize the conditions under which merit-based recruitment and civil service protections such as tenure can improve welfare.

*I thank Alberto Alesina, Vikram Maheshri, Andrea Szabó, Razvan Vlaicu, and participants at the 2012 Texas Economic Theory Camp for useful comments and suggestions, and the W.E. Upjohn Institute for Employment Research for financial support.
1 Introduction

Laws governing the merit-based selection and compensation of bureaucrats and their protection from political pressure are commonly viewed as a staple of a well-functioning democracy. Because bureaucrats protected from politics may also be less responsive to legitimate policy directives, the optimal structure of civil service laws is a nontrivial problem of institutional design. As a result, rules governing the operation of bureaucracies have been an active area of institutional reform in the US and around the world.\(^1\) By this measure, the importance of civil service laws rivals that of electoral rules (e.g., districting, campaign finance) and political decision-making rules (e.g., super-majority requirements, line-item veto powers). But while the latter have been subjected to extensive economic analysis,\(^2\) little is known about the impact of civil service reform.

This paper presents a theoretical analysis of civil service laws. At their core, these laws govern (i) the selection of bureaucrats, typically through competitive examinations, and (ii) the degree of control that politicians can exercise over them, which can be limited through civil service protections such as standardized pay scales and job tenure. While in practice laws have other details, understanding the two core mechanisms of selection and control is an important first step towards a better understanding of this institution. In the US federal government, the Pendleton Act of 1883 codified the selection of bureaucrats based on merit (professional qualifications), and this principle has rarely been questioned since. The desirable level of control has been more controversial, and while the Pendleton Act aimed at reducing control, more recent reforms beginning with the Civil Service Reform Act of

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\(^1\)Between 1981 and 1991, civil service reforms were a component in 90 World Bank loans to 44 different countries totalling over $ 4.6 billion (Lindauer and Nunberg, 1996). Every US president in the 20th century had a government reorganization program with personnel implications near the top of his reform agenda (see OPM (2003) for a history of federal reform proposals). State governments are also active reformers. Contentious legislation in Georgia (1996) and Florida (2001) ended traditional civil service protections, including tenure, for a substantial number of state employees. As recently as 2011 pay-setting procedures were in the spotlight after a series of states, led by Wisconsin, repealed the collective bargaining rights of public employees.

\(^2\)See Besley and Case (2003) for a survey of the literature on the policy effects of electoral and decision-making rules in US states.
1978 increased control and reduced bureaucrats’ protections. The analysis presented here describes the conditions under which these types of reforms are desirable. It shows that the selection and control of bureaucrats can interact in subtle ways with the electoral process, affecting not just what bureaucrats do, but also which politicians get elected and the policies they choose once in office. In particular, society will often face a trade-off between improving the bureaucracy or improving the performance of politicians.

My results are based on three broad ideas concerning civil service reform. First, civil service rules can interfere with the ability of elections to discipline politicians. This is because bureaucrats affect a politician’s payoff from holding office, and therefore the value of being reelected. If a politician gets lower utility from working with a better bureaucracy, then improving the bureaucracy lowers his value of reelection, and hence his incentive to choose policies that benefit voters. For example, a “corrupt” mayor may carry out socially beneficial policies as long as being surrounded by loyal (corrupt) bureaucrats makes reelection worthwhile. Civil service reform can reduce bureaucratic corruption either through better selection (if more honest bureaucrats are hired) or reduced control (if bureaucrats become more honest once they are protected from the mayor). This can lower the mayor’s utility from holding office, and cause him to abandon the beneficial policies. The more corrupt the politician (i.e., the more he needs elections to remain honest), the more his incentive to choose good policies is likely to decrease when the bureaucracy improves.

Second, civil service rules can interfere with the ability of elections to screen politicians. This is due to bureaucrats’ role in transmitting information between politicians and voters. Voters need information on the actions of politicians to hold them accountable, but they rarely observe directly what happens in the legislature or in the White House, much less what happens in a governor’s or a mayor’s office. What they typically see are the actions of bureaucrats, and they judge politicians based on the policies as implemented by these bu-

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3This parallels the history of the British civil service, where the initial emphasis on selection and reduced control beginning in the mid-19th century was followed by reforms towards increased control initiated by the Thatcher government in the 1970s.
Improving the bureaucracy is likely to make its actions less informative regarding the behavior of politicians. For example, a bureaucrat who always awards procurement contracts to the lowest bidder is less informative to voters than one who awards the contract to the politician’s cousin when asked to do so. An honest bureaucrat makes it harder for voters to throw corrupt politicians out of office. Thus, improving the bureaucracy can lower the quality of incumbent politicians.

Finally, civil service rules can result in strategic behavior by the bureaucrats and this may have undesirable consequences. Civil service protections such as tenure remove the alignment between bureaucrats’ and politicians’ incentives. When a bureaucrat learns that the politician does not share his preferences, he can lower his reelection chances by choosing bad policies. Tenure increases this incentive, since the politician’s failure to get reelected no longer means the end of the bureaucrat’s career (nor can the politician fire him). When protected by tenure, even good bureaucrats may implement bad policies in order to get voters to replace the politician.

I study these ideas in a simple political agency model with voters, politicians, and bureaucrats. In the model, policies are chosen by politicians but implemented by bureaucrats, and bureaucrats can choose not to comply with the politician’s choice. Noncompliant bureaucrats may be punished by the politician, capturing the politician’s degree of control over the bureaucracy. Politicians as well as bureaucrats can have preferences aligned with voters’ (“good”) or misaligned with voters’ (“bad”). Voters observe implemented policies, attempt to infer the quality of both the politician and the bureaucrat, and decide whether to reelect

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4 This seems well understood by the mayors interviewed by Tolchin and Tolchin (1971), who complained that voters hold them responsible for the policies implemented by bureaucrats who have a large degree of discretion. “Adding to their difficulties as mayor is the public belief that they do command, causing the shower of blame which inevitably rains on them when services fail to run optimally.” (73).

5 Indeed, politicians often worry that bureaucrats protected by tenure will have electoral costs for them. As Roosevelt “kingmaker” James A. Farley noted: “Some of the greatest troubles the President has had were caused by subordinate officials who were in sharp disagreement with his policies and, rightly or wrongly, were sabotaging the job he was trying to accomplish.” (quoted in White and Smith, 1939, p92).

6 This model is one of the few existing attempts to understand the “multilayered agency problem between voters, politicians, and bureaucrats which has not been studied extensively in the agency model.” (Besley, 2006, p232)
the politician. Section 3 presents the simplest version of the model, where in each period the politician interacts with a bureaucrat randomly chosen from a large bureaucracy. In this setting, having more compliant bureaucrats leads to better policy choices by the politicians in office. More compliance even with bad policies increases the politician’s incentive to behave well and get reelected, and holding policy choices constant more compliance gives voters more information on politicians’ type.

Section 4 studies the impact of changing the selection or control of bureaucrats in the benchmark model. More control leads to more compliance, while improved selection leads to more compliance with good policies but less compliance with bad ones. When the fraction of good bureaucrats is small, giving politicians more control over them is desirable because the resulting increase in bureaucrat compliance gives politicians an incentive to choose better policies. In addition, increased compliance means that bureaucrats’ actions are more informative regarding the politician’s type, allowing elections to screen candidates more effectively. This rationalizes provisions of the Civil Service Reform Act and other recent reforms giving politicians more control under the assumption that most bureaucrats are bad. Increased control is desirable even if politicians are worse than bureaucrats, and welfare can be increased by giving them control over both good and bad bureaucrats.

The model also shows that it is important to pair reforms that reduce control, as the Pendleton Act did, with measures to improve the selection of bureaucrats. However, better quality bureaucrats create a trade-off with politicians’ performance. When bureaucrats become more likely to implement good policies, this gives bad politicians less incentive to behave well and get reelected, and also makes bureaucrats’ actions less informative to voters regarding the politicians’ type. Thus, improved selection can interfere with the ability of elections to motivate and screen politicians. Over some range, a better bureaucracy may yield worse political performance, and unless the quality of bureaucrats is raised substantially, improved selection can even reduce welfare.

One situation that avoids the trade-off between improving the bureaucracy or improving
politicians is when elections are ineffective at disciplining and screening politicians to begin with. This suggests that civil service rules emphasizing reduced control and improved bureaucratic selection may be more desirable in the early stages of democratic development. Such a civil service system may be a substitute, rather than a complement, to well-functioning democratic elections - which may also explain the different focus of civil service reforms in the 19th century and more recently.

To analyze the effects of bureaucratic tenure, Section 5 compares two extensions of the benchmark model. In both of these, the bureaucrat engages in forward-looking strategic interaction with the politician, and both the politician and the bureaucrat learn about each other’s type from the realized policies. In one version of the model the politician can fire the bureaucrat, while in the other the bureaucrat has tenure and cannot be fired. I find that tenure makes bad bureaucrats less likely to comply with good policies, both because they no longer get fired and because implementing a bad policy can get a good politician thrown out of office. Although tenure prevents good bureaucrats from getting fired by a bad politician, it also increases their payoff from complying with a bad policy. This is because a bad policy tells voters that the incumbent politician is bad, and he gets thrown out of office while the tenured bureaucrat keeps his job. Thus, tenure makes good bureaucrats more likely to comply with bad policies. Holding the politician’s choice constant, bureaucracies with tenure perform worse than without.

It follows that, in the short run, any welfare gains from tenure must come not from the performance of bureaucrats, but from that of the politician. Taking away the possibility of firing a good bureaucrat for failing to comply with a bad policy makes such policies less attractive to bad politicians. This can improve the politician’s choices and lead to increased welfare. Alternatively, tenure can raise welfare when the future gains from an improved bureaucracy offset the short run welfare losses from worse bureaucratic performance. In other cases, tenure lowers welfare.\footnote{As discussed below, these results provide a rationale for putting top-level positions that offer more possibilities for strategic behavior outside the scope of civil service protections, as is done in many civil}
2 Related literature

While there is a large informal policy literature on civil service reforms (see Pfiffner and Brook (2000) for an overview), the economics literature is virtually silent on the topic. A handful of empirical studies exist on civil service systems in specific settings, including Rauch (1995) (municipal reforms in the Progressive era), Hanssen (2004) (merit selection of US judges), Blanes i Vidal and Leaver (2011) (the tenure system of English judges), and Ujhelyi (2012) (merit systems in US states). I know of no theoretical analysis of the welfare effects of civil service reforms.

This paper also contributes to the literature on bureaucracies, which remains small compared to the body of work on other political actors. Much of this literature has dealt with the question of delegation: whether policy makers are / should be elected or appointed. Recent work on these issues includes Maskin and Tirole (2004), Alesina and Tabellini (2007), Coate and Knight (2011), and Vlaicu and Whalley (2011). A closely related literature in political science asks when political decision makers will choose to delegate some of their powers to bureaucrats or to other elected actors (Epstein and O’Halloran (1999) provide an overview and develop new theory).\footnote{Some of the possible reasons for delegation include an other actor’s expertise, or the possibility of blame shifting for policy failures.} Most of these studies concern the design of top-level political institutions - delegation from Congress to the executive, or whether high-level decision makers, such as the head of a federal agency or a city should be elected or appointed. By contrast, I model the relationship between a politician and lower level bureaucrats who are typically the subject of civil service regulations. Thus, I take it as given that the policy-making process involves both elected and non-elected decision makers. The question here is how regulating the interaction between these two types of decision makers affects voters’ ability to hold politicians accountable.

