

Reputation and Capture: Strategic Limits of the Administrative Presidency*

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Presidents rely on their political appointees to manage the bureaucracy on their behalf. Appointees often know more about their organizations than the president and, therefore, may be better positioned to generate bureaucratic support for the president's agenda. Yet, bureaucratic cooperation may be easier for appointees to sustain the more policy reflects the views of careerists tasked with implementation. I consider a model in which an appointee dictates a policy that a bureaucrat exerts effort to implement. The president is uncertain of both her appointee's management skill and the difficulty of the management problem her appointee faces. Instead, the president must infer the appointee's skill by observing his policy choice and whether implementation was successful. In equilibrium, both talented and weak appointees may give additional policy concessions to bureaucrats to ensure bureaucratic cooperation and improve their reputation with the president. This incentive exists even when the appointee shares the president's policy preferences. The results highlight fundamental strategic limitations of administrative tools to preserve presidential control over the bureaucracy.

Keywords: political appointments; accountability; bureaucratic motivation

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1 Introduction

“As I was learning at the Pentagon, it was much safer to win support within the department by subordinating one’s views or the views of the President to career officials than to try to reorient an entire department in line with the President’s thinking and his national security priorities.” — Donald Rumsfeld (2011, p. 323)

Political appointees are often, first and foremost, managers. As intermediaries between the president and the bureaucracy, they direct bureaucratic effort and marshal support for the president’s agenda within their organizations. In this role, appointees often confront resistance from the bureaucracy—bureaucrats may be skeptical of the ‘strangers’ at the helm of their organizations (Hecl 1977) or resistant to the administration’s agenda (Randall 1979; Kennedy 2015), or both. Because appointees require the assistance of career civil servants to implement the president’s policies, an administration cannot ignore the preferences of career bureaucrats without potentially undermining bureaucratic support for its policy initiatives (Zegart 2000; Lowande 2018; Lowande and Rogowski 2021; Acs 2021; Benn 2022). To ensure bureaucratic support, presidents understand that some policy concessions to the bureaucracy may be necessary—but, for appointees, these concessions may also ease the burden of managing a hostile bureaucracy, as Rumsfeld (2011) explains.

At the same time, appointees understand that their management decisions may be scrutinized by the president. As managers, appointees can acquire a nuanced understanding of the compromises necessary to ensure agency compliance with presidential directives—and yet, for these appointees, how they manage the bureaucrats that report to them influences the president’s assessments of their *own* ability. This means appointees face reputation concerns to demonstrate managerial skill through their management decisions. Appointees that face these reputation concerns may not necessarily use their managerial expertise to further the president’s policy interests if

doing so jeopardizes their reputation with the president.¹

This observation suggests that understanding both the management problems appointees confront and appointees' reputation incentives in view of those management problems is central to understanding how appointees exercise—or fail to exercise—control over the bureaucracy on behalf of the president. This paper explores both of these issues by examining how the accountability relationship between the president and her political appointees affects how appointees manage subordinate career civil servants and, in turn, how the management issues appointees confront shape the accountability relationship between the president and her appointees. A key insight of this analysis is that an appointee's desire to demonstrate management skill—and the need to ensure bureaucratic cooperation in order to do so—impede presidential control over the bureaucracy by creating incentives for appointees to give additional policy concessions to bureaucrats, even when appointees share the president's policy goals.

To explore these issues, I develop a formal model of interactions between an appointee acting as the political leadership of an agency and the career civil servants, when the appointee is subject to oversight by the president. I assume the appointee has the same preferences over policy as the president. In contrast, the bureaucracy is either aligned with or hostile towards the administration's policy aims. I draw a distinction between the policy or pragmatic expertise of the bureaucrat—modeled as a monopoly on policy implementation—and the managerial talent of the appointee. An appointee's managerial talent complements bureaucratic effort: a talented manager improves the efficacy of bureaucratic effort, while a weak manager dilutes the value of bureaucratic effort by possibly impeding policy success. This will imply that appointees that are skilled managers are always able to hold the line on policy more easily, whereas weak managers must provide additional policy inducements to bureaucrats to compensate for

¹This reputation concern is in contrast to the organizational reputation that bureaucrats have a shared interest in developing, discussed in Carpenter (2010).

their managerial shortcomings and motivate the bureaucrats to act.

A central premise of the model is that the president has less information about the inner-workings of an agency than the actors working inside the organization. To capture this, I assume the president is uncertain about both an appointee's managerial skill and the extent of policy disagreement between the administration and the bureaucracy, whereas the appointee knows the bias of the bureaucrat and the bureaucrat knows talent of the appointee. This means that the president must infer an appointee's skill based on the appointee's policy choice and whether the policy was successfully implemented. If the appointee is a talented manager, policy implementation will always be successful, provided the bureaucrat cooperates. Instead, if the appointee is a weak manager, policy implementation may be unsuccessful, even if the bureaucrat cooperates, due to poor management.

In formalizing these assumptions, the model highlights both challenges presidents confront in managing their appointees and challenges appointees confront in managing the bureaucracy. The president faces a two-dimensional inference problem: she does not know whether her appointee is weak or the bureaucracy is hostile. The president can only infer an appointee's talent and the difficulty of the management problem the appointee faces. Meanwhile, appointees can prioritize signaling their skill or the difficulty of their management problem. Appointees would like to hold the administration's line on policy, but bureaucratic support may be easier for appointees to sustain the more policy reflects the views of the careerists tasked with implementation. This matters precisely because appointees are evaluated, in part, on the basis of performance—not just what policies they dictate. This means an appointee may have an incentive to use their informational advantage to shift policy towards bureaucratic interests in order to ensure bureaucratic cooperation and improve their reputation with the president.

The key results (Propositions 2, 3, and 4) demonstrate that both weak and talented

appointees may have incentives to shift policy towards the interests of bureaucrats under different conditions provided there is the potential for sufficient disagreement between the bureaucracy and the administration. If officeholding benefits are sufficiently large and the president believes the appointee's management problem is sufficiently likely to be difficult, weaker appointees facing an aligned bureaucracy will shift policy towards the bureaucrat in order to motivate the bureaucrat to exert costly effort and avoid revealing their managerial weaknesses by imitating talented appointees that face a hard management problem (Proposition 2). Instead, if either office-holding benefits are not too large or the president believes the appointee's management problem is sufficiently likely to be easy, talented appointees that face a hostile bureaucracy will select policy more aligned with the interests of the bureaucracy to ensure weak appointees facing an easy management problem will be unwilling or unable to imitate their policy choices (Propositions 3 and 4).

The results reveal that it may be difficult for presidents to distinguish between an appointee simply exercising poor control over the bureaucracy (i.e., capture) and an appointee that confronts a genuinely difficult disagreement with career bureaucrats in his department. As a result, the president does not necessarily penalize appointees that provide excess concessions to the bureaucracy, so long as appointees maintain a reputation for strong management. Knowing this, weak managers may exploit the fact that even talented managers sometimes need to moderate their policy demands to gain cooperation from bureaucrats, whereas talented managers may skew policy towards the bureaucracy in order to prevent such imitation and preserve their reputation by reinforcing that they are facing strong resistance.

I show that presidents may retain appointees even when they give more concessions to bureaucrats than the president would like. In each case, providing additional policy concessions to the bureaucrat improves the appointee's reputation with the president and guarantees he retains his position. However, the improvement in the appointee's

reputation with the president comes at the expense of tighter control over policy as appointees give more concessions than are necessary to motivate bureaucrats to exert effort. This loss of control is due to both the nature of the management problems appointees confront and appointees' reputation concerns to demonstrate strong management skills in the face of those problems.

Importantly, the results both reflect presidents' struggles in practice and reconcile seemingly incompatible observations that cannot be reconciled in standard frameworks. Presidents often select appointees on the basis of ideological loyalty, yet frequently complain that their appointees have conceded too much to their bureaucracies (Hecklo 1977; Rodman 2010). Nevertheless, presidents are often reluctant to remove high-ranking political appointees even when appointees fail to hold the administration's line on policy. For instance, President Nixon complained about his "Donald Rumsfeld problem" when Rumsfeld repeatedly took positions that went against the administration's preferences. As Director of the Office of Economic Opportunity (OEO), Rumsfeld emerged as a forceful advocate for his agency even when it meant he was out of step with the policy priorities of the Nixon administration. Yet President Nixon did not remove Rumsfeld and Rumsfeld continued to advance in both the Nixon and Ford administrations. Some accounts have suggested that President Nixon's reluctance to dismiss Rumsfeld owed to his own conflict-avoidant tendencies (Rodman 2010; Mann 2004 p. 12). And yet few would dispute that President Nixon was capable of exercising strong political control over his cabinet when necessary.

Ultimately, this paper highlights structural limitations of administrative tools to preserve presidential control over policymaking (Nathan 1983; Burke 2000). A central point of this paper is that the management issues appointees confront affect presidential control over policymaking (Nathan 1983; Burke 2000) by determining the type of agency problem the president confronts with her appointees. In particular, appointees must gain the support of career bureaucrats in order to effectively implement the president's

policy agenda (Hecló 1977; Lowande 2018) and improve their reputation with the president (Gailmard 2022). By situating management concerns at the center of both presidential appointments *and* interactions between appointees and the bureaucracy, this argument represents a substantively important departure from previous theories of bureaucratic drift or insubordination.

This paper is structured as follows. First, I review the related literature. Then, I present a formal description of the model and assumptions. Next, I analyze the model and state the key equilibrium results. Finally, I conclude.

2 Related Literature

Administrative presidency strategies often rely on political appointees to exert control over the bureaucracy (Moe 1985; Lewis 2010). Previous work has emphasized that presidents attempt to appoint officials that share their views (Moe 1985; Lewis 2005; Lewis 2010), but often face tradeoffs between ideological alignment and competence (Krause and O’Connell 2019). While ideological alignment with the president is key, I argue that presidents also recognize the importance of managerial skill and seek to appoint and retain officials that not only agree with their policy goals, but also have the skill to effectively manage their bureaucracies (Hecló 1977; Rodman 2010) in order to preserve control over policymaking and motivate bureaucrats to act.

Promoting Managerial Skill While much empirical work finds that appointees increase policy alignment between their agencies and the president in practice (Moe 1985; Randall 1979; Stewart Jr and Cromartie 1982; Wood 1990; Wood and Anderson 1993; Wood and Waterman 1991, 1994), the appointment process may not necessarily identify the most qualified applicants. Moreover, politicization and centralization may worsen bureaucratic performance by introducing high turnover amongst managers (Hecló 1977; Dunn 1997) or by installing inept or untested managers (Cohen 1998),

which potentially erodes bureaucratic expertise (Gailmard and Patty 2007). This means interactions with bureaucrats may be negotiated by unqualified or untested appointees.

An important premise of this model is that ideology and managerial skill are different dimensions of an appointee's qualifications. This implies that screening for ideological alignment with the president does not perfectly screen for managerial skill.² As administrations have increasingly emphasized loyalty in personnel decisions (Lewis 2010), the president may be uncertain about an appointee's managerial capabilities, especially if appointees lack previous public sector experience.

Nevertheless, administrations still prioritize managerial skill in their appointments. For instance, George W. Bush and his team of advisors dismissed several potential candidates for defense secretary based on concerns about the candidates' managerial capabilities. Within the Bush administration, there was a clear consensus that the Pentagon required "strong management at the top" (Mann 2004 p. 263). Paul Wolfowitz, a veteran of several Republican administrations, was thought to be a top contender for the post, but lacked the managerial skill to lead the large Pentagon bureaucracy:

"Wolfowitz was admired, even by many of his adversaries, for his remarkable intelligence and diligence, but he was also criticized, even by some of his supporters for his lack of skill or interest in administration. Memos passing through the bureaucracy tended to linger on his desk..." (Mann 2004 p. 263)

Likewise, Pennsylvania Governor Tom Ridge and the former Senator from Indiana Dan Coats were considered for the position, despite the concerns that "a politician might not know much about the inner workings of the Department of Defense" (Mann 2004, p. 263). While mounting political opposition emerged with respect to Ridge's liberal voting record on defense issues, Coats' appointment would have caused managerial difficulties for Bush

²A clear example of this is Michael Brown's controversial management of the FEMA response to Hurricane Katrina.

himself, who desired a Secretary of Defense who could act as an effective counterweight to Colin Powell at the State Department.

During an interview with Coats during the transition period, Coats asked if he would have Bush's support if Powell encroached on his turf. Reluctant to adjudicate interagency conflicts, Bush instead sought to appoint a secretary that would be able to negotiate interactions with other cabinet members independently. Given his extensive management experience both in government and in the private sector, Donald Rumsfeld was thought to possess the skill necessary to manage operations at the Pentagon.

