The Ally Principle and Bureaucratic Structure*

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Abstract

Existing theories of legislative delegation feature various spatial models in which a principal chooses a single agent to whom to delegate authority and find that the ally principle holds—the principal picks the ideologically closest agent. However, Congress typically decides whether to delegate not to an individual but to an institution, which consists of many individuals with differing preferences. To improve on existing models, I design models of delegation without assuming that bureaucracies are unitary actors. Results show that the ally principle does not hold when bureaucratic structure is incorporated. The principal is often better off by delegating to non-allies rather than allies. And delegation is not necessarily more likely to occur when the ideological distance between the principal and the agency head is smaller. Internal structures of bureaucracies, which are ignored in existing literature, should be taken into account in studies of delegation.

1 Introduction

Most scholars agree that Congress cannot avoid delegating some of its legislative power to reduce its workload or to deal with technical matters beyond its competence. As McCubbins (1999: 31) puts it, "The delegation of authority is a fact of modern life." Similarly,

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Rourke (1984: 37) writes, "Without administrative discretion, effective government would be impossible in the infinitely varied and rapidly changing environment."

However, rational legislators need to be very careful when they delegate policy-making authority to bureaucracies. Once they delegate, the separation-of-powers enables the bureaucracy to have considerable autonomy (McCubbins 1999). This implies that there is the possibility that bureaucracies will make decisions contrary to the legislators' preferences. Moreover, if elected officials delegate to bureaucracies which produce policy outcomes that their constituents do not want, they might lose votes in the next election. When, and to whom, can legislators delegate their legislative authority without concern?

To answer this question, existing studies of legislative delegation have developed various spatial models in which a principal chooses an agent to whom to delegate authority. The common result of these models is that the ally principle—that is, that the principal picks the ideologically closest agent—holds when agents have no uncertainty in implementing policies (Epstein and O'Halloran 1999; Bendor, Glazer and Hammond 2001; Gailmard 2002; Bendor and Meirowitz 2004).[1]

While it may sound very reasonable that the principal wants to delegate power to an ideological clone with better competence, the reality of delegation is more complicated because the principal typically decides whether to delegate authority not to an *individual* but to an

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[1]If agents are not fully informed or if there is some heterogeneity in the agents' capacities, then the ally principle does not hold. However, if agents are homogeneous in all aspects other than their ideological position, the principal always prefers the ideologically closest agent.

institution which consists of hundreds or thousands of individuals with differing preferences. When a merit system is employed to select most agency members, civil servants are hired on the basis of objective qualifications measured by examinations, training, or diplomas and are protected from arbitrary dismissal. Since the civil servants are not selected by their ideological position and cannot be fired for ideological reasons, there is always the potential for there to be an ideological gap between civil servants and political appointees. Also, as most bureaucracies do not have sufficiently efficient incentive systems for superiors to control subordinates, civil servants often have strong incentives to act in accordance with their own personal preferences instead of following their leader's indication. It is nearly impossible for a politically-appointed head of an agency to control civil servants fully.

One simple way to model this situation might be to suppose that an agency behaves like a unitary actor with an ideal point induced by aggregation of its members' preferences. The unitary actor assumption of bureaucracies in the existing literature (Epstein and O'Halloran 1999; Bendor, Glazer and Hammond 2001; Gailmard 2002; Bendor and Meirowitz 2004) can be interpreted in this manner, although the mapping from individuals' preferences to an agency preference is not specified. Taking this logic a step further, Lewis (2008) explicitly assumes that the ideal point of a bureaucracy is a weighted average of the president's and the civil servants' ideal points.

However, such approaches are problematic. The assumption that an agency behaves as if it has an ideal point has no theoretical foundation once we admit that its head cannot fully

control the entire organization. In fact, incomplete control by an agency head often creates intransitive choice behavior in the agency's policy-making process (Miller 1992). This implies that an agency may not have a single, well-defined, objective function to maximize, and thus to explain its behavior we have to consider the strategic interaction among members who are maximizing their own utilities. As I will show, the finding that the ally principle holds hinges on the unitary actor assumption. Hence, even though ignoring bureaucratic structure and treating agencies as unitary actors can make analysis easier, it is not an innocuous assumption.

Since there is no easy solution to modeling agency behavior, we need a new model treating agencies as institutions consisting of more than one player, so that we can incorporate conflicting preferences and incomplete hierarchical control. Thus, to examine the relationship between bureaucratic structure and the ally principle, I design a simple formal model in which the principal chooses an optimal institution, the preference of which may not have a utility representation, and analyze it as well as relevant extensions.

The key assumption of my model is that a bureaucracy consists of a boss and a subordinate with a hierarchical structure. If the principal picks an institution, the subordinate first sets an initial policy and the boss can either accept it or change it with some positive cost. Therefore, the boss can control the subordinate to some extent, but not completely. Knowing that the boss cannot overturn the initial policy choice costlessly, the subordinate can behave strategically to get his ideal policy outcomes, which are possibly different from

what the boss likes the most.

Results show that, when bureaucratic structure is incorporated in the model, the ally principle may fail even if bureaucracies are fully informed. Specifically, the ally principle may be undermined by several processes. For one thing, among a finite set of institutions, the optimal choice for the principal (e.g., the legislature) is not always the one with the ideologically closest members. Additionally, when the ideological position of civil servants is different from the principal's ideal point, if the principal can choose the ideological position of the agency head without any restriction, she always chooses a somewhat distant position, not her own ideal point. Finally, delegation is not necessarily more likely to occur when the ideological distance between the principal and the agency head is smaller. These results imply that existing studies which ignore the internal structure of bureaucracies may not capture the logic of delegation correctly.

The analysis proceeds as follows. After initially reviewing related literatures, I lay out the basic model and discuss a number of its implications. To see how robust the main results are, three extensions of this model are then analyzed. Finally, I offer conclusions about the ally principle and the relationship between bureaucratic structure and public policy.

2 Literature Review

Theories of Delegation   Existing studies have established theoretical foundations for the ally principle. These analyses typically assume that bureaucracies can be treated as unitary actors without any justification and ignore internal agency dynamics. What is surprising is that the unitary actor assumption is not thought of as a necessary evil to keep the model analytically tractable. For instance, Bendor, Glazer and Hammond (2001: 236) posit that assuming more than a single principal and agent is just adding "excess baggage." Since the main results of these models hinge on the unitary actor assumption, the vulnerability of this assumption is linked directly to the weakness of these theories.