A second strand of the literature on bureaucracies, including Besley and McLaren (1993) service systems. The results also suggest that pairing tenure with provisions to support whistle-blowers can be important. This may allow a bureaucrat to reveal a bad politician’s type without having to comply with a bad policy.
and Prendergast (2007), has studied the selection of bureaucrats with the right preferences. These models do not have elected politicians, but instead focus on the relationship between bureaucrats and their clients. In particular, Prendergast (2007) shows that in some cases it is beneficial to have a bureaucrat who has different preferences from that of his clients. A necessary (but, interestingly, not sufficient) condition for this is that clients’ preferences be the opposite of society’s. By explicitly modeling the electoral process, my paper offers a complementary perspective. Here, it may in fact be beneficial to have bureaucrats whose preferences are misaligned with society’s, because this may improve the ability of elections to discipline or screen politicians.

Since civil service rules are the alternative to political patronage, this paper also relates naturally to studies of patronage and clientelism (see Ujhelyi and Calvo (2011) and the references therein). While civil service reform is often advocated by simply referring to the disadvantages of patronage, this paper may contribute to a more balanced evaluation of these alternatives.

Finally, this paper belongs more broadly to the political agency literature concerned with the ability of elections to resolve informational problems in politics. There has been growing interest in understanding whether this role of elections could be affected by institutional features such as term limits (Besley and Case, 1995, Smart and Sturm, 2011), separation of powers (Persson et al., 1997), or fiscal restraints (Besley and Smart, 2007). The present paper shows how civil service rules interact with the disciplining or screening of politicians in the electoral process.

3 The model

In this section, I describe the benchmark model, and present the equilibrium along with some basic comparative statics from which the welfare results in the next section will follow.

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9 Barro (1973) and Ferejohn (1986) are the classic references on the role of elections in disciplining politicians, while Rogoff (1990) is the seminal study on revealing hidden information.
3.1 Setup

There are two periods, with an election held between the two. In both periods, an incumbent politician chooses a policy $E \in \{0, 1\}$. The policy is implemented by a bureaucrat who has discretion in shaping the implementation process. The policy actually implemented may therefore be different from the one chosen by the politician: let $e \in \{0, 1\}$ denote the implemented policy (throughout, I use lower case variables to distinguish bureaucrats from politicians). If $e = E$, the bureaucrat complies with the policy chosen by the politician.

Here, “policies” are construed broadly and can include formal directives as well as informal requests. E.g., a politician may specify the criteria for delivering low-income subsidies, and a social worker may decide whether or not to follow these criteria in distributing checks. Or a politician may ask a bureaucrat to favor a particular contractor in a procurement tender, and the bureaucrat may favor that contractor or not. Lipsky (1980) and Wilson (1989) discuss a long list of examples to show that most bureaucrats have a large degree of discretion in implementing policies.

Whether policy 0 or 1 is more desirable to voters depends on the state of the world $S \in \{0, 1\}$. Both states have equal probability and are realized independently in each period. Voters derive utility from the implemented policy according to the function

$$U(e, S) = \begin{cases} \Delta & \text{if } e = S \\ 0 & \text{if } e = 1 - S \end{cases}$$

where $\Delta > 0$, and I will therefore refer to policies equal to $S$ as “good” policies, while policies equal to $1 - S$ are “bad”. All players discount period-2 payoffs by a factor $\beta$.

The politician can be of two types, Good or Bad. Good politicians derive the same payoff from implemented policies as the voters do: $V^{GP}(e, S) \equiv U(e, S)$. Bad politicians prefer bad policies, perhaps because they are supported by some special interest who does not share the preferences of voters. Specifically, a bad politician’s payoff from the policy implemented
by the bureaucrat is

$$V^{BP}(e, S) = \begin{cases} 0 & \text{if } e = S \\ R & \text{if } e = 1 - S \end{cases},$$

where $R$, the bad politician’s rent from the implementation of his favorite policy, is drawn from a distribution on $[0, \infty)$ with cdf $G(.)$ and mean $\bar{R}$. Politicians may also derive a payoff from the act of choosing a policy (or, equivalently, may dislike it when a bureaucrat does not comply with their choice). I capture this by letting politicians’ payoff be $V(E, e, S) = V(e, S)$ if $e = E$ but $V(E, e, S) = \mu V(e, S)$ if $e \neq E$, where $\mu \in (0, 1)$ is a constant. Lower values of $\mu$ imply a larger disutility from noncompliance by the bureaucrat.\textsuperscript{11} Politicians also receive a fixed benefit $V_0$ from holding office, and the probability that a politician is good is $\Pi$.

Bureaucrats’ objectives may differ from politicians’. The literature has modeled this by assuming either that bureaucrats have their own preferences regarding policies (e.g., Prendergast, 2007), or that bureaucrats have career concerns in the sense that they care about society’s perception of their abilities (Alesina and Tabellini, 2007). Here, I follow the first route, which yields a consistent model of politicians and bureaucrats: both can be good or bad. In Appendix A.3, I show how the results below can be generalized in a version of the model with career concerns.

Like the politician, the bureaucrat can also be good or bad and his type is private information. Good bureaucrats have the same utility function (1) as voters, while bad bureaucrats’ preferences are given by

$$v(e, S) = \begin{cases} 0 & \text{if } e = S \\ r & \text{if } e = 1 - S \end{cases}.$$

Thus, bad bureaucrats want the opposite of what voters want, receiving a rent $r$ if a bad

\textsuperscript{11} That the politician has some cost from a noncompliant bureaucrat (captured by $\mu$) seems intuitive but is not crucial. The main role of this assumption is to break ties in situations where, during the game, a politician is indifferent between two policies (see the discussion of equilibrium below). One could also set $\mu = 1$ and assume that politicians break ties based on $V(e, S)$. This would change Lemma 1 below without affecting any of the subsequent results.
policy is implemented. Just as for politicians, bad bureaucrats’ payoff could represent their personal preference or the influence of some interest group. It could also represent incompetence, if for example the bad policy is always easier to implement than the good one. I assume that bad bureaucrats are not “very bad” in the sense that their rent from a bad policy does not exceed good bureaucrats’ / politicians’ / voters’ payoff $\Delta$ from a good policy: $r < \Delta$.

A bureaucrat who does not comply with the politician’s policy choice may be punished: choosing a policy $e \neq E$ has a cost $h$, such as a reduction in pay. In the benchmark model, the parameter $h$ will provide a tractable way to capture the politician’s degree of control over bureaucrats. The probability of a good bureaucrat is $\pi$, and I start by assuming that the bureaucrat’s type is realized independently in each period. This may capture a situation where the specific bureaucrat charged with policy implementation is drawn randomly from the bureaucracy, so that the politician only interacts with any one bureaucrat over a short horizon. I relax this assumption and consider forward-looking bureaucrats in Section 5.

The timing is as follows. At the start of period 1, the politician and the bureaucrat learn their type and the state $S$. A bad politician also learns the rent $R$. The politician chooses a policy $E$ for the first period. The bureaucrat implements a policy $e$. The implemented policy is observed publicly, and first-period payoffs are realized. Voters decide whether or not to reelect the politician. If they do not reelect, a new politician is chosen randomly. At the start of period 2, the state $S$, the rent $R$ and the bureaucrat’s type are realized. The politician in office chooses a policy $E$, the bureaucrat implements a policy $e$, payoffs are realized and the game ends.

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12 The value of $h$ can be thought of as the upper limit on the punishment available to the politician. To maximize the likelihood of compliance, the politician will always commit to a punishment equal to $h$.

13 One could also extend the model to assume that good (bad) politicians are more (less) likely to have good bureaucrats. For example, replace $\pi$ with $\kappa \pi$, $\kappa \in (0, 1)$ for bad politicians. Then the analysis below is valid as long as $\kappa$ is sufficiently large.

14 In this model, the bureaucrat’s role is simply to implement the policy chosen by the politician. He has no superior ability or information compared to the politician - his purpose is purely logistical (for example, it would be too costly if the politician used his time and other resources to implement the policy himself). Allowing for superior bureaucratic expertise would raise issues of strategic communication, and is a potentially interesting extension.
3.2 Equilibrium

The solution concept is Perfect Bayesian Equilibrium. Since there are no strategic considerations in period 2, the equilibrium is fully characterized by period-1 strategies. It consists of policy choices for each type of politician, policies implemented by each type of bureaucrat (conditional on the politician’s choice), voter beliefs about the politician’s type, and reelection decisions by voters given the observed policy. In equilibrium, strategies are best responses to each-other given voters’ beliefs, and these beliefs are formed rationally given the strategies.

Given our assumptions on the bureaucrat’s payoffs, a good (bad) bureaucrat always complies with good (bad) policies chosen by the politician. In addition, each type complies with policies he doesn’t like when the punishment is sufficiently large. Thus, if a politician chooses policy $E$ in state $S$, the probability that the policy will be implemented if it is good is

$$\Pr(e = E | S, E = S) = \pi + (1 - \pi) I_{r<h} \equiv \phi^G$$

while the probability that it will be implemented if it is bad is

$$\Pr(e = E | S, E = 1 - S) = \pi I_{\Delta<h} + 1 - \pi \equiv \phi^B,$$

where $I$ is an indicator equal to 1 if the condition in its subscript is true and 0 otherwise. These expressions give the probability of compliance with good or bad policies, respectively. Note that control ($h$) can increase compliance with both good an bad policies, while bureaucrats’ quality ($\pi$) can increase compliance with good policies but lower compliance with bad ones. The probability that the bureaucrat does not comply with the politician’s chosen policy is $1 - \phi^G$ and $1 - \phi^B$. Since $\phi^G \geq 1 - \phi^B$, the politician should always choose the policy that he would like to see implemented. In period 2, bad politicians choose bad policies while good politicians choose good policies.

Voters form beliefs about the politician’s type after seeing the policy implemented in the
first period. They are rational and realize that \( U = \Delta \) means that the policy implemented was good while \( U = 0 \) means that it was bad. However, they also realize that the policy implemented may not have been the one chosen by the politician. Below, I show that reelecting the incumbent after a good policy is implemented and not reelecting him after a bad one is an equilibrium. In Appendix A.1, I show that other equilibria either generate the same outcomes of interest, or they are not robust to a slight perturbation similar to Maskin and Tirole (2004). I therefore focus on the equilibrium below in the rest of the paper.

Suppose that voters reelect the politician after a good policy is implemented but not after a bad one. A good politician will then choose a good policy in period 1. Given the realized rent \( R \) in period 1, a bad politician’s expected payoff from choosing a good policy is

\[
\phi^G \beta(\phi^B \tilde{R} + V_0) + (1 - \phi^G) \mu R,
\]

where the first term represents the payoff from being reelected when the bureaucrat complies, and the second term represents the rent collected when the bureaucrat does not comply. The expected payoff from choosing a bad policy is

\[
(1 - \phi^B) \beta(\phi^B \tilde{R} + V_0) + \phi^B R.
\]

Comparing the two, a bad politician chooses the good policy in period 1 if and only if

\[
R < \beta(\phi^B \tilde{R} + V_0) \frac{\phi^B + \phi^G - 1}{\phi^B + \mu(\phi^G - 1)}.
\] (4)

Ex ante, a bad politician choosing a good policy has probability

\[
\hat{\Pi} |_{e = S} = \frac{\Pi \phi^G}{\Pi \phi^G + (1 - \Pi) [\lambda \phi^G + (1 - \lambda)(1 - \phi^B)]},
\] (5)
while the probability that he is good conditional on a bad implemented policy is

$$\hat{\Pi}_{e=1-S} = \frac{\Pi(1-\phi^G)}{\Pi(1-\phi^G) + (1-\Pi)(\lambda(1-\phi^G) + (1-\lambda)\phi^B)}.$$  (6)

Since $\hat{\Pi}_{e=S} \geq \Pi_{e=1-S}$, it is indeed in voters’ best interest to reelect the politician when they learn that a good policy was implemented, and to not reelect him after a bad policy. Thus, we have an equilibrium.