Motivating Bureaucrats Even under the direction of skilled leadership, bureaucrats may resist (Golden 2000) or drag their feet implementing policies they oppose. While presidents may dictate policy positions, bureaucrats can always defy presidential directives or reforms by simply refusing to act. In a notable instance of bureaucratic subterfuge, bureaucrats in the State Department neglected to remove an arsenal of obsolete Jupiter missiles from Turkey despite repeated direct orders from President Kennedy to do so because they were concerned about the implications of the action for bilateral relations with Turkey (Zegart 2000, p. 50-51).

Recent work emphasizes that bureaucratic non-compliance remains a common impediment to effective implementation (Krause 2009; Dickinson 2009; Krause and Dupay 2009; Rudalevige 2012; Kennedy 2015; Lowande 2018). Given this, presidents and their appointees understand they may need to moderate their policy demands in order to cultivate bureaucratic support. This suggests that the threat of bureaucratic resistance has a powerful effect on policymaking—even when presidents hold extensive unilateral authority—by constraining what the president is able to accomplish through the bureaucracy (Acs 2021).

To cultivate bureaucratic support, appointees may engage in advocacy, championing the views of the bureaucracy rather than the policy agenda of the president (Heclo

1977). A natural explanation for appointees tilting the balance between the president and the bureaucracy in favor of the career officials is that appointees, despite initial reservations, may actually come to share the views of their organizations. Previous work has emphasized that appointees may come to identify with the views and mandates of their respective agencies (Hecklo 1977), while more recent work has discussed the possibility that bureaucrats may persuade appointees to “come around” to their views (Alexander and Stacy 2021).³ Yet both arguments attribute this assimilation to preference changes that arise either through exposure (Hecklo 1977) or information transmission (Alexander and Stacy 2021) and so fail to capture important structural limitations to presidential control. Instead, ideological disagreements—not informational challenges—are at the core of the management difficulties between appointees and bureaucrats that I study.

Furthermore, advocacy alone is not sufficient to produce bureaucratic support: management skills also matter to the bureaucrats exerting effort on behalf of the president’s policy goals. The more management skill a political appointee develops, “the more the value of his *advocacy* [*sic*] appreciates in the eyes of the bureaucrats below” (Hecklo 1977 p. 196). Bureaucrats privy to the day-to-day operations within their departments notice the skill of the political leadership. Describing a cabinet secretary, a bureau chief noted:

“He had charisma, a really fine and open man who a lot of civil servants around here liked. But he never got a grip on the department. He didn’t really fight for what was needed and if he made a decision it was because he got maneuvered into it by the staff.” (Hecklo 1977, p. 196)

This suggests bureaucrats are aware of the strength of the political leadership—and are

³Prato and Turner (2022) also consider mechanisms by which the president may persuade bureaucrats to act in her interest. However, their model similarly focuses on policy-specific information asymmetries between top-level principals and bureaucrats that affect bureaucrat’s policy actions.

aware that weak leadership leaves their organizations vulnerable (Hecl 1977).

To capture these dynamics, the model embeds a tension between control over policy and bureaucratic cooperation by assuming the benefits of policy success depend on each actor's ideology, as well as the management skill of the political leadership. This assumption helps to illustrate how the strategic mechanism in this paper differs those in from previous work. The assumption implies a bureaucrat's willingness to exert effort implementing a policy depends on both how aligned the policy is with the bureaucrat's preferences and how effective an appointee is at managing bureaucratic operations. Both of these aspects of the appointee's management problem are common knowledge to appointees and bureaucrats.

The main result of this model is that appointees may make policy concessions even when they disagree with the bureaucrat. The concessions, in part, serve a motivational role (Hirsch 2016) by encouraging bureaucrats to comply with implementation, but also enable appointees to compensate for managerial weaknesses. In equilibrium, policy reflects the preferences of career bureaucrats not because of an appointee's fealty to the department or learning on-the-job, but rather due to the appointee's own reputation concerns and fundamental managerial imperatives. As a result, the equilibrium logic is able to capture the temptation to subordinate the president's views to those of the bureaucracy described by Rumsfeld: that doing so is an easier path to bureaucratic support for a political appointee.

3 The Model

I consider a two-period model in which a political appointee (A) dictates a policy position on behalf of the administration for a bureaucrat (B) to implement. Successful implementation requires that the bureaucrat exert costly effort. The appointee knows both his own ability and the bureaucrat's bias, whereas the president (P) is uncertain of

both her appointee’s managerial talent and the extent of policy disagreement between her administration and the bureaucracy. The bureaucrat’s bias determines the policy concessions necessary to incentivize implementation effort: less aligned bureaucrats require more policy concessions in order to exert effort implementing a policy, whereas more aligned bureaucrats require less. The president observes policymaking by the appointee and whether implementation successful and decides whether to retain the appointee. The president always seeks to retain only talented appointees, but faces a difficult inference problem: if the president observes policy concessions to the bureaucrat, the president must discern whether an appointee faces a difficult management problem or is simply a poor manager.

3.1 Formal Description

In each policymaking period $t = 1, 2$, the appointee chooses a policy position $x_t \in [0, 1]$ and the bureaucrat either exerts effort implementing the position ($e_t = 1$) or shirks ($e_t = 0$). Implementation effort is costly for the bureaucrat to provide and the bureaucrat incurs cost $0 < c < \bar{c} \equiv \frac{\theta_t}{2+\theta_t}$ if he exerts effort ($e_t = 1$).

Appointees are characterized by their managerial talent, $\theta \in \{\theta_t, 1\}$ where $\theta_t \in (0, 1)$, which is their private information. Managerial talent is a complement to bureaucratic effort: an appointee that is an effective manager is better able to translate bureaucratic effort into policy success. The common prior belief is that an appointee is talented, $\theta = 1$, with probability τ . With probability $1 - \tau$, the appointee has poor management skills, and $\theta = \theta_t$.

Policy Success Successful implementation depends on both an appointee’s management skill (θ) and bureaucratic effort (e_t). A policy x_t is successfully

implemented ($y_t = 1$) with probability θe_t and fails ($y_t = 0$) with probability $1 - \theta e_t$, or

$$y_t = \begin{cases} 1 & \text{with probability } \theta e_t \\ 0 & \text{with probability } 1 - \theta e_t. \end{cases}$$

Again, this captures that poor management dilutes the value or efficacy of bureaucratic effort.

Bureaucratic Resistance The president and her appointee share the same preferences over policy. I assume that the president and appointee's ideal policy is $x_t = 0$, whereas the bureaucrat's ideal policy is $x_t = b \in \{b_l, b_h\}$ with $0 < b_l < b_h < 1$. Throughout the analysis, I refer to a bureaucrat as hostile if there is substantial disagreement between the administration and the bureaucrat, or $b = b_h$, whereas I refer a bureaucrat as aligned if there is limited disagreement between the administration and the bureaucrat, or $b = b_l$.

The benefit of policy success ($y_t = 1$) to each actor is greater the more the policy reflects their preferences. I refer to bureaucratic bias, b , as the degree of bureaucratic resistance as it captures the extent of disagreement between the administration and the bureaucrat. If the bureaucrat is aligned (i.e., $b = b_l$), then the bureaucrat is relatively easy to motivate, in that the bureaucrat requires *less* policy concessions in order to exert effort. If the bureaucrat is hostile (i.e., $b = b_h$), then the bureaucrat is hard to motivate and the bureaucrat requires *more* policy concessions in order to exert effort.

Each actor obtains utility in period t given by:

$$\begin{aligned} u_t^P &= (1 - x_t)y_t \\ u_t^A &= (1 - x_t)y_t + \rho\{\text{in office}\} \\ u_t^B &= (1 - |b - x_t|)y_t - ce_t. \end{aligned}$$

The parameter $\rho < \frac{1}{\delta} \left(2 - b_l - \frac{c}{\theta_l}\right) + \tau \left[1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l}\right)\right] \equiv \bar{\rho}$ captures the pure-office

holding benefit to the appointee.⁴

Observing Policy and Success Following the first period, the president observes the position taken and whether or not it was successfully implemented (x_1, y_1) and either retains ($r = 1$) or removes ($r = 0$) the appointee. If the appointee is removed, he is replaced by an ex ante identical appointee.

Information The president does not know either the appointee's managerial capabilities, $\theta \in \{\theta_l, 1\}$, or bureaucratic resistance, $b \in \{b_l, b_h\}$. The president only knows the prior probability an untried appointee is talented, τ , and the prior probability a bureaucratic is hostile, β . The appointee knows his own skill, θ , and the bureaucrat's bias, b . The bureaucrat knows whether or not the appointee is a skill manager, θ . This reflects that both appointees and bureaucrats have more information about the day-to-day inner workings within a department, while the president often only observes the outcomes of interactions between their appointees and the career bureaucrats they manage.

Strategies and Beliefs A strategy for the bureaucrat is a probability of exerting effort for each possible policy position given his policy preferences and appointee skill: $\hat{e}_t : b \times \theta \times x_t \rightarrow [0, 1]$. A strategy for the appointee is a probability distribution over policy positions given his management skill and the bureaucrat's preferences: $\hat{\chi}_t : \theta \times b \times [0, 1] \rightarrow [0, 1]$.⁵ A strategy for the president is probability of retention for each possible policy position and success or failure $\hat{r} : x_1 \times y_1 \rightarrow [0, 1]$. The president's beliefs are given by $\hat{\tau} : x_1 \times y_1 \rightarrow [0, 1]$ and assign for each policy choice and outcome (x_1, y_1) a probability the appointee is talented ($\theta = 1$).

⁴This ensures that the restriction to $x \in [0, 1]$ does not arbitrarily limit a talented appointee's ability to differentiate himself.

⁵A pure strategy is simply a policy choice given the appointee's management skill and the bureaucrat's preferences: $\hat{x}_t : \theta \times b \rightarrow [0, 1]$. I use this notation if the equilibrium is in pure strategies for the appointee.

4 Analysis

The analysis identifies perfect Bayesian equilibria (PBE) in which beliefs satisfy the D1 criterion (Cho and Kreps 1987). This refinement requires that beliefs following out-of-equilibrium actions assign positive probability only to the type most tempted by the deviation, relative to the type's expected utility in the equilibrium profile. This will mean that off-path policies will be associated with weak appointees. If multiple equilibria exist, I focus on the equilibrium that maximizes the president's expected utility.

An equilibrium is a profile $(\chi^*, e^*, r^*, \tau^*)$ that specifies the appointee's policy choices, bureaucrat's effort decisions, and the president's retention decision and beliefs. In equilibrium, the president understands how her appointees select policy. Similarly, appointees understand the inference the president will draw about their managerial skill based on their policy choices and the policy outcomes. I focus on equilibrium strategies in the main text and provide full characterizations of equilibria in Appendix A.1 and off-path beliefs in Appendix A.2. In Appendix A.3, I characterize general features of equilibria. In Appendix A.4, I provide conditions for principal welfare maximization.

4.1 Policymaking Without Reputation Concerns

First, I consider how an appointee selects policy in the second period when he does not face removal by the president and, therefore, does not face reputation concerns to demonstrate managerial skill. In each period, the appointee's policy choice depends on the bureaucrat's willingness to exert effort. In the second period, the appointee will choose the policy most aligned with the president's interests that ensures bureaucratic cooperation.

Bureaucratic Cooperation ($t = 2$) In the second period, bureaucratic effort does not affect an appointee's retention prospects. This means the bureaucrat will exert effort only

if the policy benefits in the second period outweigh the cost of effort, or

$$\theta(1 - |b - x_2|) \geq c$$

which implies

$$e_2^*(\theta, x; b) = \begin{cases} 1 & \text{if } b + (1 - \frac{c}{\theta}) \geq x_2 \geq b - (1 - \frac{c}{\theta}) \\ 0 & \text{otherwise.} \end{cases} \quad (1)$$

This captures that a bureaucrat is more willing to exert effort when the appointee is more skilled or when policy reflects his preferences.

Appointee's Policy Choice ($t = 2$) Without reputation concerns, both skilled and weak appointees attempt to maximize their policy utility given their private information—their managerial skill and the difficulty of the management problem they confront. This also maximizes the president's expected utility and control over policy since I assume there is no preference conflict between the president and her appointees.

Given the bureaucrat's effort decision, an appointee will select policy according to

$$x_2^*(b; \theta) = \begin{cases} 0 & \text{if } b \leq 1 - \frac{c}{\theta} \\ b - (1 - \frac{c}{\theta}) & \text{if } b > 1 - \frac{c}{\theta}. \end{cases} \quad (2)$$

The appointee will only select the administration's ex ante ideal policy if there is substantial alignment between the bureaucrat and the administration. Otherwise, the appointee is willing to moderate his policy demands—selecting policy closer to the bureaucrat's ideal—in order to encourage bureaucratic effort. Ensuring bureaucratic cooperation is in the administration's interests even if it requires significant policy concessions.

Assumption 1 (*Policy Disagreement*) $1 - \frac{c}{\theta_l} < b_l < 1 - c$ and $b_h > b_l + c \left(\frac{1}{\theta_l} - 1 \right)$.

