

# Inter-Branch Bargaining over Policies with Multiple Outcomes

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## Abstract

Whereas presidents serve the entire nation, members of Congress serve districts and states. Consequently, presidents and members of Congress often disagree not only about the merits of different policies, but also about the criteria used to assess them. To investigate the relevance of jurisdictional and by extension criterial differences for policymaking, we revisit classic models of bargaining under uncertainty. Rather than define uncertainty about the mapping of one policy into one outcome, as all previous scholars have done, we allow for policies to generate two politically relevant outcomes, one local and another national. We then identify equilibria in which the president's utility is increasing in the value that a representative legislator assigns to national outcomes. As an application of this theory, we analyze budgetary politics in war and peace. We find that during periods of war, when politicians privilege national outcomes, members of Congress pass appropriations that more closely reflect presidential proposals.

Politicians routinely disagree about which political outcome is best for a given jurisdiction. Indeed, such disagreements stand at the very center of most political science research on lawmaking. However, policies often have varying effects for different jurisdictions; what is good for one jurisdiction might be bad for another. When this happens, political disputes extend beyond *which* individual outcomes politicians most prefer to include *how* politicians prioritize among these outcomes. This is particularly apparent when bargaining occurs across the various branches of government. Presidents, after all, serve the nation as a whole, whereas members of Congress serve districts or states. Hence, presidents and members of Congress can be expected to disagree about policies that differentially affect their respective constituencies, even when these same presidents and members of Congress agree about the ideal outcome for each constituency.

The distinct perspective that presidents hold in our system of government has a long intellectual lineage. It figured prominently in the original constitutional debates over the construction of a separate executive branch; convinced early 20th Century Progressive Reformers that the president alone could harness the powers of the federal government to meet the distinctly national challenges of the day; and regularly appeared in presidents' own justifications for actions both contemplated and taken. As Woodrow Wilson wrote in the 1908 Blumenthal Lectures that he delivered at Columbia University, the president "is the only national voice in affairs... He is the representative of no constituency, but of the whole people." This paper, as such, is hardly the first to recognize what sets presidents apart from legislators. It is the first, though, to systematically document the implications of these differences for inter-branch bargaining.

To wit, we revisit the bargaining models that build upon Crawford and Sobel (1982). In these models, players' utilities are defined over outcomes rather than policies. A priori, however, the precise mapping of policies into outcomes is unknown, and the acquisition of expertise about this mapping process is costly. Uniformly, the existing versions of these

models posit uncertainty about the mapping of one policy into one outcome. We, by contrast, allow for policies to generate two politically relevant outcomes (one of which is local in scope, and the other of which is national) over which players' utility is defined, albeit not necessarily equally.

The main comparative statics of previous bargaining models carry over to ours. Hence, for example, outcomes more closely approximate the proposer's (in our case, the president's) preferences as players' ideal points converge or as uncertainty increases. Even after fixing these parameters, however, we are able to derive conditions under which outcomes more closely adhere to the president's preferences. In particular, we find that the president can achieve greater success as Congress (in the form of a representative legislator) assigns greater importance to national outcomes (about which presidents have expertise) and less to local outcomes (about which they may not).

Our model has wide applicability. It suggests, for instance, that policies with a stronger national focus (e.g., foreign policies or policies that attract attention from the national media) will, on average, better reflect the president's preferences than those that are more parochial in nature (e.g., purely domestic policies or policies that attract attention only in local media markets). Similarly, those members of Congress who care more about national outcomes (e.g., party leaders or individuals who plan to run for president) will, on average, be more likely to vote with the president.

In this paper, we investigate another possibility: that congressional appropriations better reflect presidential preferences during periods of war than during periods of peace. Scholars have long recognized that major wars have the potential to increase the salience of national considerations, just as they temper parochial interests (for a review, see Howell 2011). If true, and if our model's key prediction is correct, then differences between proposed and final appropriations should attenuate during times of war. Estimating a wide array of statistical models, we provide evidence that they do.