When (4) holds, a bad politician “exercises discipline”: he chooses a good policy in order to get reelected. Discipline is more likely if the expected period-2 rent ($\bar{R}$) or the value of holding office ($V_0$) is large, if the politician is more patient (larger $\beta$), or if the rent from getting a bad policy implemented when a good policy was chosen is larger (larger $\mu$). Most importantly, discipline is increasing in $\phi^G$ and $\phi^B$:

**Lemma 1** Increased compliance with good or bad policies makes the politician more likely to exercise discipline.

Lemma 1 together with Lemma 2 below are the keys to understanding the effects of civil service reform in the benchmark model. That compliance with a good policy makes this policy more attractive to the politician is natural since noncompliance is costly. But why does compliance with a bad policy improve discipline? This is because if reelected, a bad politician will choose such a policy in period 2 with probability one. If bureaucrats are more willing to comply with a bad policy tomorrow, this increases a bad politician’s incentive to get reelected by choosing a good policy today. This suggests that in some cases there will be a trade-off between improving bureaucrats’ and politicians’ performance. Making bureaucrats less compliant with bad policies can reduce the effectiveness of elections in disciplining politicians.\(^{15}\)

\(^{15}\)This insight does not depend on there being a last period, as I show in Appendix A.2 where I consider an extension to an infinite horizon. What it depends on is the existence of future rents that can be obtained if the politician is reelected.
While the period-1 policy choices reflect discipline (or lack thereof), the period-2 policy choice shows the quality of politicians emerging from the electoral process. The probability of a good policy being chosen, i.e., a good politician being in office in period 2 is\(^{16}\)

\[
\Pr(E_2 = S_2) = \Pi^2 + \Pi(1 - \Pi)[(\phi^G + \phi^B)(1 - \lambda) + \lambda]. \tag{7}
\]

This yields our second key lemma:

**Lemma 2** Holding discipline (\(\lambda\)) constant, increased compliance with good or bad policies improves the quality of politicians.\(^{17}\)

This Lemma is the key to understanding how civil service reform interacts with the screening role of elections. Increased compliance means that the policy implemented by the bureaucrat is more informative regarding the policy chosen by the politician, and hence his type. Increased compliance with a good policy helps voters reelect good politicians, while increased compliance with a bad policy helps throw bad politicians out of office. This suggests that in some cases there will be a trade-off between improving bureaucrats’ performance and politicians’ quality. Making bureaucrats less compliant with bad policies can reduce the effectiveness of elections in screening politicians.\(^{18}\)

I now use these results to study how civil service reform affects policy choices and voter welfare. As Lemmas 1 and 2 suggest, any direct effects have to be weighed against the impact on policy making through bureaucrats’ compliance.

\(^{16}\)Imagine nature picking two politicians, one for period 1 who takes office, and one for period 2 who takes office if voters do not reelect the first one. Then \(E_2 = S_2\) if both politicians are good (with probability \(\Pi^2\)), if the first one is good, the second one bad, but the first one is reelected (with probability \(\Pi(1 - \Pi)\phi^G\)), or if the first one is bad, the second one good, and the first one is not reelected (with probability \(\Pi(1 - \Pi)(1 - \lambda)\phi^B + \lambda(1 - \phi^G)\)).

\(^{17}\)As is common in political agency models, better discipline mechanically leads to less screening, as it implies that bad politicians are less likely to be revealed. By holding \(\lambda\) constant, Lemma 2 focuses on the effects that do not follow mechanically from Lemma 1.

\(^{18}\)Note that Lemmas 1 and 2 do not rely on a specific model of bureaucrat behavior. These results hold as long as bureaucrats can have some discretion, so that \(\phi^G\) and \(\phi^B\) are not always 1, regardless of where \(\phi^G\) and \(\phi^B\) come from. For example, this will also be true if bureaucrats have career concerns. I explore this extension in more detail in Appendix A.3.
4 The welfare effects of bureaucrats’ selection and control

Civil service reform often aims to improve bureaucrats’ quality through entrance examinations and other qualification requirements. In the US, merit-based recruitment was introduced into the federal bureaucracy by the Pendleton Act of 1883, and lower-level governments gradually followed. In the model, the quality of the bureaucracy is captured by the probability $\pi$ that a bureaucrat’s preferences are aligned with voters’. For example, good bureaucrats may be more likely to pass the entrance examination.

Another important component of civil service laws is the degree of control they give politicians over bureaucrats. Control can be limited by fixed pay-scales and seniority-based promotions, tenure, and a prohibition on bureaucrats’ performing political services. While the Pendleton Act reduced control, recent reforms starting with the 1978 Civil Service Reform Act sought to make bureaucrats more responsive by increasing control. In this benchmark model, the degree of control is captured by the size of the punishment $h$ that the bureaucrat faces for not complying with the policy chosen by the politician. We can distinguish three regimes: full control over both good and bad bureaucrats ($\Delta < h$), selective control over bad but not over good bureaucrats ($r < h < \Delta$), and no control over either type of bureaucrat ($h < r$). The question I ask here is: if society decides to change $h$ and $\pi$, how will that affect the quality of politicians in office, the policies they choose, and voter welfare?19

Not surprisingly, the first best can be achieved by a civil service reform that eliminates full control and simultaneously ensures that only good bureaucrats are hired. This follows immediately from (2) and (3): $h < \Delta$ and $\pi = 1$ yield $\phi^B = 0$ and $\phi^G = 1$, so that bureaucrats always implement good policies and the incumbent politician’s type becomes irrelevant. Of course, such perfect reform is seldom feasible.

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19 Although in this model politicians’ choices have no social value of their own, in reality they may have long-term consequences beyond their effect on the current policies that bureaucrats implement. For example, they may affect voters’ payoffs far in the future, or they may create constraints for future policy-making. Similarly, having higher quality politicians in office might have other benefits than the ones modeled here.
To present the results as cleanly as possible, Propositions 1 and 2 below describe the effects separately for period 1 and 2. See Appendix A.1 for a characterization of the combined effect on the present value of welfare.  

**Proposition 1** Civil service reform has the following effects in period 1: (i) Reducing the politician’s control over bureaucrats makes the politician less likely to choose a good policy. In terms of welfare, selective control always dominates no control. Full control dominates selective control iff \[ G[\beta R + V_0] - G[\beta ((1-\pi) R + V_0)] > \pi \] and it dominates no control iff \[ \Pi + (1 - \Pi) G[\beta (R + V_0)] > \pi. \] (ii) Improving the quality of bureaucrats (\( \pi \)) makes the politician less likely to choose a good policy. Welfare falls when \( h \in (r, \Delta) \) and \[ \frac{1 - G[\beta (R(1-\pi) + V_0)]}{G[\beta (R(1-\pi) + V_0)]} < \beta R(1 - \pi), \] and increases otherwise.

**Proof.** See Appendix A.1. ■

Part (i) of the Proposition shows that removing the politician’s control over bureaucrats can reduce welfare even if it is done selectively (so that the politician retains control over bad bureaucrats). The reason for this comes from the politician’s incentives. Of course, conditional on the policy chosen by the politician, less control over good bureaucrats improves welfare. However, less control means that the bureaucrat will be less likely to comply with the politician’s choice and, as seen in Lemma 1, this lowers the politician’s incentive to choose a good policy. Thus, we have a trade-off between bureaucrats’ and politicians’ performance. This can offset the direct benefit of reduced control and lead to lower welfare. Giving the politician more control is desirable when the quality of the bureaucracy (\( \pi \)) is low or the quality of politicians (\( \Pi \)) is high, but more control can be desirable even if politicians are worse than bureaucrats (\( \Pi < \pi \)) because the politicians’ incentive can compensate for their lower quality. More control is also desirable if the politician is patient (high \( \beta \)), or if the value of holding office (\( V_0 \)) or the expected rent (\( R \)) is large. The worse the politician is on

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\(^{20}\) As the proofs make clear, statements like “increase” should be read as “increase or stay constant” (i.e., weakly increase). I chose to drop the qualifier in the interest of readability.
average (the larger average rent he gets from a bad policy), the more he needs incentives
to act in voters’ interest, therefore the more likely it is that giving him control will raise
period-1 welfare.

Part (ii) of the Proposition shows that improving the quality $\pi$ of bureaucrats can also
hurt welfare. Although higher $\pi$ always leads to more welfare holding the politician’s choice
constant, it can lower bureaucrats’ compliance and thus cause the politician to choose worse
policies (Lemma 1). When this happens, we have a trade-off between bureaucrats’ quality
and politicians’ performance. An improved bureaucracy may end up implementing worse
policies if the fraction of good bureaucrats ($\pi$) is low, or if the politician’s discount factor
($\beta$), value of holding office ($V_0$), or expected rent ($\bar{R}$) is large. This suggests, for example,
that a policy of improved selection may have to raise $\pi$ substantially in order to be beneficial.

Proposition 1 may help rationalize certain aspects of real-world civil service reforms.
Recent US reforms aimed at increasing political control over bureaucrats by weakening or
removing civil service protections may be optimal if society believes that the majority of
incumbent bureaucrats are bad ($\pi$ is low). Indeed, this is one reading of common complaints
regarding inefficient bureaucracies and red tape. In this case, Proposition 1(i) implies
that increasing control will raise welfare by giving politicians an incentive to choose better
policies. Since removing control is more desirable when $\pi$ is large, this rationalizes why
early civil service reforms, which aimed at lowering politicians’ control over bureaucrats, put
great emphasis on simultaneously improving bureaucratic selection. Interestingly, the model
predicts that reforms that improve the quality of bureaucrats will typically be accompanied
by politicians’ choices becoming worse.

$^{21}$The condition can be written as $\mu(\beta(\bar{R}(1 - \pi) + V_0)) < \beta\bar{R}(1 - \pi)$, where $\mu()$ is the Mills ratio of the
distribution $G$. For common distributions (including normal, uniform and exponential) $\mu$ is nonincreasing,
so that the two sides of the inequality move in opposite directions.