Assumption 1 guarantees that (i) a bureaucrat always requires more policy concessions from a weaker appointee in order to exert effort, but (ii) there is overlap in policies different types of bureaucrats will exert effort to implement. That is, the aligned bureaucrat is also willing to exert effort implementing some policies the hostile bureaucrat is willing to implement. Given assumption 1, if the bureaucrat is aligned, a talented manager is able to induce cooperation without policy concessions, whereas if the bureaucrat is hostile, even a talented appointee must offer policy concessions in order to induce the bureaucrat to exert effort.

Lemma 1 and Remark 1 state these implications formally. Lemma 1 describes the second period policy choice for both skilled and weak appointees, while Remark 1 describes the spatial configuration of the policies each type of appointee adopts. Given assumption 1, the policy adopted by a talented appointee facing a hostile bureaucracy is always further from the president's ideal than policies adopted by even a weak appointee facing an aligned bureaucracy. Figure 1 depicts the spacial configuration of second period policy graphically.

Lemma 1 (*Second Period Policy*) *In any equilibrium,*

$$\begin{aligned} x_2^*(b_l; 1) &= 0 & x_2^*(b_l; \theta_l) &= b_l - \left(1 - \frac{c}{\theta_l}\right) \\ x_2^*(b_h; 1) &= b_h - (1 - c) & x_2^*(b_h; \theta_l) &= b_h - \left(1 - \frac{c}{\theta_l}\right). \end{aligned}$$

Remark 1 Given assumption 1,

$$x_2^*(b_l; 1) = 0 < x_2^*(b_l; \theta_l) = b_l - \left(1 - \frac{c}{\theta_l}\right) < x_2^*(b_h; 1) = b_h - (1 - c) < x_2^*(b_h; \theta_l) = b_h - \left(1 - \frac{c}{\theta_l}\right).$$

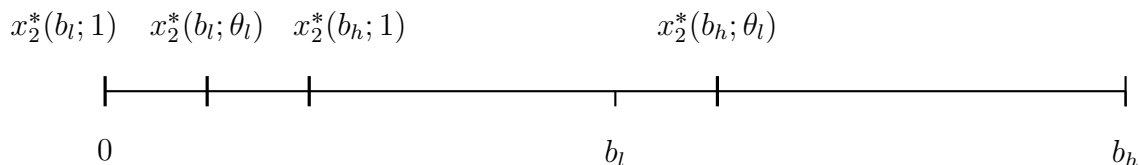


Figure 1: Policy ($t = 2$)

4.2 Retention Decision

Given the policymaking behavior described in Lemma 1, the president's second period expected utility given an appointee of type θ and bureaucrat with preferences b is

$$\mathbb{E}u_2^P(\theta, b) = \begin{cases} \theta & \text{if } b \leq 1 - \frac{\epsilon}{\theta} \\ \theta(2 - b - \frac{\epsilon}{\theta}) & \text{if } b > 1 - \frac{\epsilon}{\theta}. \end{cases} \quad (3)$$

The president always prefers a skilled manager to an ineffective one, irrespective of the type of bureaucracy the appointee faces. This is because talented managers select policies more aligned with the president's interests and are better able to ensure the success of those policies through their management. This observation implies that the president will only retain an appointee if the president believes the appointee is at least as talented as his replacement.

Lemma 2 (*Appointee Retention*) *The president will retain an appointee only if $\hat{\tau} \geq \tau$. Otherwise, if $\hat{\tau} < \tau$, the president dismisses the appointee.*

Lemma 2 states that presidents seek to retain only skilled managers and dismiss appointees with weaker management skills. Again, this follows directly from the observation that talented appointees guarantee both tighter control over policy and a greater likelihood of success with those policies. The president's desire to retain only talented appointees creates reputation concerns for appointees who seek to demonstrate managerial talent in order to be retained.

4.3 Policymaking With Reputation Concerns

Now I consider policymaking by appointees in the first period, when appointees have reputation concerns to demonstrate management skill. I assume throughout this analysis that appointees place a sufficiently high value on retaining their positions. This captures the substantively important case when an appointee's reputation concerns are in conflict with the policy goals of the administration. Assumption 2 guarantees that appointees are willing to sacrifice policy utility if doing so improves their retention prospects.

Assumption 2 $\rho > \frac{1}{\delta} \left[(b_h - b_l) - \left(\frac{c}{\theta_l} - c \right) \right] + \tau \left[1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right] \equiv \underline{\rho}$.

Bureaucratic Cooperation ($t = 1$) In the first period, the bureaucrat's effort affects the information available to the president when she decides whether to retain the appointee by determining the likelihood of policy success. If the president believes both talented and weak appointees select a particular policy and that bureaucrats exert effort implementing talented appointees' policies, then policy failure reveals an appointee is weak—as only weak appointees experience policy failure if the bureaucrat cooperates.

Because the bureaucrat's effort affects the information available to the president, I first consider under what conditions a bureaucrat may have incentives to undermine implementation in order to convey information to the president to influence her retention decision. A bureaucrat's willingness to undermine implementation depends on the bureaucrat's preferences over the type of appointee he confronts in the second period. Given the policymaking behavior described in Lemma 1, the bureaucrat's second period expected utility from an appointee with skill θ is

$$\mathbb{E}u_2^B(\theta; b) = \begin{cases} \theta(1 - b) - c & \text{if } b \leq 1 - \frac{c}{\theta} \\ 0 & \text{if } b > 1 - \frac{c}{\theta}. \end{cases} \quad (4)$$

While aligned bureaucrats ($b = b_l$) prefer a skilled manager to an ineffective one,

hostile bureaucrats ($b = b_h$) are indifferent between skilled and unskilled managers. This is because, while skilled managers improve the likelihood of policy success, unskilled managers offer hostile bureaucrats policy concessions that compensate for their worse management. This means hostile bureaucrats exert effort as in the second period or if

$$\theta(1 - |b_h - x|) \geq c, \quad (5)$$

whereas aligned bureaucrats may have an incentive to sabotage implementation by weak appointees if policy success would lead to the appointee's retention.

In contrast, because the aligned bureaucrat strictly prefers to be managed by a talented appointee, his first period effort incentives depend on the inference the president will draw based on success or failure of a particular policy choice. If an appointee's policy choice perfectly reveals their managerial abilities, then an aligned bureaucrat will exert effort as in the second period, or provided

$$\theta(1 - |b_l - x|) \geq c. \quad (6)$$

If success ensures retention, an aligned bureaucrat managed by a talented appointee will exert effort only if:

$$(1 - |b_l - x|) \geq c - \delta(1 - \tau)(1 - b_l - c). \quad (7)$$

In contrast, if success ensures retention, an aligned bureaucrat managed by a weak appointee will exert effort only if:

$$\theta_l(1 - |b_l - x|) \geq c + \delta\theta_l\tau(1 - b_l - c). \quad (8)$$

Conditions 7 and 8 show that an aligned bureaucrat will be more willing to exert effort on behalf of a talented appointee and less willing to exert effort on behalf of a weak appointee in the first period. This means an aligned bureaucrat requires more policy concessions from a weak appointee in the first period in order to cooperate if policy success ensures

retention.

The aligned bureaucrat will be unwilling to shirk in order to guarantee removal of a weak appointee if there is sufficient policy disagreement, where

$$\theta_l(1 - |b_l - (b_h - (1 - c))|) - c > \delta\tau\theta_l(1 - b_l - c) \quad (9)$$

gives the condition

$$b_h > b_l + c \left(\frac{1}{\theta_l} - 1 \right) + \delta\tau(1 - b_l - c) \equiv \bar{b}_h. \quad (10)$$

This ensures that the first period cost of sabotage outweighs the future benefit of good management. Given the configuration of policy preferences (assumption 1), as b_h increases, aligned bureaucrats obtain more policy concessions as weak appointees attempt to build a strong reputation with the president.

Instead if $b_h \leq \bar{b}_h$, an aligned bureaucrat will shirk even if a weak appointee selects policy more aligned with the bureaucrat's preferences. This means weak appointees facing an aligned bureaucrat will be unable to generate bureaucratic support without revealing their weakness to the president. I refer to this behavior as bureaucratic sabotage as aligned appointees are willing to incur a first period policy cost to ensure removal of a weak appointee.

Appointee's Policy Choice ($t = 1$) The key insight in this analysis is that appointees facing reputation concerns may distort their policy choices in order to improve their reputation with the president and ensure retention. In particular, appointees may select policies more aligned with the interests of the bureaucrat, rather than exercising maximal policy control on behalf of the president. I refer to this behavior as appointee capture.

Before preceding with the analysis, I provide a formal conditions for appointee capture (definition 1). Intuitively, appointee capture occurs when an appointee gives more policy concessions to bureaucrats than the president would like. While the president understands

that policy concessions are sometimes necessary to encourage bureaucratic cooperation, she prefers appointees give no more concessions than are necessary to induce effort.

Definition 1 (*Presidential Control vs. Appointee Capture*) *Presidential control occurs if $x_1^*(b; \theta) = x_2^*(b; \theta)$. Appointee capture occurs if $x_1^*(b; \theta) > x_2^*(b; \theta)$.*

If $b_h \leq \bar{b}_h$, then an aligned bureaucrat will be unwilling to cooperate with a weak appointee if policy success ensures the appointee is retained—even if the weak appointee offers additional policy concessions. This undermines a weak appointee’s incentives to hide behind the hard management problem of a talented appointee. The aligned bureaucrat maintains presidential control over policy by sabotaging implementation of policies that could lead to retention of weak appointees. This undermines weak appointees’ incentives to distort policy, and, at the same time, enables talented appointees facing hard management problems to maintain control without fear of imitation. Proposition 1 states this result.

Proposition 1 (*Presidential Control With Sabotage*) *Let $\rho > \underline{\rho}$. There exists an equilibrium that satisfies the D1 refinement, in which the president maintains control over policy in the first period only if $b_h \leq \bar{b}_h$.*

Instead, if $b_h > \bar{b}_h$, an aligned bureaucrat is willing to exert effort implementing policies he views as sufficiently favorable, even if that means a weak appointee may be retained. This affects policymaking incentives for both weak appointees and talented appointees facing a hostile bureaucracy. Weak appointees may be tempted to imitate the talented appointee that faces a hostile bureaucracy, and talented appointees facing a hostile bureaucracy may attempt to differentiate themselves from weak appointees by emphasizing the difficulty of their management problem.

A weak appointee’s ability to exploit the fact that even talented appointees may need to provide concessions to bureaucrats to gain retention depends on the president’s

ex ante belief that the bureaucrat is hostile, which captures the difficulty of the management problem an appointee faces. This impacts the incentives for both talented appointees facing hard management problems and weak appointees to shift policy towards bureaucratic interests. Either the president believes the appointee is likely to face a hostile bureaucracy or she believes the appointee is likely to face an aligned bureaucracy. In the first case, the president anticipates that the appointee likely faces a *hard management problem*, whereas, in the latter case, the president anticipates that the appointee likely faces an *easy management problem*. Definition 2 formally states this condition.

Definition 2 (*Management Problem*) *If $\beta \geq \frac{\theta_l}{1 + \theta_l} \equiv \bar{\beta}$, then the president believes the appointee is sufficiently likely to confront a hard management problem. If $\beta < \bar{\beta}$, then the president believes the appointee is sufficiently likely to confront an easy management problem.*

Under either condition, a talented appointee facing an aligned bureaucrat can always ensure success without policy concessions—and is the only type of appointee able to do so. This means policy success without concessions will always reveal strong management skill. In any equilibrium, talented appointees that face an easy management problem will always be able to hold the administration’s line on policy and will always be retained. Therefore, talented appointees that face an easy management problem will never appear captured.

There are three different types of equilibrium capture that may arise. First, weak appointees facing an easy management problem may give additional policy concessions to the bureaucrat to imitate talented appointees that face a hard management problem. Second, talented appointees that face a hard management give additional concessions to avoid reinforce that their management problem is difficult and avoid imitation. Third, both talented and weak appointees that face a hard management problem give additional

concessions to bureaucrats. In what follows, I provide conditions for when each type of capture occurs.

If a Hard Management Problem Is Likely First, I consider the types of capture that arise when the president believes appointees are likely to face a hard management problem. If the management problem is sufficiently likely to be hard (i.e., $\beta \geq \bar{\beta}$) and office motivations are sufficiently strong (i.e., $\rho > \hat{\rho}$), talented appointees and weak appointees facing a hostile bureaucracy will select the policy that maximizes the president's control over policy. This is because both talented appointees and weak appointees facing a hostile bureaucracy do not confront a tradeoff between policy control and retention.