This paper proceeds as follows. The first section summarizes the relevant theoretical work on bargaining under conditions of uncertainty. The second section introduces our model, solves for one equilibrium wherein the president acquires expertise on national outcomes and makes a policy proposal, and the legislator acquires expertise on local outcomes and enacts a policy, and identifies key comparative statics. The third section applies the theoretical predictions of our model to budgetary policy. The final section identifies applications to other empirical literatures and suggests theoretical extensions.

## 1 Models of Inter-Branch Bargaining

Over the last 30 years, an extensive literature has explored how politicians bargain over policies that produce uncertain outcomes. This work specifies precise conditions under which individuals will acquire expertise about the connection between policies and outcomes, and then will use this expertise to their advantage in communications with others who may not share their preferences. Building off the core insights of Crawford and Sobel (1982), political scientists have constructed signaling models that investigate these communications within a wide range of strategic political environments, including committee-floor relations within Congress (Gilligan and Krehbiel 1987, 1990; Krehbiel 1992), congressional-agency relations across the legislative and executive branches of government (Huber and Shipan 2002; Callander 2008), civil service reform (Gailmard and Patty 2007), and political debate more generally (Austen-Smith 1990).

Expertise in these models constitutes the acquisition of information about the mathematical functions that translate policies into outcomes, both of which assume numerical values. Much of this literature envisions a linear, additive relationship, where all chosen policies yield outcomes along a policy continuum that can be expressed as the sum of the policy and

some constant, which typically is interpreted as a stochastic shock.<sup>1</sup> Expertise, according to this formulation, is knowledge of the true value of the constant.

These models suffer from three limitations. First, and as others (e.g., Callander 2008, Hirsch and Shotts 2008) have pointed out, these models too easily convert laypersons into experts. Under the standard specification, once a layperson learns how one policy relates to an outcome, she can infer the outcome of any policy—a feature of the mapping function understood as “full invertibility.” As a result, the first mover in a game will have no incentive to signal any information to the layperson, because the layperson will simply appropriate the information to shift the policy to her ideal point.

Second, all of the models on offer require that each policy instrument generates one and only one outcome. When modeling bargaining between political actors who share the same jurisdiction, such as city council members, this simplifying assumption may be warranted. It is less defensible, however, when examining bargains struck between political actors with markedly different constituencies, such as presidents and members of Congress. Policies, after all, routinely yield outcomes for a particular district or state that look quite different from the outcome for the nation as a whole. Reducing steel tariffs, cutting farm subsidies, or increasing insurance regulations may benefit the country as a whole while also hurting local economies in Pennsylvania, Kansas, and Connecticut. Conversely, federal grants and aid may materially improve lives in specific communities without having much of an impact at all on the national welfare.

Third, by construction, the existing models assume that each policy outcome is equally salient for all political actors. But as soon as we allow policies to generate multiple outcomes, we confront the possibility that political actors value these outcomes differently. Precisely because they serve the entire nation, presidents can be expected to view national outcomes

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<sup>1</sup>According to the canonical formulation (see Gilligan and Krehbiel 1987), the mapping process from policies to outcomes is given by  $x = p + \omega$ , where  $x$  is the outcome,  $p$  is the policy, and  $\omega$  is a constant stochastic shock.

as paramount. Because they serve smaller political jurisdictions, meanwhile, members of Congress can be expected to value both national and local outcomes, though not necessarily equally. Hence, when assessing the merits of a particular policy, members of Congress, unlike presidents, may be torn between what is good for the country as a whole and what is good for their own constituents. As Lewis and Moe (2009, 371, 370) observe, because they are “national leaders with a broad, heterogeneous constituency, presidents think in grander terms than members of Congress,” who themselves tend to evaluate policy “on the special (often local) interests that can bring them security and popularity in office.”