The canonical models of delegation largely show that, if agents are homogeneous in all aspects other than their ideological position, the principal picks the ideologically closest agent. For example, in their broad analyses of delegation, Bendor, Glazer and Hammond (2001) and Bendor and Meirowitz (2004) find that the ally principle holds when agents are fully informed, but that it does not hold if there is some heterogeneity in the agents' capacities or if the agents are not fully informed. Similarly, Gailmard (2002) shows that the legislature is more willing to delegate to agencies with ideal points closer to its own.

Analyzing a slightly different situation, in which bureaucratic capacity is low, Huber and McCarty (2004) actually find that the legislature wants to give greater discretion to an ideologically distant agent. However, even in their setup, the principal is better off picking an

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ally.[2] That is, even though the optimal discretion level is higher for the distant agent, if the principal can choose between allies and non-allies, the principal always picks the ideologically closest agent.

Empirical Studies of Delegation   Motivated by the theoretical result regarding the ally principle, many scholars have tried to test this principle empirically. The difficulty of such testing lies in the fact that we do not have a proper measure of agency preferences. For this reason, most studies claim to test the ally principle indirectly, by examining whether delegation is more likely to occur under unified government than divided government, given the supposition that unified governments are better able to choose agents which match them ideologically. Thus, to the extent that this supposition holds, the empirical tests can validly support or reject the ally principle.

Interestingly, empirical results run the gamut from supportive, to indeterminate, to unsupportive. For example, using *Congressional Quarterly* summaries of important congressional acts over the post-World War II period, Epstein and O'Halloran (1999) find that legislative delegation is less common under divided government and that legislators are less likely to vote for delegation when the president is of the opposite party. Huber, Shipan and Pfahler (2001) and Huber and Shipan (2002) examine the language of statutes across states related to Medicaid in 1995-96, assuming that the more detailed the statute the greater

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[2]Mathmatically, the discretion level is an increasing function of the ideological distance between the principal and the agent, but the expected utility of the principal decreases in this distance. This result indicates that we need to distinguish two problems from each other; to whom to delegate and whether to delegate to a given agent are two different problems.

the limit to the discretion of agencies. However, their results are somewhat unclear.[3] On the other hand, Volden (2002) analyzes why state legislatures delegate advisory and policy-forming powers to bureaucracies for the Aid to Families with Dependent Children program from 1935 through 1996, and finds that delegation is *not* associated with divided government.

To sum up, the theoretical foundation of the ally principle requires some assumptions that are difficult to justify. Also, it is hard to say that this principle applies in practice since empirical studies only indirectly test it and show mixed results. To begin to rectify these theoretical problems, and to perhaps cast light on why empirical results are so inconclusive, we need models of delegation without assuming that bureaucracies are unitary actors.

3   The Model

3.1   Setup

I consider a principal and a finite set of institutions which consist of a boss and a subordinate. Define each player's utility function by

$$u(x; y) = h(|x - y|),$$

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[3]Although Huber et al. argue that their findings show more delegation with unified government, this interpretation requires some caution. For example, as they include a key dummy variable (Unified Legislature) as well as its interaction term (Unified Legislature×Compensation) in their regression, they need to test a joint hypothesis to see the effect of the key dummy variable. However, in interpreting their results, they simply sum the coefficients without reporting their correlation. Depending on the sign and the size of the correlation between the two coefficients, their interpretation of their empirical test may or may not be accurate.

where $x \in \mathbb{R}$ is a policy outcome, y is his or her ideal point, and $h : \mathbb{R}_+ \to \mathbb{R}$ is a strictly decreasing continuous function. Assume that $h(0) = 0$.[4]

Denote the principal's ideal point by y^P and assume that $y^P = 0$ without loss of generality. The number of bosses is denoted by m^B and the number of subordinates m^S. Let y_i^B and y_j^S be the boss's and the subordinate's ideal points respectively, where $i \in \{1, 2, ..., m^B\}$ and $j \in \{1, 2, ..., m^S\}$. Every player's ideal point is in $\mathbb{R}$. Also assume that the bosses' and the subordinates' ideal points are rank-ordered by their distance from the principal's ideal point,

$$0 < \left|y_1^B\right| < \left|y_2^B\right| < ... < \left|y_{m^B}^B\right| \text{ and } 0 < \left|y_1^S\right| < \left|y_2^S\right| < ... < \left|y_{m^S}^S\right|. \tag{3.1}$$

Note that no players other than the principal have their ideal points at 0. A pair of a boss and a subordinate, (y_i^B, y_j^S), constitutes an institution. Thus, the number of available institutions is $m^B \times m^S$.

A policy is a point, $p \in \mathbb{R}$. The relationship between policies $p \in \mathbb{R}$ and outcomes $x \in \mathbb{R}$ is defined by $x = g(p, \varepsilon)$, where ε is a random shock and $g : \mathbb{R} \times \mathbb{R} \to \mathbb{R}$ maps a policy, p, and a random shock, ε, into an outcome. It is assumed that, for all ε' and x', there exists a unique p such that $x' = g(p, \varepsilon')$. The principal only knows the distribution of outcomes of a given policy, $F(x \mid p)$, while every member of available institutions is fully informed about ε.

The structure of the game is as follows:

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[4] That is, each player will get a zero payoff at his or her ideal point: $u(y; y) = h(0) = 0$.

1. Nature chooses ε, and the boss and the subordinate observe it.

2. The principal decides whether to delegate.

   (a) If she decides not to delegate, then she makes an uninformed decision, $p \in \mathbb{R}$, and the game ends.

   (b) If she decides to delegate, she selects one of the available bureaucracies.

      i. In the chosen bureaucracy, the subordinate makes an initial choice, $p^0 \in \mathbb{R}$.

      ii. Then the boss observes p^0 and makes the final policy choice, $p \in \mathbb{R}$, and the game ends.

3.2   The Bureaucracy

3.2.1   Type 1 (Basic Model)

As a basic type of bureaucracy (type 1), I consider a situation in which the boss pays cost $c_B > 0$ if he changes the subordinate's policy choice, that is, $p \neq p^0$. For simplicity, I assume that, if the boss is indifferent, he does not move p^0.