A talented appointee will always be able to distinguish himself from a weak appointee through policy success if he selects the policy that maximizes his policy utility. Similarly, if the president believes the management problem is sufficiently likely to be difficult, a talented appointee facing a hostile bureaucracy is always retained provided implementation is successful, even if he selects a policy that is also chosen by a weak appointee facing an aligned bureaucrat. This means a weak appointee facing a hostile bureaucracy cannot ensure bureaucratic cooperation without revealing his managerial weaknesses. In order to gain the cooperation of hostile bureaucrats, a weak appointee must provide more policy concessions to the bureaucrat than a talented appointee facing the same type management problem. Given this, a weak appointee facing a hostile bureaucracy will choose the position that maximizes his policy utility even if doing so ensures removal.

In contrast, a weak appointee facing an easy management problem confronts a tradeoff between policy control and retention: he can either promote the administration's interests at the expense of his own career concerns, or he can provide more concessions to the bureaucrat and potentially avoid removal. If the bureaucrat is willing to cooperate and officeholding benefits are sufficiently large, the benefit of retention outweighs the loss of

policy control and the weak appointee facing an aligned bureaucrat selects the policy a talented appointee chooses when facing a hard management problem. Proposition 2 states this result formally: if the management problem is sufficiently likely to be hard and office motives are sufficiently strong, the president maintains control over policy in the first period only if either the appointee is talented or the bureaucracy is hostile. Figure 2 depicts the equilibrium policy positions graphically.

Proposition 2 *Let $b_h > \bar{b}_h$ and $\beta \geq \bar{\beta}$. Then there exists $\rho > \hat{\rho} \in (\underline{\rho}, \bar{\rho})$ such that, in the equilibrium that maximizes the president's welfare and satisfies the D1 refinement, the president maintains control over policy only if either the appointee is talented (i.e., $\theta = 1$) or the bureaucracy is hostile (i.e., $b = b_h$), while the weak appointee facing an easy management problem is captured and*

$$x_1^*(b_l; \theta_l) = b_h - (1 - c). \quad (11)$$

In the equilibrium described in Proposition 2, the president is unable to distinguish between a talented appointee that faces a hard management problem and a weak appointee that is captured. This means that the president sometimes retains a weak appointee following policy success in the first period. This is costly for the president as retention of a weak appointee results in worse policy utility in the second period. In Appendix A.4, I compare this equilibrium to equilibria in which talented appointees facing hard management problems are captured, but not imitated by weak appointees facing easy management problems. In such an equilibrium, the president is able to distinguish between the type of management problem an appointee faces and possibly also discern the skill of appointee. As the level of office-holding benefits determines the extent of distortions necessary to prevent weak appointees facing an easy management problem from imitating talented appointees facing hard problems, this equilibrium is only welfare maximizing for the president given sufficiently strong office motivations—when distortions by talented

appointees would need to be sufficiently large to induce separation.

If the benefits of office-holding are not so large (i.e., $\rho < \hat{\rho}$), then the second period cost of retaining a weak appointee outweighs the first period benefit of increased control by talented appointees. Under these conditions, the equilibria that maximize the president's welfare involve capture of talented appointees that face hard management problems. If $\hat{b} > b_h > \bar{b}_h$, then talented appointees give additional policy concessions to bureaucrats, but the president maintains control over policymaking if the appointee is weak or the bureaucrat is aligned. This worsens first period policymaking if appointees are talented face hard management problems, but improves first period policymaking by weak appointees that face an easy management problem, as these appointees are no longer tempted to distort their policy choice in order to gain retention. This equilibrium also improves second period policymaking by enabling the president to differentiate between talented and weak appointees and, therefore, only retain talented appointees. Figure 3 illustrates this case.

If $b_h > \hat{b}$, then weak appointees that face an easy management problem can imitate talented appointees that give additional concessions to bureaucrats and generate bureaucratic cooperation. In this case, the president will be unable to differentiate between talented and weak appointees that face hard management problems, if policymaking is successful. This means the president will sometimes retain weak appointees. However, the president will prefer this distortion to distortions by a weak appointee facing an easy management problem, provided office benefits are not too large. Proposition 3 summarizes these results.

Proposition 3 *Let $\beta \geq \bar{\beta}$ and $\rho < \hat{\rho}$. If $\hat{b} > b_h > \bar{b}_h$, then in the equilibrium that maximizes the president's welfare and satisfies the D1 refinement, the president maintains control if the appointee is weak (i.e., $\theta = \theta_l$) or if the bureaucrat is aligned (i.e., $b = b_l$),*

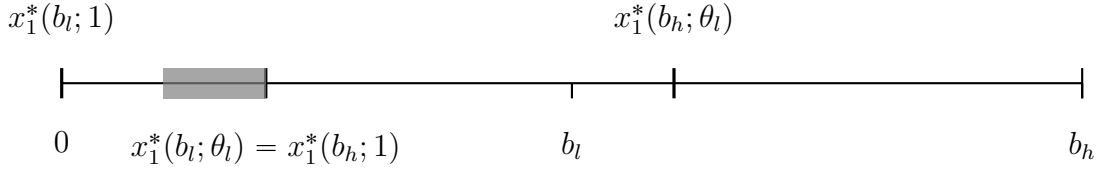


Figure 2: Policy - weak appointee with an easy management problem is captured ($t = 1$)
 Note: The dark shaded region represents the additional policy concessions the aligned bureaucrat receives from a weak appointee.

while the talented appointee facing a hard management problem is captured, and

$$x_1^*(b_h; 1) = b_l - \left(1 - \frac{c}{\theta_l}\right) + \delta \left[\rho - \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l}\right)\right) \right] \equiv \hat{x}. \quad (12)$$

Instead, if $b_h > \hat{b}$, the president only maintains control if the bureaucrat is aligned and both talented and weak appointees facing a hard management problem are captured, $x_1^*(b_h; 1) = x_1^*(b_h; \theta_l) = \hat{x}$.

If an Easy Management Problem Is Likely Now I consider the types of capture that arise when the president believes appointees are likely to confront an easy management problem. If the president believes the management problem is sufficiently likely to be easy (i.e., $\beta < \bar{\beta}$), a talented appointee facing a hard management problem chooses policy to leave the weak appointee facing an easy management problem indifferent between choosing policy to maximize control and shifting policy towards bureaucratic interests to gain retention. If office benefits are not too large (i.e., $\rho < \tilde{\rho}$), then weak appointees facing a hard management problem are unable to imitate the policy success of talented appointees that also face a hard management problem. Instead, if office benefits are sufficiently large (i.e., $\rho \geq \tilde{\rho}$), then weak appointees facing a hard management problem can imitate the policy success of talented appointees. These results are summarized in Proposition 4.

Proposition 4 Let $\beta < \bar{\beta}$. If $\underline{\rho} < \rho < \tilde{\rho}$, then in the equilibrium that maximizes the

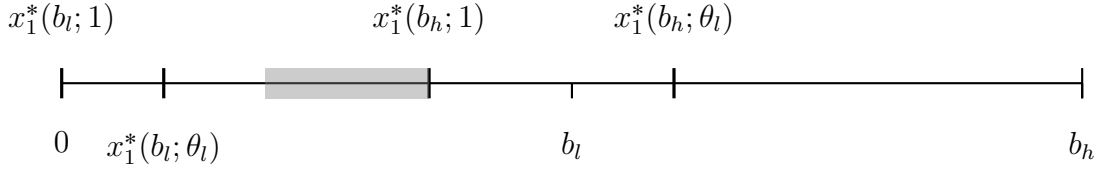


Figure 3: Policy - talented appointee with a hard management problem is captured ($t = 1$)
 Note: The light shaded region represents the additional policy concessions a hostile bureaucrat receives from a talented appointee.

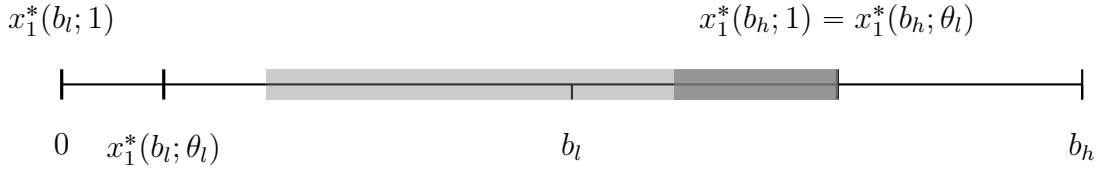


Figure 4: Policy - appointees with hard management problems are captured ($t = 1$)
 Note: The light shaded region represents the additional policy concessions a hostile bureaucrat receives from a talented appointee, whereas the dark shaded region represents the additional policy concessions a hostile bureaucrat receives from a weak appointee.

president's welfare and satisfies the D1 refinement, the president maintains control over policy if either the appointee is weak (i.e., $\theta = \theta_l$) or the bureaucracy is aligned (i.e., $b = b_l$), while the talented appointee facing a hard management problem is captured, and $x_1^(b_h; 1) = \hat{x}$. If $\rho \geq \tilde{\rho}$, then in the equilibrium that maximizes the president's welfare and satisfies the D1 refinement, the president maintains control over policy only if the bureaucracy is aligned (i.e., $b = b_l$) and both talented and weak appointees facing a hard management problem are captured $x_1^*(b_h; \theta_l) = x_1^*(b_h; 1) = \hat{x}$.*

5 The Evolution of Presidential Control

I now consider how presidential control responds to underlying political conditions and evolves over a president's term. The results have implications for both policy control and personnel management. The results imply a correlation between appointee talent and capture, but also suggest an inference problem: appointee skill cannot necessarily be

inferred from policy concessions or, per force, an appointee's ideology.

Control over Policy First, I consider the president's control over policy. The results highlight that the president is able to exert more control over policy in the second period, when appointees do not face reputation concerns to demonstrate skill in their dealings with bureaucrats. This suggests that appointees, anticipating departure from office, may actually improve presidential control in their dealings with the bureaucracy, even when they confront strong resistance.

If there is potential for sufficient disagreement (i.e., $b_h > \bar{b}_h$), then the president always exercises more control over policy in the second period. In addition, if management problems are likely to be hard and officeholding benefits are large, then only weak appointees facing an easy management problem distort their policy choices. In this case, the extent of capture increases as bureaucratic hostility increases. Instead, if management problems are likely to be hard, but officeholding benefits are sufficiently small, then talented appointees facing hard management problems are always captured and weak appointees facing hard management problems may be captured if there is enough disagreement with hostile bureaucrats ($b_h > \hat{b}$). In this case, the extent of capture increases as benefits of officeholding increase. Proposition 5 states these results.

Proposition 5 (*Control over Policy*) *Let $b_h > \bar{b}_h$. The president exercises more control over policy in the second period (i.e., $x_2^*(b; \theta) \leq x_1^*(b; \theta)$). If $\beta \geq \bar{\beta}$ and $\rho > \hat{\rho}$, then first period policy control worsens as bureaucratic hostility increases (i.e., $b_h \rightarrow 1$). If $\beta \geq \bar{\beta}$ and $\rho < \hat{\rho}$, then first period policy control worsens as the benefits of officeholding increase (i.e., $\rho \rightarrow \hat{\rho}$).*

Appointee Capture An important implication of the preceding analysis is how appointee skill may be correlated with capture. Proposition 6 describes the relationship between underlying political conditions and appointee capture. A key takeaway of the

analysis is that, provided there is potential for sufficient disagreement with bureaucrats, only talented managers may be captured, provided office benefits are sufficiently large, whereas only weak managers, are captured if management problems are likely to be hard and officeholding benefits are large. Otherwise, both talented and weak appointees may provide excess policy concessions to bureaucrats.

Proposition 6 (*Appointee Capture*) *Let $b_h > \bar{b}_h$. Only weak appointees are captured if management problems are sufficiently likely to be hard and officeholding benefits are large (i.e., $\beta \geq \bar{\beta}$, $\rho > \hat{\rho}$). Only talented appointees are captured if officeholding benefits are not too large (i.e., either $\beta \geq \bar{\beta}$, $\rho < \hat{\rho}$, $b_h < \hat{b}$ or $\beta < \bar{\beta}$, $\rho < \tilde{\rho}$). Otherwise, both talented and weak appointees are captured.*

Appointee Turnover Now, I consider the relationship between underlying political conditions and appointee turnover. If there is a sufficiently high likelihood of substantial disagreement (i.e., $\beta \geq \bar{\beta}$ and $b_h > \bar{b}_h$) and officeholding is sufficiently valuable (i.e., $\rho > \hat{\rho}$), then weak appointees facing easy management problems are captured. In this equilibrium, the president always retains talented appointees and dismisses weak appointees that face hard management problems. However, the president also retains weak appointees that face easy management problems if they generate policy success with the captured policy. This means turnover increases as the likelihood the bureaucracy is hostile increases and as the weak appointee is a worse manager. Proposition 7 states this formally.