## 2 The Model

Our model addresses the three limitations that characterize recent theoretical work on information acquisition and signaling. First, following Callander (2008), we incorporate a mapping function that is both partially and proportionally invertible—that is, a function about which a layperson can partially update her beliefs having learned the outcome associated with one policy, and that the extent of updating decreases as one considers alternatives that are farther away from the revealed policy. Second, we allow for a single policy to generate two outcomes: one of which concerns national affairs, the other local.<sup>2</sup> Third, and finally, we allow politicians to disagree about the importance of these outcomes. With these three modifications, our model simultaneously supports equilibria in which bargaining occurs even when the second mover can amend the first mover’s proposal, and demonstrates that

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<sup>2</sup>This distinction between national and local outcomes roughly equates to the distinction commonly made between public goods and pork barrel spending, about which a great deal has been written (for recent papers, see Battaglini and Coate 2008, Volden and Wiseman 2007). This latter literature, however, is engaged in a conceptually different enterprise than our own. Whereas these other scholars investigate the conditions under which legislators devote variable amounts of revenues, raised either through taxes or debt accumulation, on what might be called local and national projects, they do not explicitly consider the influence of informational asymmetries between political actors on the ultimate distribution of these revenues. We, by contrast, are primarily interested in the propensity of legislators to support a proposer’s policy (in our case, the president’s) given clear informational asymmetries and different assessments of the relative importance of these outcomes.

presidential bargaining success can increase even when ideal points are held constant.

## Setup

The game consists of two players—a president and a representative member of Congress. Hence,  $I = \{P, L\}$ , where  $P$  identifies the president, and  $L$  identifies the legislator with whom he bargains. In the game, the president and legislator interact with one another to select a policy  $p \in [0, 1]$ . This policy exists on a one-dimensional line, which can be thought of as denoting liberalism and conservatism (with values on the left indicating a liberal policy and values on the right indicating a conservative policy) or monetary commitments (with larger values indicating more expensive policies).

Each policy  $p$  results in both a national political outcome  $x_1 \in [0, \mu_1]$  and a local political outcome  $x_2 \in [0, \mu_2]$ . Like the policy itself, each of these outcomes exists on a one-dimensional line. The mapping function from policy to national political outcome is  $\psi_1$ , such that  $\psi_1(p) = x_1$ . Likewise, the mapping function from policy to local political outcome is  $\psi_2$ , such that  $\psi_2(p) = x_2$ . Thus, each policy  $p$  produces a pair of relevant outcomes  $(x_1, x_2)$  for the players in the game. Both the president and legislator have preferences over each of these outcomes, though, as we will see later, their utility need not weigh the two outcomes equally. The president's most preferred outcome (that is, his ideal point) is denoted  $(x_1^P, x_2^P)$  while the legislator's most preferred outcome is denoted  $(x_1^L, x_2^L)$ . To simplify notation, the legislator's most preferred outcome is normalized to  $(0, 0)$ . Consequently,  $(x_1^P, x_2^P)$  can be thought of as the Euclidean distance between the president's and the legislator's most preferred outcomes.<sup>3</sup>

Each player may pay a cost  $c_1 \geq 0$  to acquire expertise about what national outcome

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<sup>3</sup>This normalization has another benefit, the technical reasons for which will become apparent shortly. Because the model maps a single policy into two dimensional space, it may not be possible to realize some combinatory outcomes. By setting the legislator's ideal point at the origin, however, we ensure the existence of a single policy that will generate her most preferred outcomes.

any policy  $p$  will produce and a cost  $c_2 \geq 0$  to acquire expertise about what local outcome any policy  $p$  will produce. To allow for the possibility that the president and legislator may pay different costs to acquire expertise, we denote  $c_1^P$  and  $c_2^P$  as the costs the president must pay, and  $c_1^L$  and  $c_2^L$  as the costs the legislator must pay.