Despite its parsimony, this model captures the structural features of typical hierarchical bureaucracies. The boss can override the initial policy decision made in the lower tier, but setting a new policy incurs costs of time and effort. Since the subordinate knows that the boss cannot costlessly change the initial policy choice, he may behave strategically to get his preferred policy outcome.
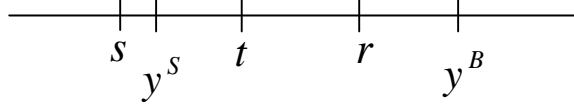
Figure 1: Intransitive Choice Behavior of a Bureaucracy

Note that characterizing the behavior of this institution by a utility function is impossible, since the structure produces intransitive choice behavior. For example, consider Figure 1. There are three alternatives s, t, r and a boss and a subordinate with ideal points y^B and y^S, respectively. Clearly, for the subordinate, s is the best and r is the worst choice, while the boss's preference is exactly the opposite. Assume that $u(r; y^B) - u(s; y^B) > c_B > u(r; y^B) - u(t; y^B) = u(t; y^B) - u(s; y^B)$. If this bureaucracy faces a choice s or t, then s is chosen, since s is preferred by the subordinate and he knows that the boss would not move s to t. And between t and r, the policy choice will be t by the same reasoning. However, if the bureaucracy faces a choice of s or r, then the boss's preferred policy r will be chosen regardless of the subordinate's initial choice. That is, even if the subordinate chooses s over r, the boss will change this initial choice since the benefit from the change, $u(r; y^B) - u(s; y^B)$, exceeds the cost, c_B. Therefore, the choice behavior of this bureaucracy is intransitive; s is chosen over t, t is chosen over r, but r is chosen over s.

Although intransitivity often results in indeterminacy, the hierarchical structure of this bureaucracy enables us to predict the position where the policy outcome will be realized in X. Actually, there is a unique subgame perfect equilibrium in this subgame. The resulting

equilibrium policy outcome is summarized in Proposition 3.1.

Let $a_{i,j}$ be the policy outcome from a bureaucracy, (y_i^B, y_j^S). Note that $h^{-1}(-c_B)$ is the distance between the boss's ideal point and the policy outcome x such that the boss gains additional utility c_B by moving x to his ideal point.

Proposition 3.1 *The equilibrium policy outcome of this bureaucracy is as follows:*

<u>*Case 1*</u>   *If* $|y_i^B - y_j^S| > h^{-1}(-c_B)$,

$$a_{i,j} = \begin{cases} y_i^B + h^{-1}(-c_B) & \text{if } y_i^B < y_j^S \\ y_i^B - h^{-1}(-c_B) & \text{if } y_i^B > y_j^S \end{cases}.$$

<u>*Case 2*</u>   *If* $|y_i^B - y_j^S| \le h^{-1}(-c_B)$,

$$a_{i,j} = y_j^S.^5$$

Proposition 3.1 is illustrated by Figure 2. The upper line shows the case where $y_i^B - y_j^S > h^{-1}(-c_B)$, while the bottom line shows the case where $y_i^B - y_j^S < h^{-1}(-c_B)$. In the first case, the subordinate knows that the boss would change the initial policy choice, p^0, if the distance between the boss's ideal point and the policy outcome induced by p^0 is greater than $h^{-1}(-c_B)$.[6] Thus, the subordinate will choose p^0 such that the policy outcome induced by it is exactly $h^{-1}(-c_B)$ away from the boss's ideal point. On the other hand, in the other case, the subordinate can get his ideal policy outcome, since the boss would not change it as long as $|y_i^B - y_j^S| \le h^{-1}(-c_B)$.

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[5] Proofs of this and all other propositions are in the Appendix.

[6] Let x^0 be the policy outcome induced by p^0. Since h is a strictly decreasing function, we have $u(x^0; y_i^B) = h(c') < -c_B$ iff $c' > h^{-1}(-c_B)$. Therefore, the boss will be better off by moving p^0 to p so that the policy outcome is realized at y_i^B iff $|y_i^B - x^0| > h^{-1}(-c_B)$.
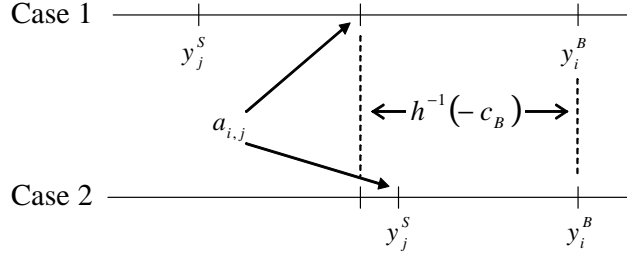
Figure 2: The Equilbrium Policy Outcome of Type 1 Bureaucracies

Interestingly, as Figure 3 demonstrates, this result implies that the ideological change of the boss or of the subordinate does not always effect the equilibrium policy outcome. The left panel of the figure (A) shows that, when the boss's ideal point is fixed, if the ideological distance between the boss and the subordinate is not too far, the policy outcome and the subordinate's ideal point are perfectly correlated. However, if the ideological distance is greater than $h^{-1}(-c_B)$, then the policy outcome does not depend on the subordinate's ideological position. On the other hand, the right panel (B) shows that when the subordinate's ideal point is fixed, the equilibrium policy outcome will not be affected by the boss's ideological change as long as the ideological distance between the boss and the subordinate is shorter than $h^{-1}(-c_B)$. Once the distance is greater than $h^{-1}(-c_B)$, however, the equilibrium policy outcome will move with the boss's ideal point. Therefore, if c_B is high, there could be a wide range of situations where the subordinate's ideological change directly moves policy outcomes while the boss's ideological change doesn't matter at all.