$^{22}$Characteristics that “many Americans associate with the word bureaucracy: flabby, overpaid, and lazy;
unimaginative; a demanding leviathan; slow to abandon unsuccessful policies and accept new ideas; arrogant,
smug, and condescending; impersonal; red-tape artists...” (Ingraham, 1995, ix). Note that unresponsive
bureaucracies alone cannot provide a full explanation for these reforms, since unresponsiveness is socially
optimal if politicians have a high probability of choosing bad policies.
Proposition 1 showed that civil service reform can affect the ability of elections to discipline politicians. Changes in bureaucrats’ quality and control also affect the ability of elections to screen politicians, i.e., replace the bad ones and keep the good ones in office. This is because bureaucrats affect the amount of information that voters gain about the incumbent politician (Lemma 2). When reform increases the amount of information available on politicians, this can lead to improved screening, as reflected in the expected quality of the period-2 politician. Taking this into account, civil service reform affects period-2 welfare through three channels. First, it directly affects bureaucrats’ performance; second, it affects the information that voters learn about any given period-1 policy choice by the politician; and third, it changes politicians’ period-1 behavior, which in turn affects voters’ information and hence electoral screening.\(^{23}\) We have the following result.

**Proposition 2** Civil service reform has the following effects in period 2: (i) No control always leads to worse politicians than selective or full control. Selective control leads to better politicians than full control iff \(\xi \equiv \frac{G[\beta(R+V_0)] - G[\beta((1-\pi)R+V_0)]}{1-G[\beta((1-\pi)R+V_0)]} > \pi\). In terms of welfare, selective control always dominates no control. Full control dominates selective control iff \(\frac{1}{1-G[\beta((1-\pi)R+V_0)]} < \Pi(2 - \pi - \xi)\) and it dominates no control iff \(\Pi + (1 - \Pi)\Pi(1 - G[\beta(R+V_0)]) > \pi\).

(ii) Improving the quality of bureaucrats (\(\pi\)) lowers the expected quality of the politician when \(h \in (r, \Delta)\) and \(\frac{1-G[\beta((1-\pi)R+V_0)]}{G[\beta((1-\pi)R+V_0)]} > \beta \bar{R}(1 - \pi)\), and increases it otherwise. Welfare falls when \(h \in (r, \Delta)\) and \(\frac{2(1-G[\beta((1-\pi)R+V_0)])}{G[\beta((1-\pi)R+V_0)]} \frac{1}{\beta(1-\pi)} > \beta \bar{R}(1 - \pi)\), and increases otherwise.

\(^{23}\)Formally, period-2 welfare is \(\Pr(e_2 = S_2) = \Pr(E_2 = S_2) \phi^G + (1 - \Pr(E_2 = S_2))(1 - \phi^B)\). The derivative with respect to, say, \(\pi\) may be written as

\[
\frac{d\Pr(e_2 = S_2)}{d\pi} = \left[ \Pr(E_2 = S_2) \frac{\partial \phi^G}{\partial \pi} - (1 - \Pr(E_2 = S_2)) \frac{\partial \phi^B}{\partial \pi} \right] \\
+ \left[ \frac{\partial \Pr(E_2 = S_2)}{\partial \pi} \phi^G - \frac{\partial \Pr(E_2 = S_2)}{\partial \pi} (1 - \phi^B) \right] \\
+ \left[ \frac{\partial \Pr(E_2 = S_2)}{\partial \lambda} \phi^G - \frac{\partial \Pr(E_2 = S_2)}{\partial \lambda} (1 - \phi^B) \right] \frac{\partial \lambda}{\partial \pi},
\]

showing the three channels described in the text.
Proof. See Appendix A.1.

Part (i) of the Proposition first describes the effect of control on the screening of politicians. No control results in the worst expected quality of the period-2 politician. In this case, the policy implemented is entirely determined by the bureaucrat’s type and therefore conveys no information regarding the politician. No political control over bureaucrats means that voters lose all ability to screen politicians through elections. As control is increased, the implemented policy becomes more informative regarding the politician’s choice, allowing more screening. However, the effect on the politician’s expected quality need not be monotonic. Full control can yield worse politicians than selective control because the bad politician is more likely to choose a good policy (Proposition 1), and hence less likely to be revealed. This can offset the increased flow of information caused by more control.\footnote{When there is no discipline (e.g., because the politician’s discount factor is 0), this offsetting effect is not present, and more control always increases the expected quality of politicians.}

The welfare calculation of changing control needs to balance these indirect effects on the screening of politicians with the direct effect on bureaucrats’ performance. Compared to no control, selective control represents an improvement both in bureaucratic performance and in politicians’ quality, and therefore yields higher welfare. Full control, however, can have positive as well as negative welfare effects. It lowers bureaucratic performance by forcing good bureaucrats to comply with bad policies, but also has the potential to improve the screening of politicians, as seen above.\footnote{When $\xi > \pi$, so that selective control yields better screening than full control, selective control yields the highest welfare.} Full control tends to be more desirable than no control when $\pi$ is low, $\Pi$ is large, or when the determinants of discipline ($\beta, \bar{R}, V_0$) are low (which makes improving electoral screening particularly beneficial).

Part (ii) of the proposition highlights the possibility of a trade-off between the quality of bureaucrats and the expected quality of politicians emerging from the electoral process. When $h \in (r, \Delta)$, improving the quality of bureaucrats ($\pi$) means that bad policies are less likely to be observed as chosen, and voters are therefore more likely to reelect a bad
The welfare effects of improved bureaucratic quality are determined by the direct effect of $\pi$ on the policy implemented as well as its effect on the electoral screening of politicians. For example, if the politician’s discount factor is 0 (so that bad politicians never exercise discipline), the condition in the proposition implies that improved bureaucrat quality lowers welfare initially, and it is only once $\pi > 1 - \frac{1}{2n}$ that welfare begins to rise.

The above results emphasize the fact that the extent to which elections discipline or screen politicians is an important determinant of optimal civil service rules. When the electoral system is ineffective at serving these functions, the case for civil service reform is much more clear-cut. If politicians always choose their preferred policies and good or bad politicians are equally likely to be reelected, then improving bureaucratic selection and lowering control over good bureaucrats is always desirable. In this case, the trade-offs with politicians’ behavior or quality are avoided. To the extent that democratic elections today are more effective than 100 years ago, these observations can shed light on the different focus of early and later civil service reforms. Indeed, Progressive era reformers emphasized the improved selection of bureaucrats and reduced control in a period when “Civil service systems, or merit systems, were equated with “good” government. They represented fair and equitable examinations, qualified public servants, and a commitment to the higher ideals of the state. Politics, on the other hand, had come to represent what was wrong with government.” (Ingraham, 1995, 25). In this sense, a bureaucracy with strong civil service protections may have served as a substitute to effective democratic elections. However, it may not be a good complement to such elections, as the more recent reforms suggest.

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26 When there is no discipline (e.g., because the politician’s discount factor is 0), this trade-off always results in worse quality politicians. In other cases, increasing $\pi$ also lowers discipline (Proposition 1), which tends to improve screening. The condition in the proposition shows when the overall effect on screening is negative.
5 Strategic bureaucrats and tenure

Above, I have assumed that in every period a new bureaucrat is chosen and asked to implement the policy. In reality, bureaucrats may interact with the politician over multiple periods, and in fact an important consideration of civil service systems is whether they can be fired. A longer time horizon implies that bureaucrats’ actions may be affected by a desire to keep their job. Furthermore, bureaucrats may strategically influence the reelection chances of the incumbent politician through the policies they implement.

In this section I extend the model to take these considerations into account. I use the model to study the effect of limiting politicians’ control through bureaucratic tenure. Specifically, I compare a situation where the bureaucrat can lose his job after period 1 if he gets fired by the politician or if the politician is not reelected (untenured case), to one where he always keeps his job in both periods (tenured case).27

5.1 Setup and equilibrium

The sequence of events is now as follows. At the start of period 1, the politician and the bureaucrat learn their type and the state $S_1$. A bad politician learns the rent $R_1$, and the politician chooses a policy $E_1$ for the first period. The bureaucrat sees $E_1$, forms a belief about the politician’s type, and implements a policy $e_1$. The politician sees $e_1$, forms a belief about the bureaucrat’s type, and, in the nontenured system, decides whether to fire the bureaucrat.28 The implemented policy is observed publicly, and first-period payoffs are realized. Voters form a belief about the politician’s type and the bureaucrat’s type based on $e_1$ (they do not observe whether the bureaucrat was fired), and decide whether or not to reelect the politician. If they do not reelect, a new politician and, if the first bureaucrat was fired, a new bureaucrat are chosen randomly at the start of period 2. The state $S_2$ and the

27 Other means of control, such as a reduction in pay, are still captured by the parameter $h$.
28 I assume that a politician who is indifferent between firing or retaining the bureaucrat retains him. I also assume that in the non-tenured system, once a bureaucrat is fired he receives a payoff of 0 in future periods.
rent $R_2$ are realized, policies $E_2$ and $e_2$ are chosen and the game ends.

Solving these models (the tenured and the untenured version) requires keeping track of all players’ beliefs regarding both politicians and bureaucrats. Here, I summarize the main steps, and leave the details to Appendix A.4. As above, I focus on the equilibrium where voters reelect after a good implemented policy and do not reelect after a bad one.

Strategic bureaucrats may have different propensity to comply with specific policies in periods 1 and 2. This is because the bureaucrat’s decision can now have implications for whether or not he keeps his job in period 2. Moreover, the politician’s choice may reveal his type to the bureaucrat, who then has to decide whether to facilitate the politician’s reelection. The probability of compliance $\phi$ from the benchmark model is replaced by $\phi^G_t$ and $\phi^B_t$, denoting the probability that the bureaucrat who holds the job at the start of period 1 will comply with, respectively, a good or a bad policy in period $t = 1, 2$ (if he is not fired). Lemmas 4-6 in the Appendix characterize the equilibrium behavior of bureaucrats and politicians given voters’ strategy. As in the benchmark case, good politicians choose good policies and bad politicians choose bad policies if the rent is large enough, although the cutoff can differ from the benchmark case. Similarly, good (bad) bureaucrats always comply with good (bad) policies, and they comply with the other policy if the punishment is large enough.

As before, voters form beliefs about the politician’s type after seeing the policy implemented by the bureaucrat. These are given by (5) and (6). But now policies can also reveal information to the voters about the incumbent bureaucrat’s type. Denote this belief $\hat{\pi}$, and let $\hat{\phi}^G_2 = \hat{\pi} + (1 - \hat{\pi}) I_{r<h}$ and $\hat{\phi}^B_2 = \hat{\pi} I_{\Delta<h} + 1 - \hat{\pi}$ denote the updated beliefs regarding compliance with period-2 policies for the bureaucrat currently holding the job. Voters decide whether or not to reelect the incumbent politician based on the probability of obtaining a good policy in period 2.

In a tenured system, the probability of a good policy in period 2 is $\hat{\Pi} \hat{\phi}^G_2 + (1 - \hat{\Pi})(1 - \hat{\phi}^B_2)$ if the politician is reelected, and $\hat{\Pi} \hat{\phi}^G_2 + (1 - \Pi)(1 - \hat{\phi}^B_2)$ if he is not. These reflect the fact
that the bureaucrat keeps his job for sure. Comparing the two and using (5) and (6), one may verify that reelecting the politician after the bureaucrat implements a good policy and not reelecting him after a bad policy is always a best response for voters.