The game begins with the president deciding whether to acquire expertise on how policies translate into national and/or local outcomes. The president may choose to acquire expertise on one, both, or neither mapping function. In a slight abuse of notation,  $S_P = \{A_1, A_2, B, \emptyset\}$ , where  $A_1$  indicates the president has acquired expertise on how policies translate into national outcomes,  $A_2$  indicates the president has acquired expertise on how policies translate into local outcomes,  $B$  indicates the president has acquired expertise on how policies translate into both national and local outcomes, and  $\emptyset$  indicates the president has not acquired any expertise. After choosing whether or not to acquire expertise, the president then proposes a policy  $p^P \in [0, 1]$ . In total, the president's strategy set is characterized as:  $S_P = \{A_1, A_2, B, \emptyset\} \times \{p^P \in [0, 1]\}$ .

The legislator observes the president's actions (whether the president acquired expertise, and the president's proposal  $p^P$ ). She then chooses whether to invest in acquiring expertise on how policies map onto local and/or national outcomes. Subsequently, she enacts a new policy  $p^L \in [0, 1]$ . Thus, the legislator's available actions are:  $\{A_1, A_2, B, \emptyset\} \times \{p^L \in [0, 1]\}$ . Since the game is sequential, the strategy set for the legislator is a mapping function from each action of the president to a set of actions of the legislator; formally,  $S_L = f : \{A_1, A_2, B, \emptyset\} \times \{p^P \in [0, 1]\} \rightarrow \{A_1, A_2, B, \emptyset\} \times \{p^L \in [0, 1]\}$ . The enacted policy  $p^L$  yields an outcome  $(x_1, x_2)$ , and payoffs are realized.

The president, we postulate, cares only about the national political outcome. Hence, as the gap between the president's preferred national outcome and the actual national outcome increases, the president's utility decreases, which is captured mathematically by the expression  $-(x_1^P - x_1)^2$ . Because the president's utility is unaffected by the distance be-

tween his preferred local outcome and the actual local outcome, the only other relevant portions of the president's utility function are the costs he may have paid to acquire expertise on how policies translate into outcomes. The president's utility, then, is given by:  $U_P = -(x_1^P - x_1)^2 - \mathbb{I}\{S_P = A_1 \cup B\} * c_1^P - \mathbb{I}\{S_P = A_2 \cup B\} * c_2^P$ , where  $\mathbb{I}\{S_P = A_1 \cup B\}$  is an indicator for whether the president acquired expertise on national outcomes and  $\mathbb{I}\{S_P = A_2 \cup B\}$  is an indicator for whether the president acquired expertise on local outcomes.<sup>4</sup>

The legislator's utility function is slightly more complicated. Though the president remains preoccupied exclusively with national outcomes, the legislator cares about both national and local outcomes. Therefore, the legislator's utility is defined over the distance between policy outcomes and her ideal points along both dimensions—that is, her utility decreases when either  $(x_1^L - x_1)^2$  or  $(x_2^L - x_2)^2$  increases. We recognize that the legislator may not value both outcomes equally. Indeed, such an assumption seems unlikely. We therefore introduce a parameter  $\lambda \geq 0$  to scale the relative significance of national vis-à-vis local outcomes. For  $\lambda > 1$ , more weight is placed on the national outcome than on the local outcome. Conversely, for  $\lambda < 1$ , more weight is placed on the local outcome than on the national outcome. And for  $\lambda = 1$ , the two outcomes matter equally to the legislator's utility. Like the president, the other portions of the legislator's utility function reflect the costs that may have been paid to acquire expertise. The legislator's utility is given by:  $U_L = -\lambda(x_1^L - x_1)^2 - (x_2^L - x_2)^2 - \mathbb{I}\{S_L = A_1 \cup B\} * c_1^L - \mathbb{I}\{S_L = A_2 \cup B\} * c_2^L$ , where the first two terms identify the relative losses (weighted by  $\lambda \geq 0$ ) associated with policy outcomes that diverge from the legislator's national and local ideal points, and the latter two terms identify the costs that may have been paid to acquire expertise about either of the two mapping functions.<sup>5</sup>

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<sup>4</sup>Note that while the president's utility is unaffected by the location of policy along the local outcome dimension, nothing in the model precludes him from investing in the acquisition of expertise about the mapping of both national and local outcomes. For this reason, two cost expressions rather than just one appear in the president's utility function.