This implication—that policy outcomes may be sensitive to the subordinate's ideological

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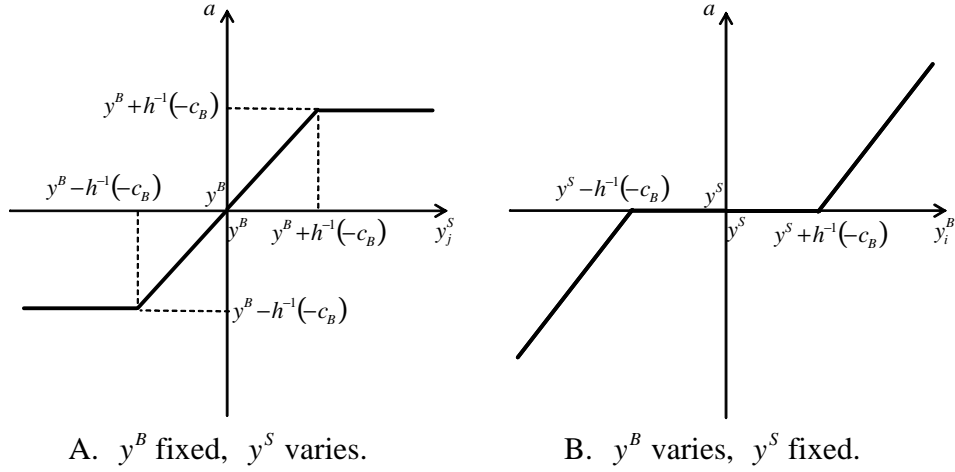A. y^B fixed, y^S varies.   B. y^B varies, y^S fixed.

Figure 3: Ideal Points and Equilibrium Policy Outcomes

change, but not to the boss's position—is very closely related to the stability of policy outcomes in bureaucracies. Since civil servants usually have lifetime tenure, the ideological change among bureaucratic careerists may be glacial. On the other hand, as bosses turn over frequently, the boss's ideological position can have much more variance over time depending on which party controls the White House and the Senate. Nevertheless, given the conditions needed for the boss to have a policy impact, policy outcomes may be very stable over long periods of time. As long as the cost, c_B, is very high, the policy outcome is not sensitive to the head of the bureaucracy's ideal point and, therefore, will be very stable over time. Only if c_B is low will an outcome vary according to the boss's ideological position and will we observe changes in the governing party having an effect.

Therefore, the behavior of a bureaucracy cannot simply be approximated by the agency head's ideal point. At the same time, we cannot just ignore the boss's ideological position. To

predict a bureaucracy's policy outcome, we need information about both the boss's and the subordinate's ideal points as well as about how much the boss can control the subordinate.

3.3 Equilibrium and Implications

In this section, I present the principal's equilibrium strategy and discuss its implications. Proposition 3.2 specifies when and to whom the principal will delegate her policy-making power.

Proposition 3.2 *Let $u^* = \int u(x; y^p) dF(x \mid p^*)$ be the principal's maximized expected utility, where p^* is the policy choice which maximizes the principal's expected utility given her knowledge of $F(x \mid p)$. Let (y^{B*}, y^{S*}) be the institution whose equilibrium policy outcome, a^*, is the closest to the principal's ideal point. In (subgame perfect) equilibrium, the principal does not delegate if $u(a^*; y^p) < u^*$, delegates if $u(a^*; y^p) > u^*$, and is indifferent between delegating and retaining authority if $u(a^*; y^p) = u^*$.*

If the principal does not delegate, she chooses p^* and $x = g(p^*, \varepsilon)$ will be realized. If the principal delegates, she picks (y^{B*}, y^{S*}), and the policy outcome will be realized at a^*.

Note that the principal may choose an institution that is not consistent with the ally principle. What matters is the equilibrium policy outcome, not bureaucratic preferences. And a bureaucracy which consists of allies does not necessarily produce a better policy outcome than a bureaucracy with non-allies. Result 1 states this formally.
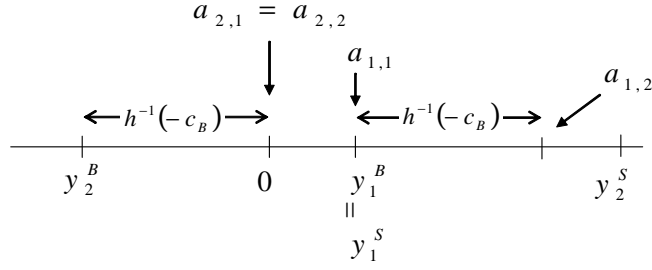
$$a_{2,1} = a_{2,2}$$

$$a_{1,1}$$

$$a_{1,2}$$

$$\longleftarrow h^{-1}(-c_B) \longrightarrow \qquad \longleftarrow h^{-1}(-c_B) \longrightarrow$$

$$y_2^B \qquad\qquad 0 \qquad\qquad y_1^B \qquad\qquad\qquad y_2^S$$

$$\shortparallel$$

$$y_1^S$$

Figure 4: A Failure of the Ally Principle

Result 1   *There exist $i' \in \{2, ..., m^B\}$, $j' \in \{2, ..., m^S\}$ and $\{(y_i^B, y_j^S)\}_{\substack{i=1,...,m^B \\ j=1,...m^S}}$ satisfying (3.1) such that the principal picks $(y_{i'}^B, y_{j'}^S)$, not (y_1^B, y_1^S), in equilibrium.*

Figure 4 gives such an example in which the institution which consists of the closest bureaucrats produces less favorable equilibrium policy outcomes than the alternatives. It is clear that the members of (y_1^B, y_1^S) have the closest ideal points to the principal. Surprisingly, however, the policy outcomes $a_{2,1}$ and $a_{2,2}$ are at the principal's ideal point, while $a_{1,1}$ is far away from it. Actually, (y_2^B, y_1^S) and (y_2^B, y_2^S) will be the optimal institutions as long as

$$-y_1^B - y_2^B < h^{-1}(-c_B) < y_1^B - y_2^B.$$

Clearly, Figure 4 shows that, even though no player other than the principal has his ideal point at 0, the principal may achieve the policy outcome very close to her ideal point. This implies that the inability of a boss to control a subordinate completely may help the principal get her favored policy outcome. In fact, as Result 2 clarifies, if the principal can control c_B, she can achieve her most preferred policy outcome with certainty despite being uninformed about ε.
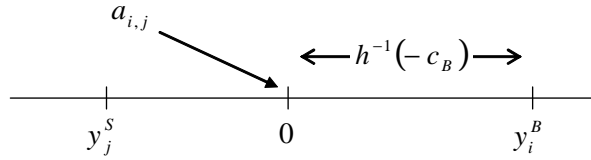
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Figure 5: The Control of the Cost and Policy Outcomes

Result 2 *If there is an institution (y_i^B, y_j^S) such that $y_i^B \cdot y_j^S < 0$, it is possible to find $c_B > 0$ which makes the institution (y_i^B, y_j^S) produce the policy outcome at the principal's ideal point (i.e., $a_{i,j} = y^p = 0$) for all possible distributions of uncertainty, ε. Therefore, if the principal can control c_B, the principal will always be strictly better off by delegating.*

As Figure 5 illustrates, the optimal c_B is always larger than zero, which means that a principal who can control c_B never wants the boss to have full control over the subordinate. If the principal can control c_B, she can choose $h^{-1}(-c_B)$ so that the resulting policy outcome will be at 0. As long as the principal has a subordinate on one side and a boss on the other side of her ideal point, the principal can always achieve her most preferred policy.