Proposition 7 (*Appointee Turnover*) *Let $b_h > \bar{b}_h$, $\beta \geq \bar{\beta}$, and $\rho > \hat{\rho}$. Then, in the equilibrium that maximizes the president's welfare, an appointee is retained (i.e., $r^* = 1$) only if policy implementation is successful (i.e., $y = 1$) and $x = 0$ or $x = b_h - (1 - c)$. The equilibrium probability the first period appointee is dismissed increases as*

- *the likelihood the bureaucracy is hostile increases ($\beta \rightarrow 1$);*

- *the weak appointee's managerial talent decreases ($\theta_l \rightarrow 0$).*

6 Conclusion

This paper explores how the management issues appointees confront and appointee's desires to demonstrate strong management skill affect presidential control over policy. I argue that appointees' reputation concerns may lead them to shift policy towards bureaucrats at the expense of presidential control, even when they share the administration's policy preferences.

While presidents seek to retain only managers capable of preserving control over the bureaucracy, the model demonstrates that presidents who observe concessions to the bureaucracy may face a difficult inference problem. In particular, the president is uncertain whether the loss of control is due to an appointee's poor management or due to a difficult management problem.

Weak managers may exploit the fact that strong managers must sometimes provide policy concessions to career bureaucrats in order to ensure cooperation with the administration's policies. However, this can lead even skilled managers to select policy more aligned with the bureaucrat's interests in order to differentiate themselves from weak managers. In equilibrium, both skilled and weak managers may pursue policies that benefit bureaucratic interests at the expense of the administration.

The results highlight structural impediments to presidential control that cannot be addressed through administrative means: these issues cannot be avoided by appointing allies. In doing so, the results reinforce that organizational structures powerfully affect political outcomes.

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Contents

A Appendix	2
A.1 Formal Proofs	2
A.2 Off-Path Beliefs	10
A.3 Structure of Equilibrium Strategies	14
A.4 Principal Welfare Maximizing Equilibrium	19

A Appendix

A.1 Formal Proofs

Lemma 1 (*Second Period Policy*) *In any equilibrium,*

$$\begin{aligned} x_2^*(b_l; 1) &= 0 & x_2^*(b_l; \theta_l) &= b_l - \left(1 - \frac{c}{\theta_l}\right) \\ x_2^*(b_h; 1) &= b_h - (1 - c) & x_2^*(b_h; \theta_l) &= b_h - \left(1 - \frac{c}{\theta_l}\right). \end{aligned}$$

Proof of Lemma 1. In the second period, a bureaucrat will exert effort only if

$$\theta(1 - |b - x_2|) \geq c$$

which holds only if

$$b + \left(1 - \frac{c}{\theta}\right) \geq x_2 \geq b - \left(1 - \frac{c}{\theta}\right).$$

The appointee always prefers to induce effort ($e_2 = 1$). Given the appointee's ideal policy is $x = 0$, the appointee prefers $x^*(b; \theta) = 0$ if

$$b - \left(1 - \frac{c}{\theta}\right) \leq 0 \Rightarrow b \leq 1 - \frac{c}{\theta}$$

or $x^*(b; \theta) = b - \left(1 - \frac{c}{\theta}\right)$ if $b > 1 - \frac{c}{\theta}$. ■

Remark 1 Given assumption 1 ,

$$x_2^*(b_l; 1) = 0 < x_2^*(b_l; \theta_l) = b_l - \left(1 - \frac{c}{\theta_l}\right) < x_2^*(b_h; 1) = b_h - (1 - c) < x_2^*(b_h; \theta_l) = b_h - \left(1 - \frac{c}{\theta_l}\right).$$

Proof of Remark 1. First I show $x_2^*(b; 1) < x_2^*(b; \theta_l)$:

$$\begin{aligned} 0 < b_l - \left(1 - \frac{c}{\theta_l}\right) & \Rightarrow b_l > 1 - \frac{c}{\theta_l} \\ b_h - (1 - c) < b_h - \left(1 - \frac{c}{\theta_l}\right) & \Rightarrow \theta_l < 1 \end{aligned}$$

which are implied by assumption 1 and $\theta_l \in (0, 1)$.

Now, I show $x_2^*(b_l; \theta_l) < x_2^*(b_h; 1)$:

$$b_l - \left(1 - \frac{c}{\theta_l}\right) < b_h - (1 - c) \Rightarrow b_l + c \left(\frac{1}{\theta_l} - 1\right) < b_h.$$

■

Lemma 2 (*Appointee Retention*) *The president will retain an appointee only if $\hat{\tau} \geq \tau$. Otherwise, if $\hat{\tau} < \tau$, the president dismisses the appointee.*

Proof of Lemma 2. Given second period bureaucratic cooperation and policymaking (Lemma 1), the president's expected second period utility given an appointee of type θ is

$$\mathbb{E}u_2^P(\theta, b) = \begin{cases} \theta & \text{if } b \leq 1 - \frac{c}{\theta} \\ \theta(2 - (b + \frac{c}{\theta})) & \text{if } b > 1 - \frac{c}{\theta}. \end{cases}$$

I show $\mathbb{E}u_2^P(1, b) > \mathbb{E}u_2^P(\theta_l, b)$ for $b \in \{b_l, b_h\}$:

$$1 > \theta_l \left(2 - \left(b_l + \frac{c}{\theta_l} \right) \right) \Rightarrow b_l > 2 - \frac{(1+c)}{\theta_l} \quad \text{if } b = b_l \quad (13)$$

$$2 - (b_h + c) > \theta_l \left(2 - \left(b_h + \frac{c}{\theta_l} \right) \right) \Rightarrow (1 - \theta_l)(2 - b_h) > 0 \quad \text{if } b = b_h. \quad (14)$$

Condition 13 is implied by assumption 1

$$b_l > 1 - \frac{c}{\theta_l} > 2 - \frac{(1+c)}{\theta_l},$$

while condition 14 is implied by $\theta_l \in (0, 1)$ and $b_h < 1$. ■

Proposition 1 (*Presidential Control With Sabotage*) *Let $\rho > \bar{\rho}$. There exists an equilibrium that satisfies the D1 refinement, in which the president maintains control over policy in the first period only if $\tau > \bar{\tau}$.*

Proof of Proposition 1. Let $\rho > \bar{\rho}$. I show that there exists an equilibrium that satisfies the D1 refinement in which

$$\begin{aligned} x_1^*(b_l; 1) &= 0 & x_1^*(b_l; \theta_l) &= b_l - \left(1 - \frac{c}{\theta_l} \right) \\ x_1^*(b_h; 1) &= b_h - (1 - c) & x_1^*(b_h; \theta_l) &= b_h - \left(1 - \frac{c}{\theta_l} \right) \end{aligned}$$

only if $\tau > \bar{\tau}$. Suppose this is an equilibrium, I show that there does not exist a profitable deviation unless $\tau \leq \bar{\tau}$.

First, consider first period effort incentives for the bureaucrat. In the first period, a hostile bureaucrat will exert effort only if

$$\theta(1 - |b - x_1|) \geq c.$$

If success ensures retention, an aligned bureaucrat managed by a talented appointee will exert effort only if:

$$(1 - |b_l - x|) \geq c - \delta(1 - \tau)(1 - b_l - c).$$

In contrast, if success ensures retention, an aligned bureaucrat managed by a weak appointee will exert effort only if:

$$\theta_l(1 - |b_l - x|) \geq c + \delta\theta_l\tau(1 - b_l - c).$$

Define the set of policies the aligned bureaucrat managed by a weak appointee will implement if policy success (i.e., $y = 1$) ensures retention as:

$$\mathcal{X}_\theta^l \equiv [b_l - \left(1 - \frac{c}{\theta_l}\right) + \delta\tau(1 - b_l - c), b_l + \left(1 - \frac{c}{\theta_l}\right) - \delta\tau(1 - b_l - c)].$$

Now consider policy selection incentives for appointees given bureaucratic effort. Given $\rho > \underline{\rho}$ implies

$$\delta\theta_l \left[\rho - \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right) \right] > \theta_l \left(b_h - b_l - \left(\frac{c}{\theta_l} - c \right) \right),$$

a weak appointee facing an easy management problem will have no profitable deviation to an on-path action only if the bureaucrat is unwilling to implement the policy (i.e. $b_h - (1 - c) \notin \mathcal{X}_\theta^l$):

$$b_h - (1 - c) \geq b_l + \left(1 - \frac{c}{\theta_l}\right) - \delta\tau(1 - b_l - c) \Rightarrow \tau \geq \frac{\theta_l(2 - (b_h - b_l) - c) - c}{\delta\theta_l(1 - b_l - c)}$$

or

$$b_h - (1 - c) \leq b_l - \left(1 - \frac{c}{\theta_l}\right) + \delta\tau(1 - b_l - c) \Rightarrow \tau \geq \frac{\theta_l(b_h - b_l + c) - c}{\delta\theta_l(1 - b_l - c)}$$

which may be written as

$$\tau \geq \frac{\theta_l(1 - |b_l - (b_h - (1 - c))|) - c}{\delta\theta_l(1 - b_l - c)} \equiv \bar{\tau}$$

or

$$b_h \leq b_l + c \left(\frac{1}{\theta_l} - 1 \right) + \delta\tau(1 - b_l - c) \equiv \bar{b}_h$$

A weak appointee facing a hard management problem will have no profitable deviation to an on-path action as any on-path action would lead to removal without improving policy utility.

Given off-path beliefs, $\tau^*(x, \cdot) = 0$, a talented appointee will never deviate (see Appendix A.2). Any deviation for a talented appointee would only worsen both his retention prospects and policy utility. Similarly, a weak appointee will never deviate to an off-path action, as this only worsens policy utility without improving retention prospects. ■

Proposition 2 *Let $b_h > \bar{b}_h$ and $\beta \geq \bar{\beta}$. Then there exists $\rho > \hat{\rho} \in (\underline{\rho}, \bar{\rho})$ such that, in the equilibrium that maximizes the president's welfare and satisfies the D1 refinement, the president maintains control over policy if either the appointee is talented (i.e., $\theta = 1$) or the bureaucracy is hostile (i.e., $b = b_h$), while the weak appointee facing an easy management*

problem is captured and

$$x_1^*(b_l; \theta_l) = b_h - (1 - c). \quad (15)$$

Remark 2 In the first period, an aligned bureaucracy will exert effort if

$$e_1(\theta; b_l)^* = \begin{cases} 1 & \text{if } \theta = 1 \text{ and } (1 - |b_l - x|) \geq c - \delta(1 - \tau)(1 - b_l - c) \\ 1 & \text{if } \theta = \theta_l \text{ and } \theta_l(1 - |b_l - x|) \geq c + \delta\theta_l\tau(1 - b_l - c) \\ 0 & \text{otherwise,} \end{cases}$$

whereas a hostile bureaucracy will exert effort according to $e_1^*(\theta; b_h) = e_2^*(\theta; b_h)$.

Proof of Proposition 2. I show that appointee policy

$$\begin{aligned} x_1^*(b_l; 1) &= 0 & x_1^*(b_l; \theta_l) &= b_h - (1 - c) \\ x_1^*(b_h; 1) &= b_h - (1 - c) & x_1^*(b_h; \theta_l) &= b_h - \left(1 - \frac{c}{\theta_l}\right), \end{aligned}$$

bureaucratic effort in Remark 2, and $r^*(0, 1) = 1 = r^*(b_h - (1 - c), 1)$, $r(b_h - (1 - c), 0) = r^*(b_h - \left(1 - \frac{c}{\theta_l}\right), \cdot) = 0$ where

$$\begin{aligned} \tau^*(0, 1) &= 1 \\ \tau^*(b_h - (1 - c), 1) &= \frac{\beta\tau}{\beta\tau + (1 - \tau)(1 - \beta)\theta_l} \\ \tau^*(b_h - (1 - c), 0) &= 0 \\ \tau^*(b_h - \left(1 - \frac{c}{\theta_l}\right), \cdot) &= 0 \end{aligned}$$

is an equilibrium provided $\beta \geq \bar{\beta}$. For off-path actions x , $\tau^*(x, \cdot) = 0$ and $r(x, \cdot) = 0$.

Both talented appointees that face an easy management problem and talented appointees that face a hard management problem will only worsen both policy utility and retention prospects. Therefore neither will prefer to deviate. Similarly, weak appointees facing a hard management problem do not have a profitable deviation—any deviation worsens policy utility without improving retention prospects.