<sup>5</sup>For reasons we discuss later in the paper, the key derivations of our model do not depend upon the

Players can only choose policies, but their utilities are defined over outcomes. Before we can derive their optimal strategies, therefore, we first need to characterize how policies translate into outcomes. For each player  $i$ , policy  $p^i$  produces outcome  $j$  as follows:

$$\psi_j(p^i) = \mu_j p^i + \mathbb{I}_i\{Nonepert_j\}(p^P - p^i)^{\mathbb{I}\{S_P=(Expert_j, p^P \leq \frac{x_1^P}{\mu_1})\}} z_j. \text{ }^6$$

In this formulation,  $\mu_j > 0$  is common knowledge and represents the sensitivity of outcome  $x_j$  to policy  $p$ , whereby larger values indicate greater sensitivity.<sup>7</sup>  $\mathbb{I}_i\{Nonepert_j\}$  is an indicator for whether player  $i$  has not acquired expertise on outcome  $j$ . If player  $i$  does not acquire expertise on outcome  $j$ , then this takes a value of one; if  $i$  has acquired expertise, then this takes a value of zero.  $(p^P - p^i)$  denotes the distance between the policy proposed by the president and the policy choice of player  $i$ . By construction, this will equal zero for the president ( $(p^P - p^P) = 0$ ). However, as  $p^L$  decreases,  $(p^P - p^L)$  increases.  $\mathbb{I}\{S_P = (Expert_j, p^P \leq \frac{x_1^P}{\mu_1})\}$  is an indicator for whether the president has acquired expertise on outcome  $j$  and proposed a policy that induces a national outcome less than or equal to his ideal point in expectation, i.e.,  $p^P \leq \frac{x_1^P}{\mu_1}$ . If both of these conditions are satisfied, then this quantity takes a value of one; but if either condition is not satisfied, then this quantity takes a value of zero. Since it appears as an exponent on  $(p^P - p^i)$ , this quantity either equates to one (if the indicator is zero) or leaves it unchanged (if the indicator is one). Last,  $z_j$  is a stochastic shock. Players have common knowledge that  $z_j$  is a random variable, distributed uniformly with support  $[-k_j, k_j]$ . The multiplicative combination of  $(p^P - p^i)$  and  $z_j$  generates the effect of proportional invertibility, for as a lay legislator's enacted policy

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simplifying assumption that the president solely values national outcomes, and therefore assigns no weight to local outcomes in his utility function.

<sup>6</sup>Technically, we do not observe a single mapping function. Rather, how policy maps into outcomes varies across different subgames, as denoted by the various indicator functions. What we have here, then, is a set of mapping functions expressed in a general form.

<sup>7</sup>In future work, one might consider a model wherein  $\mu_1 > 0$  and  $\mu_2 < 0$ , which would mean gains in national outcomes unavoidably entail losses in local outcomes.

deviates farther from an expert president’s policy proposal, the uncertainty cost associated with the variance of  $z_j$  increases.

In this model, acquiring expertise on outcome  $j$  does not reveal the true value of  $z_j$  to player  $i$  (as it does, for instance, in Gilligan and Krehbiel’s work).<sup>8</sup> Rather, acquiring expertise affects the indicator function attached to  $z_j$ , so that the effect of  $z_j$  on a policy outcome is eliminated. In this sense, the acquisition of expertise constitutes the purchase of insurance against uncertainty, rather than the translation of uncertainty into certainty. Hence,  $z_j$  itself can be thought of as a lottery that captures the uncertainty associated with a policy for laypersons. Players, under this formulation, do not update their beliefs about  $z_j$ . Rather, by becoming experts, players no longer play the lottery when selecting a policy.<sup>9</sup>

Because this is a game of complete information, the equilibrium solution concept is Sub-Game Perfection.