In a nontenured system, beliefs regarding compliance in period 2 must take into account the fact that the politician may have fired the bureaucrat. If the incumbent is reelected, the probability of a good period-2 policy is equal to 
\[
\hat{\Pi}\phi^G_2 (GP) + (1 - \hat{\Pi})(1 - \phi^B_2 (BP)),
\]
where \(\phi^G_2 (GP)\) denotes the expected probability of compliance with a good policy in period 2 given the observed period-1 policy, conditional on a good politician, while \(\phi^B_2 (BP)\) is the corresponding value for a bad policy conditional on a bad politician. In a nontenured system, the condition for reelection is therefore
\[
\hat{\Pi}\phi^G_2 (GP) + (1 - \hat{\Pi})(1 - \phi^B_2 (BP)) \geq \Pi\phi^G_2 + (1 - \Pi)(1 - \phi^B_2),
\]
(8)
since replacing the politician also implies replacing the bureaucrat. The proof of Proposition 4 in the Appendix verifies that it is a best response for voters to reelect the incumbent if and only if the implemented policy was good.

### 5.2 The effect of tenure

To simplify the notation, let 
\[
q[x] \equiv 1 + \Pi\beta(\frac{1}{\Pi + (1-\Pi)G(x)} - 1),
\]
where \(q > 1\) and \(q' < 0\) for \(x \in [0, \infty)\). We then have the following result.

**Proposition 3** (i) When introducing tenure affects the period-1 behavior of bureaucrats, it causes bad bureaucrats to stop complying with good policies and / or good bureaucrats to start complying with bad ones.

(ii) Tenure can only raise period-1 welfare when it improves the politician’s choice and has no effect on bureaucrats. Specifically, when 
\[
rq[\beta(\bar{R} + V_0)] < h < \frac{A}{1 + \beta \Pi},
\]
introducing tenure can make politicians more likely to choose a good policy and can raise welfare. In all other cases, tenure can only lead to lower welfare.

24
(iii) Tenure raises the present value of voter welfare when period-1 welfare increases, and when \( r < h < \min\left( \frac{\Delta}{1+\beta \Pi}, r q[\beta (R + V_0)] \right) \) and \( \frac{\pi}{\Pi} > \frac{q[\beta ((1-\pi)R+V_0)]}{q[\beta ((1-\pi)R+V_0)]-1} \). In all other cases, tenure can only lead to lower welfare.

**Proof.** The results follow from Proposition 4 in the Appendix. ■

Part (i) of the proposition describes the effect of tenure on bureaucrats’ behavior. Good bureaucrats become more willing to comply with bad policies because this can lead to the replacement of a politician who has revealed himself to be bad without jeopardizing the bureaucrat’s job. At the same time, bad bureaucrats become less likely to comply with good policies. This is both because a bad policy no longer gets the bureaucrat replaced, and because a good policy choice is more likely to come from a good incumbent, and therefore the bureaucrat gains by having him replaced by a random politician in period 2. Thus, compared to untenured bureaucrats, tenured bureaucrats are more likely to comply with bad policies and less likely to comply with good ones.

In this sense, we should expect bureaucracies with tenure to perform worse than without tenure, holding the politician’s choice constant. This is not because the bureaucrats working in a tenured system have different quality (\( \pi \) is the same). Instead, tenure changes their incentives: bad bureaucrats have an incentive to resist good policies and good bureaucrats have an incentive to comply with bad policies. The latter effect runs counter to the common argument that tenure allows good bureaucrats to work undisturbed by (bad) politicians. Although good bureaucrats’ payoff from a good policy does rise, because they no longer get fired for it, their payoff from a bad policy increases as well. This again highlights the nuances of civil service reform in a democracy: if voters judge politicians based on the policies implemented by bureaucrats, good bureaucrats with tenure benefit from complying with policies that may get a bad politician thrown out of office.

The parameter ranges for these effects are given in Proposition 4 in the Appendix, and Figure 1 illustrates. Without tenure, a good bureaucrat only complies with a bad policy for punishments \( h \) larger than \( \Delta \). With tenure, this threshold shifts down because a bad
policy now has the added benefit of getting the bad politician replaced.\footnote{A good bureaucrat’s gain from getting the politician replaced is the possibility of avoiding the punishment $h$ for implementing the good policy in period 2. This is worth $\Pi/\beta h$, which is compared to the immediate gain of $\Delta - h$ from choosing a good policy. The former is larger if $h > \Delta/(1 + \beta \Pi)$. The details are in Lemmas 5 and 6 in the Appendix.} A bad bureaucrat without tenure complies with a good policy if the punishment $h$ exceeds $r$. With tenure the threshold shifts up to $rq$, where $q$ is an increasing function of the probability that the good policy choice came from a good politician. This reflects the fact that implementing a bad policy gets the incumbent politician (but not the bureaucrat) thrown out of office, and creates the possibility of electing a bad politician in period 2.

![Diagram with labels](image)

**Figure 1:** Parameter ranges for the effects of introducing a tenure system. For parameters in the light (dark) grey areas, bad bureaucrats stop complying with good policies in some (all) equilibria. For parameters in area C and F, good bureaucrats start complying with bad policies. In areas A, B, and F, the politician is more likely to choose a good policy, and in area A this leads to higher welfare in period 1. In area B, welfare increases in one of the equilibria. Welfare falls in areas C, D, F, and in one of the equilibria in area E.

The politician’s response to the bureaucrats’ increased willingness to comply with bad policies is typically a higher likelihood of choosing a bad policy. This leads to worse policies being implemented and lower welfare in period 1 (Proposition 3 (ii)). It is only when tenure
improves the politician’s behavior and has no impact on bureaucrats that tenure can raise welfare. When the condition in Part (ii) holds, bad bureaucrats comply with any policy while good bureaucrats always implement a good policy both with and without tenure. This means that a bad politician can learn the bureaucrat’s type by choosing a bad policy, allowing him to fire a good bureaucrat in the untenured case. Tenure takes away this possibility and thus makes the bad policy less attractive. The politician becomes more likely to choose a good policy and welfare increases. In Figure 1, this effect represents the only equilibrium in area A and one of the two possible equilibria in area B.\(^{30}\)

The effect of tenure on the discounted present value of voter welfare is given in part (iii) of Proposition 3. Since tenure cannot improve the period-1 behavior of bureaucrats, its value can only come from either the improved performance of politicians raising period 1 welfare, or from improved policies in period 2. The present value of voter welfare increases when first-period welfare increases (areas A and B in Figure 1). In addition, the present value of welfare can increase also if \( r < h < \min(\frac{\Delta}{1+\beta r}, rq[\beta(R + V_0)]) \) (area D in Figure 1), provided that the fraction of good bureaucrats \( \pi \) is sufficiently large.\(^{31}\) In this case bad politicians’ discipline becomes 0 leading to lower welfare in period 1, but good bureaucrats are no longer fired, and when \( \pi \) is large, the resulting gain in period 2 can offset the loss of utility in period 1. In all other cases, introducing tenure can only lower the present value of welfare.

One implication of these results is that a tenure system for bureaucrats can have undesirable consequences when bureaucrats are strategic and understand that their actions can affect a politician’s reelection. As we saw in Proposition 3 (i), tenure can only make the performance of such bureaucrats worse. Since in practice strategic behavior is more likely to be relevant for high-level bureaucrats, this supports putting these positions outside of the tenure system. Indeed, most real-world systems designate several top-level positions as being “political”, i.e., appointed by whoever is in power without the constraints imposed by civil

\(^{30}\)In area B, the model with tenure also has another equilibrium in which the bad politician never exercises discipline. In this case, introducing tenure lowers welfare.

\(^{31}\)In the second condition in Part (iii) of Proposition 3, \( \frac{\Delta}{\pi^2} \) is decreasing in \( \pi \).
service regulations. The common view is that this ensures that politicians can choose top bureaucrats who share their preferences, but Wilson (1989, p198) points out that in practice the appointing politician (e.g., the president appointing an agency head) has very little idea of the preferences of his appointee on specific policy questions (some of which may only arise in the future). This model suggests an alternative explanation: the lack of tenure in these positions ensures that top bureaucrats are disciplined by the same electoral incentives as their appointers. This raises welfare by lowering their incentive to implement bad policies in order to undermine the politician.\(^\text{32}\)

Alternatively, the negative implications of tenure can be mitigated if bureaucrats have other means of communicating with voters besides the policies they implement. Whistle-blower rules that encourage public employees to reveal information about the policy-making process might serve this purpose. For example, the Civil Service Reform Act created the Office of Special Counsel specifically to protect whistle-blowers (Ingraham, 1995). In the model, this could allow a good bureaucrat to reveal a bad politician’s type without having to implement a bad policy. The above results suggest that pairing bureaucratic tenure with whistle-blower rules may be particularly useful.

### 6 Conclusion

This paper has presented a welfare analysis of civil service reform in a democracy. I focused on the effects of improving the quality of bureaucrats and of changing the degree of control that politicians have over them, including whether bureaucrats can be fired. In the US, these features of the civil service system have been at the center of policy debates at least since the Pendleton Act.

In the model, more compliant bureaucrats give politicians more incentive to choose good

\(^{32}\text{Concern over such “sabotage” by tenured bureaucrats led one Reagan administration official to recommend that career bureaucrats be kept in the dark regarding the objectives of specific policies and how the pieces of the policy puzzle fit together. This “jigsaw puzzle management” was thought to minimize bureaucrats’ incentive to distort policy implementation (Ingraham, 1995, pp100-101).}\)
policies and transmit more information to voters about the politicians’ type. When civil service reform reduces compliance, it can interfere with the ability of elections to discipline or screen politicians.

When there are few good bureaucrats, giving politicians control over them is desirable because it increases compliance and improves policy choices. By contrast, if a large increase in bureaucratic quality can be realized, lowering political control through civil service protections will improve welfare. This highlights the different assumptions upon which early and more recent US civil service reforms may have been based.

A tenure system increases bureaucrats’ incentives to implement bad policies to replace a politician who does not share their preferences. Thus, tenure tends to make bureaucrats’ performance worse, and this tends to lower welfare. Tenure can only be valuable when it improves the performance of the politician, or when the future gain from a higher quality bureaucracy offsets the short run welfare losses. For top-level bureaucrats prone to strategic behavior, withholding tenure may be a socially desirable way to align their incentives with that of the politician. Alternatively, a tenure system paired with whistle-blower protections may be more advantageous.

These results show that societies currently engaged in reforming the operation of their bureaucracies may face trade-offs between improving the performance of bureaucrats or the performance of politicians, especially in the context of a well-functioning electoral system. Optimal reform should consider the effect of civil service rules on both the policy-making and the electoral process.

References


A Appendix

A.1 Benchmark model

Equilibrium selection

The main text focuses on the equilibrium where voters reelect the politician iff \( e = S \) in period 1. Here, I show that either this is the only strategy that can be part of an equilibrium once the game is perturbed slightly, or all voter strategies result in the same outcomes of interest.

Voters have 3 other possible strategies: reelect iff \( e = 1 - S \) in period 1, always reelect, never reelect. Suppose first that \( \phi^G + \phi^B > 1 \), and consider the strategy “always reelect” or “never reelect.” Then good politicians should choose good policies, while bad ones should
choose bad policies. But then (5) and (6) imply that voters should reelect after $e = S$ but not after $e = 1 - S$, contrary to the starting assumption. These strategies can never be part of an equilibrium.