Finally, weak appointees facing an easy management problem will not have a profitable deviation given

$$\rho > \frac{1}{\delta} \left(b_h - b_l - \left(\frac{c}{\theta_l} - c \right) \right) + \tau \left[1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right] \equiv \underline{\rho}.$$

For proof that this equilibrium maximizes the president's welfare and $\hat{\rho} \in (\underline{\rho}, \bar{\rho})$ see Appendix A.4. For off-path beliefs see Appendix A.2. ■

Proposition 3 *Let $\beta \geq \bar{\beta}$ and $\rho < \hat{\rho}$. If $\hat{b} > b_h > \bar{b}_h$, then in the equilibrium that maximizes the president's welfare and satisfies the D1 refinement, the president maintains control if the appointee is weak (i.e., $\theta = \theta_l$) or if the bureaucrat is aligned (i.e., $b = b_l$), while the talented appointee facing a hard management problem is captured, and*

$$x_1^*(b_h; 1) = b_l - \left(1 - \frac{c}{\theta_l}\right) + \delta \left[\rho - \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l}\right)\right) \right] \equiv \hat{x}. \quad (16)$$

Instead, if $b_h > \hat{b}$, the president only maintains control if the bureaucrat is aligned and both talented and weak appointees facing a hard management problem are captured, $x_1^(b_h; 1) = x_1^*(b_h; \theta_l) = \hat{x}$.*

Proposition 4 *Let $\beta < \bar{\beta}$. If $\underline{\rho} < \rho < \tilde{\rho}$, then in the equilibrium that maximizes the president's welfare and satisfies the D1 refinement, the president maintains control over policy if either the appointee is weak (i.e., $\theta = \theta_l$) or the bureaucracy is aligned (i.e., $b = b_l$), while the talented appointee facing a hard management problem is captured, and $x_1^*(b_h; 1) = \hat{x}$. If $\rho \geq \tilde{\rho}$, then in the equilibrium that maximizes the president's welfare and satisfies the D1 refinement, the president maintains control over policy only if the bureaucracy is aligned (i.e., $b = b_l$) and both talented and weak appointees facing a hard management problem are captured $x_1^*(b_h; \theta_l) = x_1^*(b_h; 1) = \hat{x}$.*

Proof of Propositions 3 and 4. Define

$$b_l - \left(1 - \frac{c}{\theta_l}\right) + \delta \left[\rho - \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l}\right)\right) \right] \equiv \hat{x}.$$

I show that appointee policy

$$\begin{aligned} x_1^*(b_l; 1) &= 0 & x_1^*(b_l; \theta_l) &= b_l - \left(1 - \frac{c}{\theta_l}\right) \\ x_1^*(b_h; 1) &= \hat{x} & x_1^*(b_h; \theta_l) &= b_h - \left(1 - \frac{c}{\theta_l}\right), \end{aligned}$$

bureaucratic effort in Remark 2, and $r^*(0, 1) = 1 = r^*(b_h - (1 - c), 1)$, $r(b_h - (1 - c), 0) = r^*(b_h - (1 - \frac{c}{\theta_l}), \cdot) = 0$ where

$$\begin{aligned} \tau^*(0, 1) &= 1 \\ \tau^*(\hat{x}, 1) &= 1 \\ \tau^*(b_l - \left(1 - \frac{c}{\theta_l}\right), \cdot) &= 0 \\ \tau^*(b_h - \left(1 - \frac{c}{\theta_l}\right), \cdot) &= 0 \end{aligned}$$

is an equilibrium provided $\rho < \tilde{\rho}$. For off-path actions, x , $\tau^*(x, \cdot) = 0$ and $r^*(x, \cdot) = 0$.

A talented appointee that faces an easy management problem will only worsen both policy utility and retention prospects by deviating to any on or off path action. A talented appointee that faces a hard management problem will either worsen policy utility or retention prospects, or both from a deviation. Similarly, a weak appointee facing a hard management problem will not have a profitable deviation—any deviation worsens policy utility without improving retention prospects.

A weak appointee facing an easy management problem will not prefer to deviate to any on-path action as

$$\delta \left[\rho - \tau \left(1 - \left(2 - b_l - \frac{c}{\theta_l} \right) \right) \right] = \hat{x} - \left(b_l - \left(1 - \frac{c}{\theta_l} \right) \right),$$

and any off-path deviation only worsens policy utility for the weak appointee facing an easy problem.

Now, I show that appointee policy

$$\begin{aligned} x_1^*(b_l; 1) &= 0 & x_1^*(b_l; \theta_l) &= b_l - \left(1 - \frac{c}{\theta_l} \right) \\ x_1^*(b_h; 1) &= \hat{x} & x_1^*(b_h; \theta_l) &= \hat{x} \end{aligned}$$

bureaucratic effort in Remark 2, and $r^*(0, 1) = 1 = r^*(\hat{x}, 1)$, $r^*(b_l - \left(1 - \frac{c}{\theta_l} \right), \cdot) = r^*(\hat{x}, 0) = 0$ where

$$\begin{aligned} \tau^*(0, 1) &= 1 \\ \tau^*(\hat{x}, 1) &= \frac{\tau}{\tau + (1 - \tau)\theta_l} \\ \tau^*(b_l - \left(1 - \frac{c}{\theta_l} \right), \cdot) &= 0 \\ \tau^*(\hat{x}, 0) &= 0 \end{aligned}$$

is an equilibrium provided $\rho \geq \tilde{\rho}$. For off-path actions, x , $\tau^*(x, \cdot) = 0$ and $r^*(x, \cdot) = 0$.

As in the previous case, a talented appointee that faces an easy management problem will only worsen both policy utility and retention prospects if he deviates. A talented appointee that faces a hard management problem will either worsen policy utility or retention prospects, or both from a deviation. A weak appointee facing an easy management problem will not prefer to deviate to any on-path action as

$$\delta \left[\rho - \tau \left(1 - \left(2 - b_l - \frac{c}{\theta_l} \right) \right) \right] = \hat{x} - \left(b_l - \left(1 - \frac{c}{\theta_l} \right) \right),$$

and any off-path deviation only worsens policy utility for the weak appointee facing an easy problem.

In this case, however, a weak appointee facing a hard management problem will not prefer to deviate given

$$\rho > \frac{1}{\delta} \left(\hat{x} - \left(b_h - \left(1 - \frac{c}{\theta_l} \right) \right) \right) + \tau(1 - \theta_l)(2 - b_h),$$

which substituting into the expression for \hat{x} is satisfied:

$$0 > -\frac{1}{\delta} (b_h - b_l) - \tau \left[1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) - (1 - \theta_l)(2 - b_h) \right] \Rightarrow \tau\theta_l - \frac{1}{\delta} < 0.$$

For proof that each of these equilibria maximizes the president's welfare and $\hat{\rho} \in (\underline{\rho}, \bar{\rho})$ see Appendix A.4. For off-path beliefs see Appendix A.2. ■

Proposition 5 (*Control over Policy*) Let $b_h > \bar{b}_h$ and $\beta \geq \bar{\beta}$. The president exercises more control over policy in the second period (i.e., $x_2^*(b; \theta) \leq x_1^*(b; \theta)$). If $\rho > \hat{\rho}$, then first period policy control worsens as bureaucratic hostility increases (i.e., $b_h \rightarrow 1$). If $\rho < \hat{\rho}$, then first period policy control worsens as the benefits of officeholding increase (i.e., $\rho \rightarrow \hat{\rho}$).

Proof of Proposition 5. This is a restatement of results in Propositions 2–4 and the observation that, if $\beta \geq \bar{\beta}$ and $\rho > \hat{\rho}$.

$$\frac{\partial x_1^*(b_l; \theta_l)}{\partial b_h} = 1 > 0$$

and, if $\beta \geq \bar{\beta}$ and $\rho \leq \hat{\rho}$,

$$\frac{\partial \hat{x}}{\partial \rho} = \delta > 0.$$

■

Proposition 6 Only weak appointees are captured if management problems are sufficiently likely to be hard and officeholding benefits are large (i.e., $\beta \geq \bar{\beta}$, $\rho > \hat{\rho}$). Only talented appointees are captured if officeholding benefits are not too large (i.e., either $\beta \geq \bar{\beta}$, $\rho < \hat{\rho}$, $b_h < \hat{b}$ or $\beta < \bar{\beta}$, $\rho < \tilde{\rho}$).

Proof of Proposition 6. This is a restatement of results in Propositions 2–4. ■

Proposition 7. (*Appointee Turnover*) Let $b_h > \bar{b}_h$, $\beta \geq \bar{\beta}$, and $\rho > \hat{\rho}$. Then, in the equilibrium that maximizes the president's welfare, an appointee is retained (i.e., $r^* = 1$) only if policy implementation is successful (i.e., $y = 1$) and $x = 0$ or $x = b_h - (1 - c)$. The equilibrium probability the first period appointee is dismissed increases as

- the likelihood the bureaucracy is hostile increases ($\beta \rightarrow 1$);
- the weak appointee's managerial talent decreases ($\theta_l \rightarrow 0$).

Proof of Proposition 7. Consider the equilibrium described in Proposition 2. Then, on path,

$$\begin{aligned}\tau^*(0, 1) &= 1 \\ \tau^*(b_h - (1 - c), 1) &= \frac{\beta\tau}{\beta\tau + (1 - \tau)(1 - \beta)\theta_l} \\ \tau^*(b_h - (1 - c), 0) &= 0 \\ \tau^*(b_h - \left(1 - \frac{c}{\theta_l}\right), \cdot) &= 0\end{aligned}$$

which implies the retention behavior on path $r^*(0, 1) = r^*(b_h - (1 - c), 1) = 1$ and $r^*(b_h - (1 - c), 0) = r^*(b_h - \left(1 - \frac{c}{\theta_l}\right), \cdot) = 0$ given .

$$\beta > \frac{\theta_l}{1 + \theta_l} \Rightarrow \frac{\beta\tau}{\beta\tau + (1 - \tau)(1 - \beta)\theta_l} > \tau.$$

Then, the probability a first period appointee is dismissed is

$$p = \beta + (1 - \beta)(1 - \theta_l)$$

and

$$\frac{\partial p}{\partial \beta} = \theta_l > 0, \quad \frac{\partial p}{\partial \theta_l} = -(1 - \beta) < 0.$$

■

A.2 Off-Path Beliefs

Proof of Proposition 1 (Off-Path Beliefs). Consider an equilibrium in which

$$\begin{aligned} x_1^*(b_l; 1) &= 0 & x_1^*(b_l; \theta_l) &= b_l - \left(1 - \frac{c}{\theta_l}\right) \\ x_1^*(b_h; 1) &= b_h - (1 - c) & x_1^*(b_h; \theta_l) &= b_h - \left(1 - \frac{c}{\theta_l}\right). \end{aligned}$$

Then, consider off-path deviations by each type of appointee. The following characterize the set of retention probabilities, r , following policy success for which a deviation x is strictly preferred

- $\theta = 1, b = b_l$

$$r > 1 + \frac{x}{\delta \left[\rho + (1 - \tau) \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right) \right]} \equiv r_1^l \quad \text{if } x \in (0, 1]$$

- $\theta = 1, b = b_h$

$$r > 1 + \frac{(x - (b_h - (1 - c)))}{\delta [\rho + (1 - \tau)(1 - \theta_l)(2 - b_h)]} \equiv r_1^h \quad \text{if } x \in (b_h - (1 - c), 1]$$

- $\theta = \theta_l, b = b_l$

$$r > \frac{\left(x - \left(b_l - \left(1 - \frac{c}{\theta_l} \right) \right) \right)}{\delta \left[\rho - \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right) \right]} \equiv r_\theta^l \quad \text{if } x \in [b_l - (1 - \frac{c}{\theta_l}), 1] \setminus b_h - (1 - c)$$

- $\theta = \theta_l, b = b_h$

$$r > \frac{\left(x - \left(b_h - \left(1 - \frac{c}{\theta_l} \right) \right) \right)}{\delta [\rho - \tau(1 - \theta_l)(2 - b_h)]} \equiv r_\theta^h \quad \text{if } x \in (b_h - (1 - \frac{c}{\theta_l}), 1]$$

Then, for all off-path policy choices, x , $\tau^*(x, \cdot) = 0$.

Proof of Proposition 2 (Off-Path Beliefs). Consider an equilibrium in which

$$\begin{aligned} x_1^*(b_l; 1) &= 0 & x_1^*(b_l; \theta_l) &= b_h - (1 - c) \\ x_1^*(b_h; 1) &= b_h - (1 - c) & x_1^*(b_h; \theta_l) &= b_h - \left(1 - \frac{c}{\theta_l}\right). \end{aligned}$$

Then, consider off-path deviations by each type of appointee. The following characterize the set of retention probabilities, r , following policy success for which a deviation x is strictly preferred.

- $\theta = 1, b = b_l$

$$r > 1 + \frac{x}{\delta \left[\rho + (1 - \tau) \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right) \right]} \equiv r_1^l \quad \text{if } x \in (0, 1]$$

- $\theta = 1, b = b_h$

$$r > 1 + \frac{(x - (b_h - (1 - c)))}{\delta [\rho + (1 - \tau)(1 - \theta_l)(2 - b_h)]} \equiv r_1^h \quad \text{if } x \in (b_h - (1 - c), 1]$$

- $\theta = \theta_l, b = b_l$

$$r > 1 + \frac{(x - (b_h - (1 - c)))}{\delta \left[\rho - \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right) \right]} \equiv r_\theta^l \quad \text{if } x \in [b_l - (1 - \frac{c}{\theta_l}), 1] \setminus b_h - (1 - c)$$

- $\theta = \theta_l, b = b_h$

$$r > \frac{\left(x - \left(b_h - \left(1 - \frac{c}{\theta_l} \right) \right) \right)}{\delta [\rho - \tau(1 - \theta_l)(2 - b_h)]} \equiv r_\theta^h \quad \text{if } x \in (b_h - (1 - \frac{c}{\theta_l}), 1]$$

Then, for all off-path policy choices, x , $\tau^*(x, \cdot) = 0$, while $\tau^*(x, 0) = 0$.