## Equilibrium Analysis

Depending on the values assumed by the parameters  $x_j^P, \mu_j, k_j, c_j^i$ , this game supports multiple equilibria. Here, we focus on one wherein the president invests only in national expertise (and therefore has no additional knowledge about local outcomes) and proposes a new policy, and then the legislator invests only in local expertise (and hence has only a noisy signal of national outcomes) and enacts a new policy. In this section, we outline the conditions needed to sustain this equilibrium. A formal derivation and characterization of

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<sup>8</sup>In choosing a mapping function, we had two objectives: first, to preserve proportional invertibility; and second, to maintain a relatively simple and straightforward process. The first objective rules out the Gilligan and Krehbiel mapping function, which is not proportionally invertible. And because of the second, we opted not to employ a Brownian motion, as in Callander 2008, which would introduce significant complexities when mapping one policy into two outcomes, and which further raises theoretical problems such as non-monotonicity.

<sup>9</sup>The model, thus postulated, draws on economic models of insurance markets wherein purchasers trade off bias (in the form of insurance premiums) against uncertainty (in the form of assumed risk). Here, the legislator must weigh the costs of enacting a policy that may not reflect her preferences against the uncertainty associated with shifting policy away from an informed president’s proposal.

these conditions can be found in the appendix.

**Theorem 1.** For sufficiently large  $c_1^L$  and sufficiently small  $c_2^L$  and  $c_1^P$ , an equilibrium exists wherein the president acquires expertise on only national outcomes and proposes the policy that induces his ideal national outcome, and the legislator acquires expertise on only local outcomes and enacts a policy.

Proof. See appendix.

In order for this equilibrium to hold, two conditions must be met. First, given that the president has learned how policies translate into national outcomes and made a policy proposal to the legislator, the legislator must prefer over all other available options to learn how policies translate into local outcomes, to forsake the opportunity to learn how policies translate into national outcomes, and then to enact a new policy. This condition is satisfied when  $c_1^L$  is sufficiently large and  $c_2^L$  is sufficiently small. Second, knowing what the legislator will do in response to each of the president's strategic options, the president must prefer over all his other options to learn how policies translate into national outcomes (but not local outcomes) and to make a new policy proposal. This will be true when the cost to the president of acquiring expertise on national outcomes ( $c_1^P$ ) is sufficiently small.

Other equilibria, to be sure, can be derived from the model. For the most part, though, such equilibria rely on parameter values that seem implausible—for instance, that the legislator's costs of acquiring local expertise are greater than those of acquiring national expertise; and, further, that the cost to the legislator of acquiring national expertise are lower than the cost to the president of doing so. In the equilibrium identified in Theorem 1, however, we need only believe that it is quite costly for legislators to acquire national expertise, relatively cheap for legislators to acquire local expertise, and relatively cheap for presidents to acquire

national expertise.<sup>10</sup> Moving forward, therefore, we focus on the comparative statics of this particular equilibrium.

## Sincere versus Strategic Proposal Making

In the equilibrium identified in Theorem 1, presidents propose the policy that produces their ideal national outcome. On its face, this would appear rather odd, particularly given the seemingly self-evident benefits of adjusting one's proposal in light of one's expectations about how it will be received. Knowing that the legislator will deviate from the president's sincere proposal, should not the president preempt this action and offer an alternative proposal in its place? As it turns out, no. To see the intuition behind this finding, first consider any proposal the president could make that produces a national outcome less than his preferred outcome. The president will strictly prefer his ideal policy to any of these alternatives, since the legislator will only move policy away from the president's ideal policy. All of these values, therefore, are strictly dominated.