The fact that c_B affects the policy outcome provides an explanation for why it is hard to reduce ineffectiveness in our bureaucratic structures that differs from the conventional wisdom, most associated with the work of Moe (e.g., 1989). Moe argues that bureaucratic structure is intentionally designed to be incoherent since it is a result of compromise between competing political groups. However, in his explanation, the compromise is not about the policy outcome itself. Instead, the winning group just wants to build agencies that are diffi-

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cult for its opponents to gain control over later, and the losing group, of course, is dedicated to minimizing the winning group's political control over agencies. Alternatively, my model suggests that bureaucratic structure remains ineffective because the players strategically use the inability of a political appointee to control civil servants completely. Since the principal takes the bureaucratic structure into account when she chooses the head of the bureaucracy, she has no incentive to decrease c_B once she appoints an optimal boss. If we consider multiple principals, as in Moe's theory, the same logic applies. For example, as existing models of appointments suggest (Nokken and Sala 2000; McCarty 2004), the selection of an agency head in the United States can be thought of as a result of bargaining between two principals, the president and the Senate. This bargaining is actually about policy outcomes, which the ideological position of the agency head can affect. As both principals consider the bureaucratic structure in the first place, any effort to change the controlling power of the chief bureaucrat will be resisted by one or the other since such a change will affect the policy outcome. Any innovations designed to produce a more effective structure will be difficult to forge an agreement on.

Additionally, the model gives us another interesting implication about who the principal wants to appoint as agency head when the subordinate is given. While existing models predict that the principal will choose the ideologically closest person, my model predicts an "overshooting effect," by which the principal compensates for the ideological distance between her and a civil servant with a boss who is more extreme than she is at the opposite
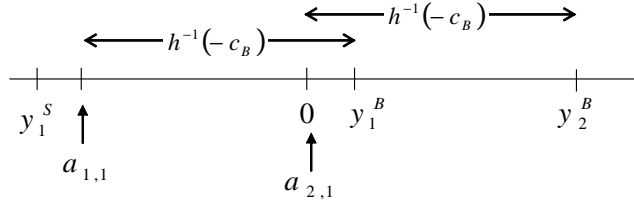
$$\xleftarrow{\hspace{1em}} h^{-1}(-c_B) \xrightarrow{\hspace{1em}}$$

$$\xleftarrow{\hspace{1em}} h^{-1}(-c_B) \xrightarrow{\hspace{1em}}$$

$y_1^S \uparrow$ $\qquad$ 0 $\quad y_1^B$ $\qquad\qquad y_2^B$

$a_{1,1}$ $\qquad\qquad a_{2,1} \uparrow$

Figure 6: The Overshooting Effect

end of the ideological spectrum. Result 3 states this formally.

Result 3 *Assume that there is only one available subordinate whose ideal point is y_1^S and that the principal can choose the boss's ideal point without any restriction. If $y_1^S < 0$, the principal chooses $h^{-1}(-c_B)$ as the boss's ideal point. If $y_1^S > 0$, she chooses $-h^{-1}(-c_B)$.*

Figure 6 illustrates this result. When c_B and the subordinate are exogenously given, the principal will choose y_2^B, not y_1^B. And this decision will not be changed even if $y_1^B = 0$. Intuitively, if the civil servants' ideological position is far from the principal's ideal point, the latter will appoint a more extreme person, not the closest person to her, to offset this distance. This suggests that political appointees nominated by the same president and approved by the same legislature will have different ideal points according to each bureaucracy's c_B and the ideological position of entrenched civil servants.

Finally, a key implication of the model is that the interpretation of the ally principle by empiricists—that delegation is more likely to occur under unified government than divided government—is not predicted when we model the bureaucracy as more than a unitary actor.
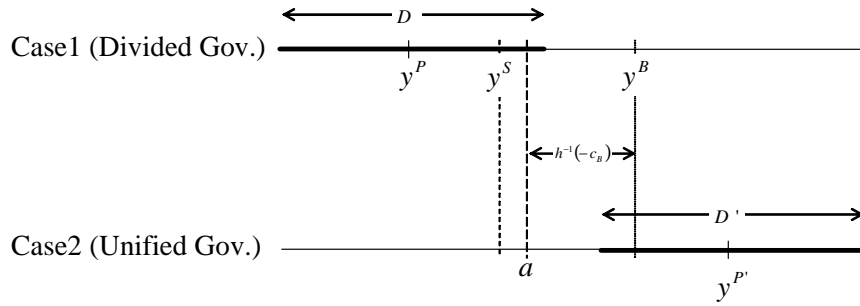
Figure 7: Divided Goverment vs. Unified Goverment

Even if we assume that the ideological distance between Congress and the president (or the governor) is smaller under unified government than under divided government, delegation is not necessarily more likely to occur under unified government.

To see this, consider Figure 7. In this figure, D denotes the delegation set, which is defined by $D = \{x \mid u(x; y^p) \geq u^*\}$. If policy outcome a is in the interior of the delegation set, then the principal delegates. If it is outside D, the principal makes an uninformed policy decision. In Figure 7, both Case 1 and Case 2 share the same bureaucracy, but the distance between the principal and the boss is smaller in Case 2. If we interpret the legislature as the principal and the governor or the president as the boss, Case 1 is more likely to happen under divided government and Case 2 is more likely to occur under unified government. Surprisingly, however, the principal will decide to delegate in Case 1 and not to delegate in Case 2, which means that delegation is not necessarily more likely to occur under unified government.