Proof of Proposition 3 (Off-Path Beliefs). Define

$$b_l - \left(1 - \frac{c}{\theta_l} \right) + \delta \left[\rho - \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right) \right] \equiv \hat{x}.$$

First, consider an equilibrium in which

$$\begin{aligned} x_1^*(b_l; 1) &= 0 & x_1^*(b_l; \theta_l) &= b_l - \left(1 - \frac{c}{\theta_l} \right) \\ x_1^*(b_h; 1) &= \hat{x} & x_1^*(b_h; \theta_l) &= b_h - \left(1 - \frac{c}{\theta_l} \right). \end{aligned}$$

Then, consider off-path deviations by each type of appointee. The following characterize the set of retention probabilities, r , following policy success for which a deviation x is strictly preferred.

- $\theta = 1, b = b_l$

$$r > 1 + \frac{x}{\delta \left[\rho + (1 - \tau) \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right) \right]} \equiv r_1^l \quad \text{if } x \in (0, 1]$$

- $\theta = 1, b = b_h$

$$r > 1 + \frac{(x - \hat{x})}{\delta [\rho + (1 - \tau)(1 - \theta_l)(2 - b_h)]} \equiv r_1^h \quad \text{if } x \in (b_h - (1 - c), 1] \setminus \hat{x}$$

- $\theta = \theta_l, b = b_l$

$$r > \frac{\left(x - \left(b_l - \left(1 - \frac{c}{\theta_l} \right) \right) \right)}{\delta \left[\rho - \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right) \right]} \equiv r_\theta^l \quad \text{if } x \in [b_l - (1 - \frac{c}{\theta_l}), 1] \setminus \hat{x}$$

- $\theta = \theta_l, b = b_h$

$$r > \frac{\left(x - \left(b_h - \left(1 - \frac{c}{\theta_l} \right) \right) \right)}{\delta [\rho - \tau(1 - \theta_l)(2 - b_h)]} \equiv r_\theta^h \quad \text{if } x \in (b_h - (1 - \frac{c}{\theta_l}), 1]$$

By definition, \hat{x} is the policy that leaves the weak type facing an easy management indifferent between distorting policy to gain retention with certainty and not distorting policy, which ensures removal. This means that the retention threshold for a weak type facing an easy problem may be rewritten as

$$r > 1 + \frac{(x - \hat{x})}{\delta \left[\rho - \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right) \right]}.$$

Then, for all off-path policy choices, $x, \tau^*(x, \cdot) = 0$.

Now, consider an equilibrium in which

$$\begin{aligned} x_1^*(b_l; 1) &= 0 & x_1^*(b_l; \theta_l) &= b_l - \left(1 - \frac{c}{\theta_l} \right) \\ x_1^*(b_h; 1) &= \hat{x} & x_1^*(b_h; \theta_l) &= \hat{x}. \end{aligned}$$

Then, consider off-path deviations by each type of appointee. The following characterize the set of retention probabilities, r , following policy success for which a deviation x is strictly preferred.

- $\theta = 1, b = b_l$

$$r > 1 + \frac{x}{\delta \left[\rho + (1 - \tau) \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right) \right]} \equiv r_1^l \quad \text{if } x \in (0, 1]$$

- $\theta = 1, b = b_h$

$$r > 1 + \frac{(x - \hat{x})}{\delta [\rho + (1 - \tau)(1 - \theta_l)(2 - b_h)]} \equiv r_1^h \quad \text{if } x \in (b_h - (1 - c), 1] \setminus \hat{x}$$

- $\theta = \theta_l, b = b_l$

$$r > \frac{\left(x - \left(b_l - \left(1 - \frac{c}{\theta_l} \right) \right) \right)}{\delta \left[\rho - \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right) \right]} \equiv r_\theta^l \quad \text{if } x \in [b_l - (1 - \frac{c}{\theta_l}), 1] \setminus \hat{x}$$

- $\theta = \theta_l, b = b_h$

$$r > 1 + \frac{(x - \hat{x})}{\delta [\rho - \tau(1 - \theta_l)(2 - b_h)]} \equiv r_\theta^h \quad \text{if } x \in (b_h - (1 - \frac{c}{\theta_l}), 1] \setminus \hat{x}$$

Then, for all off-path policy choices, $x, \tau^*(x, \cdot) = 0$.

Proof of Proposition 4 (Off-Path Beliefs). If $\rho < \tilde{\rho}$, then off-path beliefs are captured by the first case in the proof of Proposition 3. If $\rho \geq \tilde{\rho}$, then off-path beliefs are captured by the second case in the proof of Proposition 3.

A.3 Structure of Equilibrium Strategies

Lemma 3 *In any equilibrium that satisfies the D1 refinement, $x_1^*(b_l; 1) = 0$.*

Proof of Lemma 3. I show there do not exist equilibria in which $x_1^*(b_l; 1) > 0$ that satisfy the D1 refinement. Suppose there exists an equilibrium in which $x_1^*(b_l; 1) > 0$.

First observe that weak managers can never choose $x_1 = 0$ and generate successful implementation (i.e., $y = 1$). For $e_1(\theta_l; b) = 1$, then

$$\begin{aligned} b_l + \left(1 - \frac{c}{\theta_l}\right) - \delta\tau(1 - b_l - c) &\geq x_1 \geq b_l - \left(1 - \frac{c}{\theta_l}\right) + \delta\tau(1 - b_l - c) && \text{if } b = b_l \\ b_h + \left(1 - \frac{c}{\theta_l}\right) &\geq x_1 \geq b_h - \left(1 - \frac{c}{\theta_l}\right) && \text{if } b = b_h. \end{aligned}$$

In contrast, skilled managers can choose $x_t = 0$ and always produce success if $b = b_l$. This means off path, $\hat{\tau}(0, 1) = 1$.

Given $\hat{\tau}(0, 1) = 1$, $x_1 = 0$ is always profitable deviation for a talented appointee from the equilibrium profile if $b = b_l$ given $x_1 = 0$ maximizes the appointee's policy utility:

$$1 > 1 - x_1^*$$

for any $x_1^* \in (0, 1]$. Further observe that in any equilibrium in which $x_1(b_l; 1) = 0$, the talented appointee facing an aligned bureaucracy is always retained. ■

Lemma 4 *Define*

$$b_l - \left(1 - \frac{c}{\theta_l}\right) + \delta \left[\rho - \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l}\right)\right) \right] \equiv \hat{x}.$$

If $b = b_l$, there does not exist an equilibrium in which a weak appointee chooses $x^ > \hat{x}$.*

Proof of Lemma 4. I show that for any probability of retention following $x^* > \hat{x}$, $x = b_l - (1 - \frac{c}{\theta_l})$ is a profitable deviation for a weak appointee facing an easy problem:

$$\delta \left[\rho - \tau \left(1 - \left(2 - b_l - \frac{c}{\theta_l}\right)\right) \right] < x^* - \left(b_l - \left(1 - \frac{c}{\theta_l}\right)\right)$$

which always holds given

$$x^* > \hat{x} \equiv b_l - \left(1 - \frac{c}{\theta_l}\right) + \delta \left[\rho - \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l}\right)\right) \right].$$

■

Lemma 5 *A weak appointee cannot be indifferent between policies $x', x'' \in [b_h - (1 - c), \hat{x}]$ if $b = b_l$. A weak appointee cannot be indifferent between policies $x', x'' \in (b_h - (1 - \frac{c}{\theta_l}), 1]$ if $b = b_h$.*

Proof of Lemma 5. First notice, only a weak appointee facing an easy management problem and talented appointee facing a hard management problem can generate success with policies $x \in [b_h - (1 - c), \hat{x}]$.

Suppose actions $x', x'' \in [b_h - (1 - c), \hat{x}]$ are chosen by a weak appointee facing an easy problem. Then, for this to be an equilibrium, these actions must also be on-path for a talented appointee—otherwise the weak appointee would be removed and would have a strictly profitable deviation to $x = b_l - (1 - \frac{c}{\theta_l})$. I show that both talented appointees that face a hard problem and weak appointees that face an easy problem cannot be indifferent. For any on-path actions, $x', x'' \in [b_h - (1 - c), \hat{x}]$, the following conditions cannot both be satisfied

$$r' - r'' = \frac{x' - x''}{\delta \left[\rho - \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right) \right]} \neq \frac{x' - x''}{\delta \left[\rho + (1 - \tau)(1 - \theta_l)(2 - b_h) \right]}.$$

Similarly, suppose actions $x', x'' \in (b_h - (1 - \frac{c}{\theta_l}), 1]$ are chosen by a weak appointee facing a hard problem. Then, for this to be an equilibrium, these actions must also be on-path for a talented appointee—otherwise the weak appointee would be removed and would have a strictly profitable deviation. I show that both talented appointees that face a hard problem and weak appointees that face a hard problem cannot be indifferent. For any on-path actions, $x', x'' \in (b_h - (1 - \frac{c}{\theta_l}), 1]$, the following conditions cannot both be satisfied

$$r' - r'' = \frac{x' - x''}{\delta \left[\rho - \tau(1 - \theta_l)(2 - b_h) \right]} \neq \frac{x' - x''}{\delta \left[\rho + (1 - \tau)(1 - \theta_l)(2 - b_h) \right]}.$$

This implies that weak appointees choose at most one policy $x \in [b_h - (1 - c), \hat{x}]$ if $b = b_l$ and at most one policy $x \in (b_h - (1 - \frac{c}{\theta_l}), 1]$ if $b = b_h$. ■

Lemma 6 *There does not exist an equilibrium that satisfies the D1 refinement in which the talented appointee facing a hard management problem selects some $x < b_h - (1 - c)$.*

Proof of Lemma 6. Suppose there were an equilibrium in which the talented appointee facing a hard management problem selects $x^* < b_h - (1 - c)$. Then, it must be that $r(x^*, 0) > 0$, otherwise the appointee would have a strictly profitable deviation.

For $r(x^*, 0) > 0$, it must be that $\tau^*(x^*, 0) \geq \tau$. I show that, for any probability of retention $r^*(x^*, 0) \in (0, 1]$, there exists some policy $x' \in [b_h - (1 - c), 1]$ either on or off-path for which $y = 1$ and $\hat{\tau}(x', 1) = 1$ such that x' is a profitable deviation for the talented appointee facing a hard problem.

- Let $\hat{x} < b_h - \left(1 - \frac{c}{\theta_l}\right)$.

If a weak appointee facing an easy problem chooses a policy $\tilde{x} \in [b_h - (1 - c), \hat{x}]$, then it must also be chosen by a talented appointee facing a hard problem. Otherwise, the weak appointee would be dismissed with probability 1 and have a profitable deviation to $b_l - \left(1 - \frac{c}{\theta_l}\right)$. Then, $\tilde{x} + \epsilon$ is a profitable deviation for a talented appointee facing a hard problem, as off-path $\hat{\tau}(\tilde{x} + \epsilon, 1) = 1$ given

$$r^*(x^*, 1) + \frac{(x' - \tilde{x})}{\delta [\rho + (1 - \tau)(1 - \theta_l)(2 - b_h)]} < r^*(x^*, 1) + \frac{(x' - \tilde{x})}{\delta \left[\rho - \tau \left(1 - \theta_l(2 - b_l - \frac{c}{\theta_l}) \right) \right]}$$

and policy utility in the first period is strictly greater.

If a weak appointee does not choose a policy $\tilde{x} \in [b_h - (1 - c), \hat{x}]$, then there exists $x' \leq \hat{x}$ such that

$$\frac{(1 - x')}{\delta [\rho + (1 - \tau)(1 - \theta_l)(2 - b_h)]} < \frac{x' - (b_l - (1 - \frac{c}{\theta_l}))}{\delta \left[\rho - \tau \left(1 - \theta_l(2 - b_l - \frac{c}{\theta_l}) \right) \right]}$$

and $\hat{\tau}(x', 1) = 1$ and x' is a profitable deviation.

- Now, instead let $\hat{x} \geq b_h - \left(1 - \frac{c}{\theta_l}\right)$.