Conversely, consider any proposal that produces a national outcome that exceeds the president's ideal point. Under this scenario, the president would propose a policy that produced a relatively extreme national outcome, anticipating that the legislator then would enact a policy that shifted the outcome downward, resulting in an equilibrium policy that better reflected the president's ideal national outcome. By construction, however, the legislator will respond to signals from the president only if the president's proposal is less than or equal to the proposal that induces the president's ideal national outcome. If the legislator observes an extreme proposal, then she receives a higher expected utility for enacting the policy that aligns with her ideal outcomes. In turn, this produces a high cost for the president, such that he would prefer to propose his ideal-national-outcome-inducing policy,

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<sup>10</sup>An alternative justification for this equilibrium is that legislators are incapable of acquiring the level of expertise about national outcomes that presidents can acquire. One could capture this in the model by simplifying the legislator's strategy set to only include the option of acquiring local expertise.

rather than an artificially extreme policy. Thus, the president strictly prefers to propose the policy that generates his most preferred national outcome to any other policy he could propose.<sup>11</sup>

## Comparative Statics

In our model, presidential success is characterized as the distance between the president's ideal policy ( $p^P = \frac{x_1^P}{\mu_1}$ ) and the legislator's enacted policy ( $p^L$ ). We denote this distance  $\Theta^* = \frac{x_1^P}{\mu_1} - p^L$ . In this section, we derive the comparative statics of presidential success. We relate changes in  $\Theta^*$  to changes in  $\mu_1$ ,  $\mu_2$ ,  $x_1^P$ ,  $k_1$ , and  $\lambda$ .

Both  $x_1^P$  and  $\mu_1$  are fixed parameters. However,  $p^L$  is chosen endogenously by the legislator. In equilibrium, the legislator will choose the value of  $p^L$  that maximizes her expected utility. Given that the president has invested in expertise on national outcomes and proposed the policy that induces his ideal national outcome, and that the legislator has invested in expertise on local outcomes and enacted a policy, the legislator's expected utility is given by  $EU_L = \lambda[-(\mu_1 p^L)^2 - (p^P - p^L)^2(\frac{k_1^2}{3})] - (\mu_2 p^L)^2 - c_2^L$ . The first order condition yields  $\frac{\partial EU_L}{\partial p^L} = -2\lambda\mu_1^2 p^L + \frac{2}{3}\lambda k_1^2 (p^P - p^L) - 2\mu_2^2 p^L = 0$ , which implies that  $(p^L)^* = \frac{\frac{1}{3}k_1^2 \lambda \frac{x_1^P}{\mu_1}}{\lambda\mu_1^2 + \frac{1}{3}k_1^2 \lambda + \mu_2^2}$ . Plugging  $(p^L)^*$  into  $\Theta^*$ , we find that  $\Theta^* = \frac{(3\mu_1^2 + 3\mu_2^2)x_1^P}{\mu_1(3\lambda\mu_1^2 + \lambda k_1^2 + 3\mu_2^2)}$ .

Presidential success, then, can be expressed in terms of five parameters: the degree to which changes in policy affect changes in national and local outcomes ( $\mu_1$  and  $\mu_2$ ), the president's preferred national outcome ( $x_1^P$ ), the uncertainty regarding national outcomes associated with deviating from the president's proposal ( $k_1$ ), and the weight the legislator places on national outcomes ( $\lambda$ ). To determine the effect of each of these factors, we take

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<sup>11</sup>By relaxing certain assumptions of the model, it is possible to generate equilibria in which strategic proposal-making occurs. In the current model, the legislator ignores the president's proposal  $p^P$  if  $p^P > \frac{x_1^P}{\mu_1}$ . If we allow the legislator to update on any proposal made by the president, however, strategic proposal-making can optimally occur. And for this reason, the model, as currently specified, does not speak to the incidence of strategic versus sincere proposal-making. However, even under these relaxed assumptions, the proposed equilibrium in Theorem 1 remains a Nash equilibrium, which is sufficient to support our core predictions regarding  $\lambda$ .

the partial derivative of  $\Theta^*$  with respect to each.