Now consider “reelect iff $e = 1 - S$ in period 1.” Then bad politicians choose a bad policy. If $\Delta > \beta(\phi^G \Delta + V_0)$, good politicians choose a good policy, and (5) implies that voters should reelect after $e = S$, contrary to the starting assumption. If $\Delta < \beta(\phi^G \Delta + V_0)$, good politicians also choose a bad policy. For suitable off-equilibrium voter beliefs, this can be a Perfect Bayesian Equilibrium. However, consider the following perturbation of the game, following Maskin and Tirole (2004): assume that a small fraction $\varepsilon$ of the politicians have $\beta = 0$. A fraction $\Pi$ of these is good, a fraction $(1 - \Pi)$ is bad, and since $\beta = 0$, each of them chooses their preferred policy. (Note that this does not affect the equilibrium described in the text.) Then even if all politicians with $\beta > 0$ pool on the bad policy, for any $\varepsilon > 0$ voters have a strict preference for reelecting after $e = S$, since $\hat{\Pi}|_{e=S} = ((1 - \phi^B)(1 - \varepsilon) + \varepsilon \phi^G)\Pi/[(1 - \phi^B)(1 - \varepsilon) + \varepsilon \phi^G]\Pi > \Pi$. Therefore this strategy cannot be part of an equilibrium for $\varepsilon > 0$, no matter how small $\varepsilon$ is.

Finally, suppose that $\phi^G + \phi^B = 1$. Then politicians’ choice does not matter for the implemented policy. Their actions are pinned down by the assumption that $\mu < 1$: good (bad) politicians choose good (bad) policies. Voters are always indifferent between reelecting or not, and all their strategies result in the same policy choices and welfare as the one considered in the text.

Proof of Proposition 1. (i) We may use (2), (3) and (4) to obtain the probability that the politician chooses a good policy:

$$\Pr(E_1 = S_1) = \Pi + (1 - \Pi)\lambda,$$

where $\lambda = G \left[ \beta((\pi I_{\Delta<h} + 1 - \pi)R + V_0) \frac{\pi I_{\Delta<h} + (1 - \pi)I_{r<h}}{1 + \pi(I_{\Delta<h} - 1) + \mu(1 - \pi)(I_{r<h} - 1)} \right]$ (9)

We have $\lambda = G[\beta(R + V_0)]$ when $h > \Delta$, $\lambda = G[\beta((1 - \pi)R + V_0)]$ when $h \in (r, \Delta)$, and
\( \lambda = 0 \) when \( h < r \). Using the fact that \( G' > 0 \) and comparing these cases yields the stated results regarding the politician’s choice.

Next, write \( \Pr(e_1 = S_1) = \Pi \phi^G + (1 - \Pi)[\phi^G \lambda + (1 - \phi^B)(1 - \lambda)] \). Using (2), (3) and (9), this becomes

\[
\Pr(e_1 = S_1) = \begin{cases} 
\Pi + (1 - \Pi)G[\beta(\bar{R} + V_0)] & \text{if } \Delta < h \\
\Pi + (1 - \Pi)(G[\beta((1 - \pi)\bar{R} + V_0)](1 - \pi) + \pi) & \text{if } r < h < \Delta \\
\pi & \text{if } h < r
\end{cases} \tag{10}
\]

Since period-1 welfare is \( \Delta \cdot \Pr(e_1 = S_1) \), comparing the three cases yields the results.

(ii) From (9), raising \( \pi \) lowers \( \lambda \) if \( h \in (r, \Delta) \) and leaves it unchanged otherwise. For the welfare effects, differentiate (10) with respect to \( \pi \) to get the results in the proposition.

**Proof of Proposition 2.** (i) Using (2), (3), and (7), the quality of the period-2 politician is given by

\[
\Pr(E_2 = S_2) = \begin{cases} 
\Pi + \Pi(1 - \Pi)(1 - G[\beta(\bar{R} + V_0)]) & \text{if } \Delta < h \\
\Pi + \Pi(1 - \Pi)(1 - \Pi)(1 - G[\beta((1 - \pi)\bar{R} + V_0)]) & \text{if } r < h < \Delta \\
\Pi & \text{if } h < r
\end{cases} \tag{11}
\]

Comparing these cases yields the results on the politician’s quality.

For the welfare comparisons, write \( \Pr(e_2 = S_2) = \Pr(E_2 = S_2)\phi^G + (1 - \Pr(E_2 = S_2))(1 - \phi^B) \). Thus, we have

\[
\Pr(e_2 = S_2) = \begin{cases} 
\Pr(E_2 = S_2) & \text{if } \Delta < h \\
\Pr(E_2 = S_2)(1 - \pi) + \pi & \text{if } r < h < \Delta \\
\pi & \text{if } h < r
\end{cases} \tag{12}
\]

Comparing these cases using (11) establishes the results.

(ii) The results for the politician’s behavior are obtained by differentiating (11) with
respect to \( \pi \). The welfare effects are obtained by differentiating (12).

### The present value of voter welfare

**Lemma 3** In terms of the discounted present value of voter welfare: (i) Selective control always dominates no control. Full control dominates selective control iff

\[
(1 - \Pi)(\Pi\beta + (1 - \beta\Pi)G[\beta(\bar{R} + V_0)]) > (\pi - \Pi)(1 + \beta).
\]

(ii) Improving the quality of bureaucrats lowers welfare when

\[
h \in (r, \Delta) \quad \text{and} \quad \beta\bar{R}(1 - \pi)G'[\beta((1 - \pi)\bar{R} + V_0)] - (1 - G[\beta((1 - \pi)\bar{R} + V_0)]) > \frac{\beta(1 - G[\beta((1 - \pi)\bar{R} + V_0)])\Pi(1 - \pi)}{1 - \beta\Pi(1 - \pi)},
\]

and increases otherwise.

**Proof.** The present value of voter welfare is given by

\[
\Delta(\Pr(e_1 = S_1) + \beta\Pr(e_2 = S_2)).
\]

Substituting in from (10) and (12) and rearranging yields the stated conditions. \( \blacksquare \)

**Corollary 1** (i) If full control dominates selective control in period 2, it also yields higher discounted welfare. (ii) \( \Pi > \pi \) is sufficient but not necessary for full control to dominate no control in terms of discounted voter welfare. (iii) Improving \( \pi \) can only reduce discounted voter welfare when it reduces period-1 welfare but raises period-2 welfare.

**Proof.** (i) The condition in Part (i) of Proposition 2 is sufficient (though not necessary) for the condition in Lemma 3 to hold. (ii) Follows directly from Lemma 3. (iii) In part (ii) of Propositions 1 and 2, note that

\[
\frac{1 - G}{G'} > \frac{2(1 - G) - \frac{1}{G'} - \frac{1}{G'}}{G'}.
\]

Note also that \( \frac{1 - G}{G'} > \beta\bar{R}(1 - \pi) \) is sufficient to get increasing discounted welfare from Lemma 3. Combining the two propositions and the above Lemma, we therefore have the following effects for an increase in \( \pi \): for \( \beta\bar{R}(1 - \pi) < \frac{2(1 - G) - \frac{1}{G'} - \frac{1}{G'}}{G'} \), period-1 welfare and discounted welfare rise, period-2 welfare falls; for \( \frac{2(1 - G) - \frac{1}{G'} - \frac{1}{G'}}{G'} < \beta\bar{R}(1 - \pi) < \frac{1 - G}{G'} \), every welfare term rises; for \( \frac{1 - G}{G'} < \beta\bar{R}(1 - \pi) \), period-1 welfare falls, period-2 welfare rises, while the change in discounted welfare depends on the condition in Lemma 3. \( \blacksquare \)
A.2 Infinite horizon

In this section I analyze how civil service reform affects the ability of elections to discipline or screen politicians when there are many periods. I show that the trade-off between better bureaucrats and better political performance can also arise in this case. This extends the results in Propositions 1 and 2 to an infinite horizon model.

The setup is as in Section 3, but there is an election after each period and the politician stays in office for as many period as he is reelected. I first consider an equilibrium with the following (Markov) strategies. Voters reelect after each period where the incumbent chose a good policy and do not reelect otherwise. The bad politician uses a cutoff strategy where he chooses the good policy whenever the realized rent in period \( t \), \( R_t \), is smaller than a cutoff value \( R^* \), and he chooses the bad policy otherwise. In this case, the continuation value \( V(R^*) \) tomorrow of a bad politician reelected today satisfies

\[
V(R^*) = V^0 + \int_{R^*}^{\infty} RdG(R)\phi^B + (1-\phi^B)\beta V(R^*)(1-G(R^*))+G(R^*)\phi^G \beta V(R^*)+(1-\phi^G)\mu \int_0^{R^*} RdG(R).
\]

Solving, we have

\[
V(R^*) = \frac{V^0 + \int_{R^*}^{\infty} RdG(R)\phi^B + (1-\phi^G)\mu \int_0^{R^*} RdG(R)}{1 - (1-\phi^B)\beta(1-G(R^*)) - G(R^*)\phi^G \beta}. \tag{13}
\]

Indifference at the cutoff \( R^* \) requires the payoff from choosing a bad policy today, \( \phi^BR^* + (1-\phi^B)\beta V(R^*) \), to equal that from choosing a good policy, \( (1-\phi^G)\mu R^* + \phi^G \beta V(R^*) \). The cutoff \( R^* \) is therefore defined by

\[
R^* = \beta V(R^*) \frac{\phi^B + \phi^G - 1}{\phi^B + \mu(\phi^G - 1)},
\]

where \( V(R^*) \) is given by (13).
Consider the case $h \in (r, \Delta)$, implying $\phi^G = 1$ and $\phi^B = 1 - \pi$. This yields

$$R^* = \beta \frac{V^0 + \int_R^\infty RdG(R)(1 - \pi)}{1 - \beta + (1 - \pi)\beta(1 - G(R^*))}.$$ 

One may check that the right-hand side of this expression is increasing in $R^*$, whereas its derivative w.r.t. $\pi$ is proportional to $\beta(1 - G(R^*))V_0 - \int_R^\infty RdG(R)(1 - \beta)$. For small enough $V_0$, this is negative, implying that $\frac{\partial R^*}{\partial \pi} < 0$. When the quality of bureaucrats is higher, the politician is less likely to exercise discipline, as in Proposition 1. Intuitively, when $V_0$ is low, the incentive for discipline comes from the possibility of getting a higher rent in the future if a bigger draw $R_t$ arrives and a bad policy is implemented. However, compliance with a bad policy is less likely when $\pi$ is larger, lowering the incentive for discipline.

To see the effect on screening (as in Proposition 2) consider the case of $\lambda = 0$ so that a bad politician never chooses a good policy (this is the case, e.g., when $\beta$ is close to 0), and assume $h \in (r, \Delta)$. Denoting $\Gamma_t$, the probability that a politician in office in period $t$ is good, we have

$$\Gamma_t = \Gamma_{t-1} + (1 - \Gamma_{t-1})(1 - \pi)\Pi,$$

where the second term comes from a bad politician who is thrown out of office and replaced by a good politician. Since $\Gamma_1 = \Pi$, some algebra yields $\Gamma_t = 1 - (1 - \Pi)[1 - (1 - \pi)\Pi]^{t-1}$, which is decreasing in $\pi$. In this case, improving the quality of bureaucrats lowers the probability of a good politician being in office in every period $t$. As in Proposition 2, this is because a higher $\pi$ makes it more likely that a bad politician is reelected in spite of his chosen policy.\footnote{Since a good politician, once elected, is never thrown out of office, $\Gamma_t \to 1$ as $t$ grows large regardless of $\pi$ or $\Pi$.}

### A.3 Career concerns

In this section I extend the benchmark model to include bureaucrats with career concerns, and describe the effects of civil service reform in this setting. The setup is the same as in...
the benchmark model of Section 3, but bureaucrats care about voters’ perception of their type. This captures the idea that bureaucrats care about alternative job opportunities where the perceived value of their talents matter. Following Alesina and Tabellini (2007), let the bureaucrat’s benefit be \( m \cdot \hat{\pi} \), where \( m \geq 0 \) is the market value of talent, and \( \hat{\pi} \) is voters’ belief that the bureaucrat is good given the implemented policy.