There must be at least one policy $\tilde{x} \in [b_h - (1 - \frac{c}{\theta_l}), 1]$ chosen by a weak appointee. Let \tilde{x}_{\max} be the greatest policy $\tilde{x} \in [b_h - (1 - \frac{c}{\theta_l}), 1] \setminus [b_h - (1 - \frac{c}{\theta_l}), b_h - (1 - \frac{c}{\theta_l})]$ selected by a weak appointee. By a similar argument, $x' = \tilde{x} + \epsilon$ is a profitable deviation for the talented appointee facing a hard problem as either

$$r^*(x^*, 1) + \frac{(x' - \tilde{x})}{\delta [\rho + (1 - \tau)(1 - \theta_l)(2 - b_h)]} < r^*(x^*, 1) + \frac{(x' - \tilde{x})}{\delta \left[\rho - \tau \left(1 - \theta_l(2 - b_l - \frac{c}{\theta_l}) \right) \right]}$$

or

$$r^*(\tilde{x}, 1) + \frac{(x' - \tilde{x})}{\delta [\rho + (1 - \tau)(1 - \theta_l)(2 - b_h)]} < r^*(\tilde{x}, 1) + \frac{(x' - \tilde{x})}{\delta [\rho - (1 - \tau)(1 - \theta_l)(2 - b_h)]}$$

which implies $\hat{\tau}(x', 1) = 1$ and there exists some $\epsilon > 0$ such that $r^*(\tilde{x}, 1) < r^*(x', 1)$.

If a weak appointee facing a hard problem chooses $\tilde{x} = b_h - \left(1 - \frac{c}{\theta_l}\right)$, then there exists $x' \leq \hat{x}$ such that

$$\frac{(1 - x')}{\delta [\rho + (1 - \tau)(1 - \theta_l)(2 - b_h)]} < \frac{x' - (b_h - (1 - \frac{c}{\theta_l}))}{\delta \left[\rho - \tau \left(1 - \theta_l(2 - b_l - \frac{c}{\theta_l}) \right) \right]}$$

and $\hat{\tau}(x', 1) = 1$ and x' is a profitable deviation.

■

Proposition 8 *In any equilibrium that maximizes the president's welfare and satisfies the D1 refinement, talented appointees are retained with probability 1 following policy success.*

Proof of Proposition 8. First, I show that a talented appointee facing an easy problem is retained with probability 1 in equilibrium. From Lemma 3, $x_1^*(b_l; 1) = 0$ which implies $r^*(0, 1) = 1$.

Now, I show that a talented appointee facing a hard problem must be retained with probability 1 following policy success in equilibrium. Suppose, for a contradiction, this does not hold. Then, there exists an equilibrium in which the talented appointee is dismissed with positive probability following success with some policy choice, $x^* \in [b_h - (1 - c), 1]$. For dismissal to be sequentially rational for the president, it must be that

$$\hat{\tau}(x^*, 1) \leq \tau,$$

which implies a weak appointee must also choose x^* with some probability and be dismissed.

If $\hat{\tau}(x^*, 1) < \tau$, then $r^*(x^*, 1) = 0$ and both talented and weak appointees will have a strictly profitable deviation to choose the position that maximizes their policy utility such that this cannot be an equilibrium profile. Therefore, a talented appointee cannot be dismissed with certainty in equilibrium.

Now suppose $\hat{\tau}(x^*, 1) = \tau$ and $r^*(x^*, 1) \in (0, 1)$.

- Case 1: $\hat{x} < b_h - \left(1 - \frac{c}{\theta_l}\right)$

– If $x^* \leq \hat{x}$, then off-path $\hat{\tau}(x', 1) = 1$ for $x' \in (x^*, b_h - \left(1 - \frac{c}{\theta_l}\right))$ as $r_1^h < r_\theta^l$:

$$r^*(x^*, 1) + \frac{(x - x^*)}{\delta [\rho + (1 - \tau)(1 - \theta_l)(2 - b_h)]} < r^*(x^*, 1) + \frac{(x - x^*)}{\delta \left[\rho - \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l}\right)\right) \right]}.$$

– If $x^* \geq b_h - \left(1 - \frac{c}{\theta_l}\right)$, then off-path $\hat{\tau}(x', 1) = 1$ for $x' \in (x^*, 1)$ as $r_1^h < r_\theta^h$:

$$r^*(x^*, 1) + \frac{(x - x^*)}{\delta [\rho + (1 - \tau)(1 - \theta_l)(2 - b_h)]} < r^*(x^*, 1) + \frac{(x - x^*)}{\delta [\rho - \tau(1 - \theta_l)(2 - b_h)]}.$$

In either case, there always exists some $\epsilon > 0$ such that $x' = x^* + \epsilon$ is a strictly profitable deviation if $r^*(x^*, 1) < 1$.

- Case 2: $\hat{x} \geq b_h - \left(1 - \frac{c}{\theta_l}\right)$

- If $x^* < b_h - \left(1 - \frac{c}{\theta_l}\right)$, then, again, off-path $\hat{\tau}(x', 1) = 1$ for $x' \in (x^*, b_h - \left(1 - \frac{c}{\theta_l}\right))$ as $r_1^h < r_\theta^l$:

$$r^*(x^*, 1) + \frac{(x' - x^*)}{\delta [\rho + (1 - \tau)(1 - \theta_l)(2 - b_h)]} < r^*(x^*, 1) + \frac{(x' - x^*)}{\delta \left[\rho - \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right) \right]}.$$

- If $b_h - \left(1 - \frac{c}{\theta_l}\right) < x^* \leq \hat{x}$, then off-path $\hat{\tau}(x', 1) = 1$ for $x' \in (x^*, \hat{x})$ as either:

$$r^*(x^*, 1) + \frac{(x' - x^*)}{\delta [\rho + (1 - \tau)(1 - \theta_l)(2 - b_h)]} < r^*(x^*, 1) + \frac{(x' - x^*)}{\delta \left[\rho - \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right) \right]}$$

or

$$r^*(x^*, 1) + \frac{(x' - x^*)}{\delta [\rho + (1 - \tau)(1 - \theta_l)(2 - b_h)]} < r^*(x^*, 1) + \frac{(x' - x^*)}{\delta [\rho - \tau(1 - \theta_l)(2 - b_h)]}.$$

- If $x^* > \hat{x}$, then off-path $\hat{\tau}(x', 1) = 1$ for $x' \in (x^*, 1]$ as $r_1^h < r_\theta^h$:

$$r^*(x^*, 1) + \frac{(x' - x^*)}{\delta [\rho + (1 - \tau)(1 - \theta_l)(2 - b_h)]} < r^*(x^*, 1) + \frac{(x' - x^*)}{\delta [\rho - \tau(1 - \theta_l)(2 - b_h)]}.$$

Similarly, in each of these cases, there always exists some $\epsilon > 0$ such that $x' = x^* + \epsilon$ is a strictly profitable deviation provided $r^*(x^*, 1) < 1$. ■

A.4 Principal Welfare Maximizing Equilibrium

Define \hat{x} as the policy that leaves the weak appointee facing an easy problem indifferent between maintaining control and being removed and distorting policy, but maintaining his position:

$$\hat{x} \equiv b_l - \left(1 - \frac{c}{\theta_l}\right) + \delta \left[\rho - \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l}\right)\right) \right].$$

Define $\tilde{\rho}$ as the level of officeholding benefits such that $\hat{x} \geq b_h - \left(1 - \frac{c}{\theta_l}\right)$, or

$$\tilde{\rho} \equiv \frac{1}{\delta} (b_h - b_l) + \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l}\right)\right).$$

Let $b_h > \bar{b}_h$ and $\beta \geq \bar{\beta}$. I show that there exists some $\hat{\rho} \in (\underline{\rho}, \bar{\rho})$ such that for all $\rho > \hat{\rho}$, the equilibrium involves policy distortions by a weak appointee facing an easy management problem.

There are two parameter regions to consider:

- $\bar{\rho} < \rho < \tilde{\rho}$

If $\bar{\rho} < \rho < \tilde{\rho}$, then the president prefers a partially pooling equilibrium in which $x_1^*(b; 1) = x_2^*(b; 1)$, $x_1^*(b_l; \theta_l) = b_h - (1 - c)$ and $x_1^*(b_h; \theta_l) = x_2^*(b_h; \theta_l)$ to a fully separating equilibrium in which $x_1^*(b_l; 1) = 0$, $x_1^*(b_h; 1) = \hat{x}$, and $x_1^*(b; \theta_l) = x_2^*(b; \theta_l)$ provided:

$$\hat{x} \geq (b_h - (1 - c)) + \frac{(1 - \beta)(1 - \tau)\theta_l}{\beta\tau} \left[\left(b_h - b_l + c - \frac{c}{\theta_l}\right) + \delta\tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l}\right)\right) \right]$$

which substituting into the expression for \hat{x} may be rewritten

$$\rho > \left[1 + \frac{(1 - \beta)(1 - \tau)\theta_l}{\beta\tau} \right] \left[\frac{1}{\delta} \left(b_h - b_l - \left(\frac{c}{\theta_l} - c\right)\right) + \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l}\right)\right) \right]$$

or

$$\rho > \left[1 + \frac{(1 - \beta)(1 - \tau)\theta_l}{\beta\tau} \right] \bar{\rho} \equiv \rho'.$$

Then, $\rho' < \tilde{\rho}$ if

$$b_h < b_l + \left[1 + \frac{\beta\tau}{(1 - \beta)(1 - \tau)\theta_l} \right] \left(\frac{c}{\theta_l} - c \right) - \delta\tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l}\right)\right) \equiv \hat{b}.$$

Notice that $\rho' < \tilde{\rho}$ is sufficient to guarantee the partial pooling equilibrium described above is preferred to a partially pooling pooling equilibrium in which both weak and talented appointees facing hard management problems distort, choosing \hat{x} , as the latter only implies more distortions by weak appointees that both worsen first period policymaking and second period selection.

- $\rho \geq \tilde{\rho}$

If $\rho \geq \tilde{\rho}$, the president prefers a partially pooling equilibrium in which $x_1^*(b; 1) = x_2^*(b; 1)$, $x_1^*(b_l; \theta_l) = b_h - (1 - c)$ and $x_1^*(b_h; \theta_l) = x_2^*(b_h; \theta_l)$ to a partially pooling equilibrium in which $x_1^*(b_l; 1) = 0$, $x_1^*(b_l; \theta_l) = x_2^*(b_l; \theta_l)$, and $x_1^*(b_h; \theta) = \hat{x}$ if

$$\rho \geq \frac{1}{\delta} \left[\left(1 + \frac{\beta(1-\tau)\theta_l}{(\beta\tau + \beta(1-\tau)\theta_l)} \right) (b_h - b_l) - \frac{(\beta\tau + (1-\beta)(1-\tau)\theta_l)}{(\beta\tau + \beta(1-\tau)\theta_l)} \left(\frac{c}{\theta_l} - c \right) \right] \\ + \left[1 + \frac{(1-\tau)(1-\beta)\theta_l}{(\beta\tau + \beta(1-\tau)\theta_l)} \right] \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right) - \frac{(1-\tau)\tau\beta\theta_l(1-\theta_l)}{(\beta\tau + \beta(1-\tau)\theta_l)} (2 - b_h).$$

This condition may be rewritten as

$$\rho \geq \tilde{\rho} + \frac{1}{\delta} \left[\left(\frac{\beta(1-\tau)\theta_l}{(\beta\tau + \beta(1-\tau)\theta_l)} \right) (b_h - b_l) - \frac{(\beta\tau + (1-\beta)(1-\tau)\theta_l)}{(\beta\tau + \beta(1-\tau)\theta_l)} \left(\frac{c}{\theta_l} - c \right) \right] + \\ \left[\frac{(1-\tau)(1-\beta)\theta_l}{(\beta\tau + \beta(1-\tau)\theta_l)} \right] \tau \left(1 - \theta_l \left(2 - b_l - \frac{c}{\theta_l} \right) \right) - \frac{(1-\tau)\tau\beta\theta_l(1-\theta_l)}{(\beta\tau + \beta(1-\tau)\theta_l)} (2 - b_h) \equiv \rho''$$

Define $\hat{\rho}$ as

$$\hat{\rho} = \begin{cases} \rho' & \text{if } \bar{b}_h < b < \hat{b} \\ \rho'' & \text{if } b \geq \hat{b}. \end{cases}$$

Now, I show that $\hat{\rho} \in (\underline{\rho}, \bar{\rho})$. If $\bar{b}_h < b < \hat{b}$, then $\rho' < \tilde{\rho} < \bar{\rho}$ must hold. Instead, if $b \geq \hat{b}$, then the following is sufficient to guarantee $\hat{\rho} < \bar{\rho}$

$$\delta [\tau\beta + (1-\tau)\beta\theta_l] (\bar{\rho} - \underline{\rho}) > (1-\tau)\beta\theta_l [b_h - b_l + \delta\tau (b_h - (1-c) - \theta_l(b_h - b_l))].$$

This always holds as $c < \bar{c}$ guarantees $c < \frac{1}{2}$. ■