Therefore, the theoretical grounding of previous empirical studies requires the strong assumption that the bureaucracy's behavior can be approximated by the boss's ideal point. If this assumption fails, the hypothesis that delegation is more likely with unified government lacks theoretical grounding. In fact, in my model, if the governor or the president is always more extreme than the legislature and $h^{-1}(-c_B) < \frac{y^{P'}-y^P}{2}$, delegation is more likely to occur under unified government. If not, however, the opposite may happen, as in Figure 7. Thus, whether or not the ally principle is rejected will depend on the relationship between the president's and key legislators' ideological positions and on the structure of the bureaucracies analyzed. As mentioned previously, the mixed empirical results found in existing studies would be expected.

3.4 Extensions of the Basic Model

Now, I consider some extensions of the basic model to see how robust the main results are. In the basic model, it is somewhat unrealistic that even as the ideological gap between the boss and the subordinate gets larger, the boss does not have more difficulty controlling the subordinate. Thus, I change assumptions so that a boss with a close subordinate can be better off than a boss with a distant subordinate. Specifically, in the first extension (a type 2 bureaucracy), it is assumed that the boss cannot always observe the initial policy so that the distant subordinate has a stronger incentive to act in accordance with his own preference. In the second extension (a type 3 bureaucracy), it is assumed that the farther the boss moves an initial policy, the more it costs him. Finally, in the last extension (a type 4 bureaucracy), it

is assumed that subordinates have an informational advantage so that a boss with a distant

subordinate suffers from greater uncertainty in equilibrium policy outcomes.

3.4.1 Type 2

In type 2 bureaucracies, the boss observes p^0 with probability $r > 0$, and everything else is

the same as before. If he does not observe p^0, then $p = p^0$. If he observes it, he may change

it with cost c_B as before.

To solve this model, I need to assume a specific functional form for the utility. Let

$u(x; y) = -|x - y|$.[7] The equilibrium policy outcome of a type 2 bureaucracy is summarized

in Proposition 3.3.

Proposition 3.3 *The equilibrium policy outcome of a type 2 bureaucracy is as follows:*

<u>*Case 1*</u>   *If* $|y_i^B - y_j^S| \le h^{-1}(-c_B)$,

$$a_{i,j} = y_j^S,$$

<u>*Case 2*</u>   *If* $h^{-1}(-c_B) < |y_i^B - y_j^S| \le \frac{h^{-1}(-c_B)}{1-r}$,

$$a_{i,j} = \begin{cases} y_i^B + h^{-1}(-c_B) & \textit{if } y_i^B < y_j^S \\ y_i^B - h^{-1}(-c_B) & \textit{if } y_i^B > y_j^S \end{cases}, \textit{ and}$$

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[7]When $u(x; y) = -(x - y)^2$, the equilibrium policy outcome of a type 2 bureaucracy is as follows:

$$a_{i,j} = y_j^S \quad \text{if } |y_i^B - y_j^S| \le c,$$

$$a_{i,j} = \begin{cases} y_i^B + c^* & \text{if } c^* < |y_i^B - y_j^S| \le \frac{c^*}{1-\sqrt{r}} \text{ and } y_i^B < y_j^S \\ y_i^B - c^* & \text{if } c^* < |y_i^B - y_j^S| \le \frac{c^*}{1-\sqrt{r}} \text{ and } y_i^B > y_j^S \end{cases}, \text{and}$$

$$a_{i,j} = \begin{cases} y_i^B & \text{with probability } r \\ y_j^S & \text{with probability } 1 - r \end{cases}, \text{ if } |y_i^B - y_j^S| > \frac{c^*}{1 - \sqrt{r}}.$$

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<u>*Case 3*</u> $\quad$ If $|y_i^B - y_j^S| > \frac{h^{-1}(-c_B)}{1-r}$,

$$a_{i,j} = \left\{ \begin{array}{ll} y_i^B & \textit{with probability } r \\ y_j^S & \textit{with probability } 1 - r \end{array} \right. .$$

Notice that if $|y_i^B - y_j^S| \leq \frac{h^{-1}(-c_B)}{1-r}$ (Case 1 and Case 2), the equilibrium policy outcome

of a type 2 bureaucracy is the same as in the basic model. Therefore, in general, the ally

principle does not hold as before.

However, if $|y_i^B - y_j^S| > \frac{h^{-1}(-c_B)}{1-r}$ for all i, j, then the principal always prefers the closest

y_i^B and y_j^S. Interestingly, if $|y_i^B - y_j^S| > \frac{h^{-1}(-c_B)}{1-r}$ (Case 3), the bureaucracy has a random

preference, which means that the policy outcome will be realized at the boss's ideal point

with probability r, and at the subordinate's ideal point with probability $1-r$. This is because

the subordinate always sets the initial policy, p^0, at his own ideal point, y_j^S, and whenever

the boss observes it, the boss moves it to y_i^B. If the principal delegates to one of these

institutions, she sometimes gets y_i^B and sometimes gets y_j^S, which means the institution with

allies is optimal for her. Thus, the ally principle holds if the ideological distance between

the boss and the subordinate is large enough in every available institution.

3.4.2 Type 3

Instead of probabilisticly observing the initial policy, we might think that the boss can

observe p^0, but the further he moves it, the higher the cost. Setting an entirely new policy

may require more effort by the boss than correcting a part of the initial policy.

Formally, assume that the boss pays $c_B \left[(p - p^0)^2 \right]$ if he moves p^0 to p, where c_B is

increasing, continuously differentiable and strictly convex in p.[8] Further, let the utility function of players be $u(x; y) = u\left[(x - y)^2\right]$, where u is decreasing, differentiable and strictly concave in x. Everything else is the same as for type 1 bureaucracies where the cost of change by the boss is a constant.

While in the basic model the boss just needs to decide whether to move the initial policy, he now needs to consider the cost in deciding how far to move it. That is, after the subordinate sets p^0, the boss solves the following problem:

$$\max_p u\left[\left(x - y^B\right)^2\right] - c_B\left[\left(p - p^0\right)^2\right],$$

where ε and p^0 are given and $x = g\left(p, \varepsilon\right)$.