The bureaucrats’ probability of compliance \( \phi^G \) and \( \phi^B \) now has to be derived as part of the equilibrium. This yields\(^{34}\)

\[
\begin{cases} 
(1, 1) & \Delta < h \\
(1, 1 - \pi) & |r - \pi m| < h < \Delta + \pi m \\
(\pi, 1 - \pi) & h < r - m
\end{cases}
\]  

\text{(14)}

Just like in the benchmark model, a sufficiently high \( h \) can guarantee compliance with any policy. However, for \( h \in (\Delta, \Delta + \pi m) \), there is another equilibrium where good bureaucrats only implement good policies because the market value of their reputation is enough to compensate them for any punishment. Similarly, the value of reputation leads bad bureaucrats to comply with good policies even for \( h \in (r - \pi m, r) \).

Results equivalent to Proposition 1 and 2 can now be established as in Appendix A.1 by simply replacing the three parameter ranges \((\Delta < h, h \in (r, \Delta), h < r)\) with the corresponding ranges in (14). Part (i) of both propositions holds exactly as written, where full, selective and no control now refers to the new parameter ranges in (14). Part (ii) of both propositions holds replacing the \( h \in (r, \Delta) \) condition with \( h \in (|r - \pi m|, \Delta + \pi m) \).

Note that while in the benchmark model changing \( \pi \) never had an impact on welfare for

\(^{34}\)Let \( v_b(|e - S|, |E - e|) = |e - S|r - |E - e|h + m\hat{\pi}(|e - S|) \) and \( v_g(|e - S|, |E - e|) = (1 - |e - S|)\Delta - |E - e|h + m\hat{\pi}(|e - S|) \) denote, respectively, the good and the bad bureaucrat’s utility. For \( (\phi^G, \phi^B) = (1, 1) \), it has to be that \( v_b(x, 0) > v_b(1 - x, 1) \) and \( v_g(x, 0) > v_g(1 - x, 1) \) for \( x = 0, 1 \). Since \( \hat{\pi} = \pi \) after both policies, this becomes \( h > \Delta (> r) \). For \( (\phi^G, \phi^B) = (1, 1 - \pi) \), we need \( v_b(x, 0) > v_b(1 - x, 1) \) for \( x = 0, 1 \), \( v_g(0, 0) > v_g(1, 1) \), and \( v_g(1, 0) < v_g(0, 1) \). In this case, \( \hat{\pi}(0) = \pi \) and \( \hat{\pi}(1) = 0 \), which yields \( |r - \pi m| < h < \Delta + \pi m \). For \( (\phi^G, \phi^B) = (\pi, 1) \), we get a contradiction, leaving \( (\phi^G, \phi^B) = (\pi, 1 - \pi) \) as the only possibility left. This requires \( v_b(1, 0) > v_b(0, 1), v_b(0, 0) < v_b(1, 1), v_g(0, 0) > v_g(1, 1), \) and \( v_g(0, 0) < v_g(1, 1) \). Since \( \hat{\pi}(0) = 1 \) and \( \hat{\pi}(0) = 0 \), this gives \( h < r - m \).
$h > \Delta$, this is no longer the case in one of the equilibria when $h \in (\Delta, \Delta + \pi m)$. In this sense, the effects described in Propositions 1 and 2 appear for a larger set of parameters when bureaucrats have career concerns.

### A.4 Strategic bureaucrats

In this Appendix, I characterize the equilibrium of the tenured and nontenured versions of the model with strategic bureaucrats, and compare the two in terms of policies and voter welfare. First, Lemmas 4-6 characterize the equilibrium behavior of the bureaucrats and the politicians under the assumption that voters reelect iff $e = S$. As mentioned in the text, these Lemmas together with (5) and (6) imply that voters’ strategy is indeed a best response in the tenured system. Next, Proposition 4 completes the characterization of the equilibrium in each model, verifies that voters’ strategy is a best response also in the nontenured case, and compares the resulting policies and welfare in the two models.

**Lemma 4** In both the nontenured and the tenured system

(i) a good (bad) bureaucrat always complies with a good (bad) policy;

(ii) a good politician chooses a good policy;

(iii) a bad politician chooses a good policy if and only if

$$R < \beta \frac{(\rho^G - \rho^B)\bar{R} + (\phi_1^B + \phi_1^G - 1)V_0}{\phi_1^B + \mu(\phi_1^G - 1)},$$

where $\rho^G \equiv \Pr(e_1 = S_1, e_2 = 1 - S_2|E_2 = 1 - S_2, E_1 = S_1)$ is the probability that the politician is reelected and the bureaucrat holding the job in period 2 complies with a bad policy choice, conditional on a good policy choice in period 1; and $\rho^B \equiv \Pr(e_1 = S_1, e_2 = 1 - S_2|E_2 = 1 - S_2, E_1 = 1 - S_1)$ is the same probability conditional on a bad policy choice in period 1.

**Proof.** (i) This is clearly true in period 2. In period 1, not complying yields $-h$ immediately and potentially a positive payoff in period 2. However, the latter is at most equal to what compliance would have yielded today, therefore compliance is always better.
(ii) If the bureaucrat is good, choosing a good policy yields a strictly higher payoff. If the bureaucrat is bad, (i) implies that choosing a bad policy would cause the politician to be replaced, therefore choosing a good policy is at least as good. Thus, a good policy provides strictly higher expected payoff.

(iii) Given the voters’ reelection rule, a politician’s payoff from a good policy choice is $\beta(\rho^G \hat{R} + \phi_1^G V_0) + (1 - \phi_1^G) \mu R$, while his payoff from a bad policy choice is $\beta(\rho^B \hat{R} + (1 - \phi_1^B) V_0) + \phi_1^B R$. Comparing the two yields the condition in the Lemma.

**Lemma 5** In a nontenured system,

(i) a good politician never fires the bureaucrat after $e = S$ and always fires him after $e = 1 - S$. A bad politician does not fire after $e = 1 - S$ and fires after $e = S \neq E$.

(ii) a good bureaucrat complies with a bad policy if and only if $\Delta < h$. A bad bureaucrat complies with a good policy if either $r < h$, or if a bad politician does not fire the bureaucrat after $e = E = S$ and $r > h > r \frac{1 - \beta}{1 - \beta \pi + (1 - \pi) \lambda}$, where $\lambda$ is the probability that a bad politician chooses a good policy.

**Proof.** (i) Since $E = S$ for a good politician and a good bureaucrat always complies with this policy (Lemma 4), $e = S$ can never reveal a bureaucrat to be bad, while $e = 1 - S$ always does. For a bad politician with $E = 1 - S$, a bad bureaucrat would comply with this policy (Lemma 4), therefore $e = 1 - S$ can never reveal a bureaucrat to be good. If $E = S$, a good bureaucrat would comply (Lemma 4), therefore $e = 1 - S$ reveals the bureaucrat to be bad and he should not be fired.

(ii) Upon seeing a bad policy chosen, a good bureaucrat learns that the politician is bad. If he complies, the politician is not reelected, and the bureaucrat’s payoff is 0. If he implements a good policy he receives $\Delta - h$ and he is fired (part(i)). The bad policy is better iff $\Delta < h$.

After seeing a good policy, a bad bureaucrat’s belief regarding the politician is $p = \Pr(GP|E = S) = \frac{\pi}{\pi + (1 - \pi) \lambda}$. If he implements a bad policy, his payoff is $r - h$. If he complies
with the good policy, using part (i), the bureaucrat’s payoff is \(eta[pI_{r>h}(r-h) + (1-p)r]\) if a bad politician does not fire him, or \(\beta[pI_{r>h}(r-h)]\) if a bad politician fires him. If \(r-h < 0\), he complies. If \(r > h\) and he is fired by a bad politician, the bad policy is better. If he is not fired, the good policy is better iff \(h > \frac{r}{1-\beta} \). □

**Lemma 6** In a tenured system, a good bureaucrat complies with a bad policy if and only if \(\Delta \frac{1}{1+\beta H} < h\). A bad bureaucrat complies with a good policy if and only if \(r(1 + \beta\Pi(\frac{1}{1+H}\lambda - 1)) < h\), where \(\lambda\) is the probability that a bad politician chooses a good policy.

**Proof.** (i) Upon seeing a bad policy chosen, a good bureaucrat learns that the politician is bad. If he complies, his payoff is \(\beta[pI_{r>h}(r-h) + (1-p)r]\). If not, it is \(h + \beta I_{r>h}(r-h)\). The former is larger iff \(\Delta \frac{1}{1+\beta H} < h\). After seeing a good policy chosen, a bad bureaucrat’s belief regarding the politician’s type is \(p = \Pr(GP|E = S) = \frac{\Pi}{\Pi_0 + (1-\Pi)\lambda}\). If he complies, his payoff is \(\beta[pI_{r>h}(r-h) + (1-p)r]\). If he implements the bad policy, he gets \(r + \beta[pI_{r>h}(r-h) + (1-p)r]\). Comparing the two yields the condition. □

Next, simplify the notation by letting \(q_1 = q[\beta(R + V_0)]\), \(q_2 = q[\beta((1-\pi)R + V_0)]\), \(q_3 = q[\beta(R + V_0)\frac{\pi}{\mu + 1-\mu}]\), \(q_4 = q[\beta V_0\frac{\pi}{\mu + 1-\mu}]\) and \(q_5 = q[0]\). Let \(W^T_t\) and \(W^{NT}_t\) denote the probability of a good policy implemented in period \(t\) under tenure (T) and no tenure (NT), respectively (this is equal to social welfare divided by \(\Delta\)). The corresponding discounted present value is \(W^T = W^T_1 + \beta W^T_2\) and \(W^{NT} = W^{NT}_1 + \beta W^{NT}_2\). We are now ready to describe the effects of tenure.

**Proposition 4** Introducing the tenure system has the following effects.

(i) Assume \(\Delta < h\). If \(h < rq_1\) bad bureaucrats stop complying with good policies, and \(\lambda, W_1\) and \(W\) go down. If \(h > rq_3\), there is no change. If \(rq_1 < h < rq_3\), either of these may occur depending on which equilibrium is played.

(ii) Assume \(\max(r, \frac{\Delta}{1+\beta H}) < h < \Delta\). Then \(W_1\) and \(W\) go down. If \(rq_4 < h\), good bureaucrats start complying with bad policies and \(\lambda\) remains unchanged. If \(h < rq_2\), bad bureaucrats stop
complying with good policies, good bureaucrats start complying with bad ones, and λ declines. If \( r_q^2 < h < r_q^4 \), either of these effects may occur depending on which equilibrium is played.