Surprisingly, when the boss makes this calculation, the equilibrium policy outcome is always at the subordinate's ideal point. As stated formally in Proposition 3.4, this is true regardless of how large the ideological distance between the boss and the subordinate is.

Proposition 3.4 *The equilibrium policy outcome of a type 3 bureaucracy (y_i^B, y_j^S) is always at the subordinate's ideal point y_j^S.*

From Proposition 3.4, it is clear that if the principal delegates, she picks the closest subordinate and is indifferent among all bosses, which means the ally principle does not hold again. The ideological position of the boss does not matter at all because, knowing the optimal p for each p^0, the subordinate can always set p^0 such that the resulting policy

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[8]For example, $c_B\left[\left(p - p^0\right)^2\right] = \left(p - p^0\right)^2$ satisfies all the assumptions.

outcome is at his own ideal point y_j^S. In other word, knowing that the boss does not have unlimited resources to change the initial policy, the subordinate can set the initial policy so that the best policy outcome that the boss can get by moving the initial policy would be at the subordinate's ideal point. As a result, the policy outcome produced by this bureaucracy will be perfectly correlated with the civil servant's preference, and, thus, very stable.

3.4.3 Type 4

The last extension of the basic model incorporates possible informational asymmetry within the bureaucracy. For parsimony, I only provide a sketch of this rather complicated extension; details and formal results are available in an on-line Supplementary Appendix.

It is a common notion that since civil servants are better informed than political appointees, they often take over programs and run them for their own purposes. To see whether an informational advantage gives civil servants more leverage and how it affects the ally principle, I assume that there are two kinds of independent uncertainties and that only the subordinate knows both shocks. The boss is assumed to know only one of the shocks and the distribution of the other while the principal only knows the distributions of the shocks. The equilibrium concept is now Perfect Bayesian Equilibrium (PBE).

The main results for type 4 bureaucracies echo what we have already found, while there are some new implications related to the informational structure. First, despite the existence of multiple equilibria, the expected policy outcome of a type 4 bureaucracy is never closer to the subordinate than in the basic model. Informational advantage does not facilitate the

subordinate's moving the outcome toward his own ideal point. Secondly, if the ideological distance between the boss and the subordinate is smaller, more informative equilibria exist in the bureaucracy subgame. That is, if the boss and the subordinate have similar preferences, the bureaucracy can produce policy outcomes with less uncertainty. Thirdly, under all possible parameter settings, there is a configuration of institutions such that the principal picks non-allies in some equilibria. Finally, even when an institution with allies produces policy outcomes with less uncertainties than an institution without allies, the principal sometimes chooses the latter to get expected policy outcomes closer to her ideal point. Therefore, again, the ally principle does not hold.

4   Conclusion

My analysis has two important implications. First, the ally principle hinges on assuming that bureaucracies can be treated as unitary actors with well-defined preferences. Considering an institution with more than one player is not just a technical change in the model, it implies results that are qualitatively different. Just adding one more player to an institution changes everything: the principal often prefers the institution with non-allies. Second, we cannot predict policy outcomes of bureaucracies without considering their structure. As the basic model and its extensions show, depending on bureaucratic structure, we have different policy outcomes even if the same people constitute a bureaucracy. However, in neither the basic model nor any of its extensions does the ally principle hold unambiguously.

Therefore, integrating the internal structure of bureaucracies is crucial for understanding delegation choices and their resulting outcomes. Theoretically, we cannot capture the logic of delegation and its results correctly without incorporating bureaucratic structure. Empirically, not considering the internal structure of bureaucracies may lead to misguided expectations and findings which are difficult to interpret.

As noted, the basic model and its extensions are rather simple. In the future, we likely will want to explore more complicated alternatives. For example, one interesting extension of my model would be to consider a situation in which the principal can choose how much authority to delegate, instead of simply delegating full policy-making authority to a bureaucracy.[9] Possible intransitive behavior of bureaucracies will likely be even more important in this setup, potentially producing additional insights into when the ally principle holds and what delegation choices look like.

A   Appendix: Proofs

Proof of Proposition 3.1. Assume $y_i^B - y_j^S > h^{-1}(-c_B)$. Wlog, consider ε such that $p = g(p, \varepsilon)$ for all $p \in \mathbb{R}$, so that if p is chosen, then p is realized. The boss's equilibrium strategy is that if $\left| p^0 - y_i^B \right| \leq h^{-1}(-c_B)$, he sets $p = p^0$ and moves p^0 to y_i^B, otherwise. Since

$$- \left(p^0 - y_i^B \right)^2 \geq -(y_i^B - y_i^B)^2 - c_B \text{ if } \left| p^0 - y_i^B \right| \leq h^{-1}(-c_B) \text{ and}$$

$$- \left(p^0 - y_i^B \right)^2 < -(y_i^B - y_i^B)^2 - c_B \text{ if } \left| p^0 - y_i^B \right| > h^{-1}(-c_B),$$

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[9]McCarty (2004) deals with a similar situation, but assumes that bureaucracies can be treated as unitary actors.

the boss does not have any incentive to deviate. The subordinate's equilibrium strategy is to set $p^0 = y_i^B - h^{-1}(-c_B)$. If the subordinate deviates to $\widehat{p}^0 < p^0$, then the boss moves $\widehat{p}^0$ to y_i^B since $\left| \widehat{p}^0 - y_i^B \right| > h^{-1}(-c_B)$. Since $y_i^B - y_j^S > h^{-1}(-c_B)$, I have

$$ - \left(p^0 - y_j^S \right)^2 = - \left(y_i^B - h^{-1}(-c_B) - y_j^S \right)^2 \geq - \left(y_i^B - y_j^S \right)^2. \tag{A.1} $$

Thus, the subordinate does not have any incentive to deviate to $\widehat{p}^0 < p^0$. If he deviates to $\widehat{p}^0 > p^0$, he gets either $- \left(\widehat{p}^0 - y_j^S \right)^2$ or $- \left(y_i^B - y_j^S \right)^2$. As $y_j^S < p^0 < \widehat{p}^0$, I have $- \left(\widehat{p}^0 - y_j^S \right)^2 < - \left(p^0 - y_j^S \right)^2$. From this and A.1, he does not have any incentive to deviate to $\widehat{p}^0 > p^0$. Therefore, on the equilibrium path the subordinate sets $p^0 = y_i^B - h^{-1}(-c_B)$, and the boss accepts it. The equilibrium outcome is $y_i^B - h^{-1}(-c_B)$. The proofs of the remaining cases are analogous. ■

Proof of Proposition 3.2. It is clear that the principal does not have any incentive to deviate from her equilibrium strategy. ■

Proof of Result 1. Consider $0 > y_1^B > y_2^B = -h^{-1}(-c_B)$, $y_2^S > 0 > y_1^S > ... > y_{m^S}^S$, and $y_1^S - y_1^B < h^{-1}(-c_B)$. Then, the policy outcome of $\left(y_2^B, y_2^S \right)$ is 0 while that of $\left(y_1^B, y_1^S \right)$ is y_1^S. From Proposition 3.1, it is clear that the absolute value of the policy outcome of the remaining institutions is larger than 0. Since only $\left(y_2^B, y_2^S \right)$ produces the policy outcome at the principal's ideal point, the principal delegates to $\left(y_2^B, y_2^S \right)$ in equilibrium, as required. ■

Proof of Result 2. Consider $\left(y_i^B, y_j^S \right)$ such that $y_i^B > 0 > y_j^S$ wlog. By Proposition 3.1, it is clear that setting $c_B = y_i^B$ makes the institution $\left(y_i^B, y_j^S \right)$ produce the policy outcome at 0

regardless of ε. ∎

Proof of Result 3. Consider $y_1^S < 0$. By Proposition 3.1, it is clear that the principal can get the policy outcome at 0 iif the boss's ideal point is at $h^{-1}(-c_B)$. The other case can be proved by the same argument. ∎

Proof of Proposition 3.3. Assume $y_i^B - y_j^S > \frac{h^{-1}(-c_B)}{1-r}$. Wlog, consider ε such that $p = g(p, \varepsilon)$ for all $p \in \mathbb{R}$, so that if p is chosen, then p is realized. The boss's equilibrium strategy is as follows; he sets $p = p^0$ if $\left| p^0 - y_i^B \right| \leq h^{-1}(-c_B)$ or if he does not observe p^0, and moves p^0 to y_i^B, otherwise. By the same reasoning as in Proof of Proposition 3.1, the boss does not have an incentive to deviate from this strategy. The subordinate's equilibrium strategy is to set $p^0 = y_j^S$. Note that since $y_i^B - y_j^S > h^{-1}(-c_B)$, the subordinate gets $-(1-r)\left(y_j^S - y_j^S\right)^2 - r\left(y_i^B - y_j^S\right)^2$ in equilibrium. If the subordinate deviates to $\hat{p}^0$ such that $\left| \hat{p}^0 - y_i^B \right| \leq h^{-1}(-c_B)$, then he gets $-\left(\hat{p}^0 - y_j^S\right)^2$. As $y_i^B - y_j^S > \frac{h^{-1}(-c_B)}{1-r}$, however, it can be easily shown that

$$-r\left(y_i^B - y_j^S\right)^2 > -\left(y_i^B - h^{-1}(-c_B) - y_j^S\right)^2 \geq -\left(\hat{p}^0 - y_j^S\right)^2.$$

Thus, the subordinate cannot be better off by setting $p^0 = \hat{p}^0$ s.t. $\left| \hat{p}^0 - y_i^B \right| \leq h^{-1}(-c_B)$. The subordinate also does not have any incentive to deviate to $\hat{p}^0$ s.t. $\left| \hat{p}^0 - y_i^B \right| > h^{-1}(-c_B)$ since

$$-r\left(y_i^B - y_j^S\right)^2 > -(1-r)\left(\hat{p}^0 - y_j^S\right)^2 - r\left(y_i^B - y_j^S\right)^2 \text{ for all } \hat{p}^0 \text{ s.t. } \left| \hat{p}^0 - y_i^B \right| > h^{-1}(-c_B).$$

Therefore, on the equilibrium path the subordinate sets $p^0 = y_j^S$, and the boss sets $p = p^0$ with probability $1 - r$ and moves p^0 to y_i^B with probability r, as required. The remaining cases can be proved similarly. ∎

Proof of Proposition 3.4. Wlog, consider ε such that $p = g(p, \varepsilon)$ for all $p \in \mathbb{R}$, so that if p is chosen, then p is realized. Recall that boss's problem is

$$\max_p u\left[\left(p - y^B\right)^2\right] - c_B\left[\left(p - p^0\right)^2\right]$$

where p^0 is given. To prove this proposition, it suffices to show that for any $y_j^S \in \mathbb{R}$, there is $p^0 \in \mathbb{R}$ such that $p = y_j^S$ is the boss's optimal decision

Since the objective function is strictly concave, the FOC is sufficient. In other words, if p satisfies

$$u'\left[\left(p - y^B\right)^2\right]\left(p - y^b\right) = c_B'\left[\left(p - p^0\right)^2\right]\left(p - p^0\right),$$

then p is the maximizer. Thus, I need to show that, for any y^S, there is p^0 such that

$$u'\left[\left(y^S - y^B\right)^2\right]\left(y^S - y^b\right) = c_B'\left[\left(y^S - p^0\right)^2\right]\left(y^S - p^0\right). \tag{A.2}$$

. Notice that the LHS does not depend on p^0. I will show that the RHS can be any value by changing p^0.

Note that since $c_B\left(\cdot\right)$ is increasing and strictly convex, we have $\lim_{x \to \infty} c_B'\left(x\right) > 0$. Thus,

$$\lim_{p^0 \to \infty} c_B'\left[\left(y^S - p^0\right)^2\right]\left(y^S - p^0\right) = \lim_{x \to \infty} -c_B'\left(x\right) \cdot \sqrt{x} = -\infty \text{ and}$$

$$\lim_{p^0 \to -\infty} c_B'\left[\left(y^S - p^0\right)^2\right]\left(y^S - p^0\right) = \lim_{x \to \infty} c_B'\left(x\right) \cdot \sqrt{x} = \infty.$$

Since c'_B is continuous, and the range of c'_B is the whole real line, we can find p^0 satisfying A.2, as needed. ∎

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