Assume \( r < h < \frac{\Delta}{1+\beta\Pi} \). If \( r_q^5 < h \), bureaucrats’ behavior does not change but \( \lambda, W_1 \) and \( W \) increase. If \( h < r_q^1 \), bad bureaucrats stop complying with good policies, \( \lambda \) becomes 0 and \( W_1 \) falls. \( W \) increases if \( \frac{\pi}{\Pi} > \frac{\pi}{q_2-1} \) and falls otherwise. If \( r_q^1 < h < r_q^5 \), either of these effects may occur depending on which equilibrium is played.

(iii) Assume \( h < r \). Then \( W \) declines. If \( \frac{\Delta}{1+\beta\Pi} < h \), good bureaucrats start complying with bad policies, \( \lambda \) increases but \( W_1 \) goes down. If \( h < \frac{1}{1+\beta\Pi} \), there is no change in \( \lambda \) or \( W_1 \).

**Proof.** (i) \( \Delta < h \), therefore \( \phi_2^G = \phi_2^B = 1 \). Consider a nontenured system, Lemma 5 implies that \( \phi_1^G = \phi_1^B = 1 \). The bureaucrat’s type remains hidden from the politician, and he is therefore retained: \( \hat{\phi}_2^B (BP) = \hat{\phi}_2^G (GP) = 1 \) after either a good or a bad observed policy. If a good policy is chosen (and implemented), voters’ belief is \( \hat{\Pi} |_{e=1-S} = \frac{\Pi}{\Pi + (1-\Pi)\lambda} \). Condition (8) holds in this case, and voters reelect. If a bad policy is chosen, we have \( \hat{\Pi} |_{e=1-S} = 0 \), and (8) implies that voters don’t reelect. The bureaucrat in period 2 always complies, but only \( E_1 = S_1 \) leads to reelection, we therefore have \( \rho^G = 1 \) and \( \rho^B = 0 \), and therefore \( \lambda = G[\beta(\bar{R} + V_0)] \) from (15). We have \( W_1^{NT} = \Pi + (1-\Pi)\lambda_{NT} \) (which is simply the probability that \( E_1 = S_1 \)) and \( W_2^{NT} = \Pi + (1-\Pi)(1 - \lambda_{NT})\Pi \) (which is the probability of a good politician being reelected or a bad politician being replaced).

Consider a tenured system. Suppose \( r(1 + \Pi\beta(\frac{1}{\Pi + (1-\Pi)\lambda} - 1)) < h \). Lemma 6 implies that \( \phi_1^G = \phi_1^B = 1 \). We again have \( \rho^G = 1 \) and \( \rho^B = 0 \), and therefore \( \lambda = G[\beta(\bar{R} + V_0)] \). In this case, \( W_1^T = W_1^{NT} \) and \( W_2^T = W_2^{NT} \), introducing tenure has no effect. Suppose \( r(1 + \Pi\beta(\frac{1}{\Pi + (1-\Pi)\lambda} - 1)) > h \). Lemma 6 now implies \( \phi_1^G = \pi, \phi_1^B = 1 \). Since only \( E_1 = S_1 \) leads to reelection, \( \rho^G = \pi \) and \( \rho^B = 0 \). Therefore \( \lambda = G[\beta(\bar{R} + V_0)\frac{\pi}{\mu\pi + (1-\mu)}] \) from (15).

As stated in the proposition, introducing tenure causes bad bureaucrats to stop complying with good policies and politicians to choose bad policies with higher probability. We have \( W_1^T = \Pi \pi + (1-\Pi)\pi \lambda_T \) and \( W_2^T = \Pi \pi + (1-\Pi)\Pi(\lambda_T(1-\pi) + (1-\lambda_T)) \), and \( W_1^T - W_1^{NT} < 0 \), \( W^T < W^{NT} \).
(ii) \( r < h < \Delta \), therefore \( \phi_2^B = 1 - \pi \), \( \phi_2^G = 1 \). Consider a nontenured system. Lemma 5 implies \( \phi_1^B = 1 - \pi \), \( \phi_1^G = 1 \). After a good policy, \( \hat{\Pi}_{1-e-S} = \frac{\Pi}{1+(1-\Pi)(1-\lambda)} \). Since a bad politician who chose a bad policy learned that the bureaucrat is good, he will fire him. Thus, \( \hat{\phi}_2^G(GP) = 1 \) but \( \hat{\phi}_2^B(BP) = \lambda(1 - \hat{\pi}) + (1 - \lambda)(1 - \pi) \) where \( \hat{\pi} > \pi \) is the voters’ updated belief regarding the bureaucrat’s type. Condition (8) holds, and voters reelect. Therefore have … red the bureaucrat. Voters don’t reelect. We have …

With a good policy choice, it requires a good bureaucrat in period 1 (who is fired) and then a

Thus, \( \hat{\phi}_2^G(GP) = 1 \) but \( \hat{\phi}_2^B(BP) = \lambda(1 - \hat{\pi}) + (1 - \lambda)(1 - \pi) \) where \( \hat{\pi} > \pi \) is the voters’ updated belief regarding the bureaucrat’s type. Condition (8) holds, and voters reelect. After a bad policy, \( \hat{\Pi}_{1-e-1-S} = 0 \), and \( \hat{\phi}_2^G(GP) = \hat{\phi}_2^B(BP) = 1 \) since a good politician would have fired the bureaucrat. Voters don’t reelect. We have \( \rho^G = 1 - \pi \) and \( \rho^B = \pi(1 - \pi) \).

Therefore \( \lambda = G[\beta((1 - \pi)R + V_0)] \), \( W_1^{NT} = \Pi + (1 - \Pi)(\lambda_{NT} + (1 - \lambda_{NT})\pi) \) and \( W_2^{NT} = \Pi + (1 - \Pi)(\pi(\lambda_{NT} + (1 - \lambda_{NT})\pi) + (1 - \pi)(1 - \lambda_{NT})\Pi) \).

Consider a tenured system, and assume that \( h > \max\{\frac{\Delta}{1+\beta\Pi}, r(1 + \Pi\beta(\frac{1}{1+(1-\Pi)} - 1))\} \). From Lemma 6, \( \phi_1^G = \phi_1^B = 1 \), \( \rho^G = 1 - \pi \) and \( \rho^B = 0 \). Therefore \( \lambda = G[\beta((1 - \pi)\bar{R} + V_0)] \). In this case, introducing tenure causes good bureaucrats to start complying with bad policies while bad politicians remain equally likely to choose a good policy. Furthermore, \( W_1^T = \Pi + (1 - \Pi)\lambda < W_1^{NT} \), \( W_2^T = \Pi + (1 - \Pi)(\pi + (1 - \pi)(1 - \lambda)\Pi) \), and \( W^T < W^{NT} \). Now suppose that \( \frac{\Delta}{1+\beta\Pi} < h < r(1 + \Pi\beta(\frac{1}{1+(1-\Pi)} - 1)) \). From Lemma 6, \( \phi_1^G = \pi, \phi_1^B = 1, \) and \( \rho^G = \rho^B = 0 \). Therefore \( \lambda = G[\beta V_0 \frac{\pi}{\mu(\pi+1-\mu)}] \). As stated in the proposition, introducing tenure causes the bad bureaucrat to stop complying with good policies, the good bureaucrat to start complying with bad ones, and the politician to choose bad policies with higher probability. Moreover, \( W_1^T = \Pi\pi + (1 - \Pi)(\lambda_T \pi) < W_1^{NT} \), \( W_2^T = \pi + (1 - \pi)\Pi \), and \( W^T < W^{NT} \). Now suppose that \( \frac{\Delta}{1+\beta\Pi} > h > r(1 + \Pi\beta(\frac{1}{1+(1-\Pi)} - 1)) \). From Lemma 6, \( \phi_1^G = 1, \phi_1^B = 1 - \pi, \rho^G = 1 - \pi, \) and \( \rho^B = 0 \). Therefore \( \lambda = G[\beta(\bar{R} + V_0)] \). In this case, tenure causes no change in bureaucrats’ behavior but makes the politician more likely to choose a good policy. We also have \( W_1^T = \Pi + (1 - \Pi)(\lambda_T + (1 - \lambda_T)\pi) > W_1^{NT} \), \( W_2^T = \Pi + (1 - \Pi)(\pi + (1 - \pi)(1 - \lambda_T)\Pi) \), and \( W^T > W^{NT} \). Finally, suppose that \( h < \min\{\frac{\Delta}{1+\beta\Pi}, r(1 + \Pi\beta(\frac{1}{1+(1-\Pi)} - 1))\} \). From Lemma 6, \( \phi_1^G = \pi, \phi_1^B = 1 - \pi, \) and \( \rho^G = \rho^B = 0 \). Therefore \( \lambda = 0 \). As stated in the proposition, 

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35With a good policy choice, reelection and compliance with a bad policy in period 2 requires a bad bureaucrat. With a bad policy choice, it requires a good bureaucrat in period 1 (who is fired) and then a bad bureaucrat in period 2.
introducing tenure causes the bad bureaucrat to stop complying with good policies and the bad politician to stop choosing good policies. \( W^T_1 = \pi, W^T_2 = \pi + (1 - \pi)\Pi \), and after some algebra we find that \( W^T > W^{NT} \) iff \( \frac{\pi}{\Pi} > \frac{q[\beta((1-\pi)R+V_0)]}{q[\beta((1-\pi)R+V_0)]-1} \).

(iii) \( h < r \), therefore \( \phi^B_2 = 1 - \pi, \phi^G_2 = \pi \). Consider a nontenured system. From Lemma 5, \( \phi^B_1 = 1 - \pi, \phi^G_1 = \pi \). After a good policy, \( \hat{\Pi}_{e=S} = \Pi \). Since the bureaucrat’s type is revealed, he is fired if the politician is bad. Thus, \( \hat{\phi}^G_2 (GP) = 1 \) and \( \hat{\phi}^B_2 (BP) = 1 - \pi \). Condition (8) holds: voters reelect. After a bad policy, \( \hat{\Pi}_{e=S} = \Pi \). Since the bureaucrat’s type is revealed, he is fired if the politician is good. Thus, \( \hat{\phi}^G_2 (GP) = \pi \) and \( \hat{\phi}^B_2 (BP) = 1 \), and voters do not reelect. We have \( \rho^G = \rho^B = \pi(1-\pi) \) and \( \lambda = 0 \). We also have \( W^{NT}_1 = \pi \), and \( W^{NT}_2 = \pi(\Pi - \pi\Pi + 1) \).

Consider a tenured system. When \( h > \frac{\Delta}{1+\beta \Pi} \), Lemma 6 yields \( \phi^G_1 = \pi, \phi^B_1 = 1 \), and \( \rho^G = \rho^B = 0 \). Therefore \( \lambda = G[\beta V_0 \frac{\pi}{\pi\mu + 1-\mu}] \). As stated in the proposition, introducing tenure causes good bureaucrats to start complying with bad policies, and bad politicians to choose good policies with a positive probability. We also have \( W^T_1 = \Pi \pi + (1-\Pi)\pi \lambda_T < W^{NT}_1, W^T_2 = \pi \), and \( W^T < W^{NT} \). When \( h < \frac{\Delta}{1+\beta \Pi} \), Lemma 6 yields \( \phi^G_1 = \pi, \phi^B_1 = 1 - \pi \), and \( \rho^G = \rho^B = 0 \). Therefore \( \lambda_T = 0, W^T_1 = W^{NT}_1, W^T_2 = \pi \), and \( W^T < W^{NT} \). \( \blacksquare \)