**Theorem 2.** In the equilibrium identified in Theorem 1, the following five comparative statics hold on presidential bargaining influence ( $\Theta^*$ ):

1.  $\frac{\partial \Theta^*}{\partial \mu_1} \leq 0$  iff  $k_1^2 \leq \frac{3\lambda^2 \mu_1^4 + 6\lambda \mu_1^2 \mu_2^2 + 3\mu_2^4}{\lambda^2 \mu_1^2 - \lambda \mu_2^2}$ .
2.  $\frac{\partial \Theta^*}{\partial \mu_2} \geq 0 \forall \mu_2$ .
3.  $\frac{\partial \Theta^*}{\partial x_1^P} \geq 0 \forall x_1^P$ .
4.  $\frac{\partial \Theta^*}{\partial k_1} \leq 0 \forall k_1$ .
5.  $\frac{\partial \Theta^*}{\partial \lambda} \leq 0 \forall \lambda$ .

Proof. See appendix.

The degree to which changes in policy affect changes in national outcomes ( $\mu_1$ ) has a contingent effect on presidential influence. Provided that the uncertainty cost is sufficiently small, presidential success increases as changes in policy lead to greater changes in national outcomes. When the cost of uncertainty becomes sufficiently large, however, presidential success decreases as the national stakes of policy change increase.

The four other comparative statics yield clearer predictions. Presidential success will decline as the local stakes of a policy ( $\mu_2$ ) increase. Hence, we should expect the president to fare worse in those inter-branch negotiations in which minor changes in policy induce relatively large changes in local outcomes.

The third partial derivative shows that presidential success declines as the president's ideal national outcome ( $x_1^P$ ) diverges from the legislator's ideal national outcome. This prediction confirms the intuition that a president obtains less preferred outcomes when he must bargain with a legislator whose preferences differ substantially from his own. Conversely,

policy will more closely approximate the president’s preferences when he bargains with a like-minded legislator.

Of particular interest are the effects of the final two parameters: (1) the uncertainty of national outcomes ( $k_1$ ); and (2) the weight the legislator places on national outcomes relative to local outcomes ( $\lambda$ ). As uncertainty about national outcomes increases, so too does the president’s bargaining position. Similarly, presidential success increases as the legislator attaches greater importance to national outcomes relative to local outcomes. Both of these comparative statics hold for all values of  $k_1$  and  $\lambda$ , respectively. And this should come as no surprise. In this equilibrium, only the president has expertise about national outcomes. Thus, any factor that amplifies the legislator’s uncertainty costs will yield an outcome that more closely approximates the president’s preferences.

Figure 1 displays the comparative statics of  $k_1$  and  $\lambda$ , respectively. The left panel assesses  $k_1$ . Fixing  $\mu_1$  at 2,  $\mu_2$  at 1,  $x_1^P$  at 1, and  $\lambda$  at 2, we allow  $k_1$  to vary. We find that for  $k_1 = 0$ ,  $\Theta^*$  is approximately 0.3. Moreover,  $\Theta^*$  is strictly decreasing in  $k_1$ —that is, presidents always enjoy greater success as the bounds of uncertainty regarding the national outcome increase.

Next, we keep  $\mu_1$ ,  $\mu_2$  and  $x_1^P$  fixed at their previous levels, fix  $k_1$  at 2, and allow  $\lambda$  to vary. Here we find that when  $\lambda = 0$ ,  $\Theta^*$  is 2.5. Again,  $\Theta^*$  is strictly decreasing in  $\lambda$ . We also find that  $\lambda$  has a substantively larger effect on  $\Theta^*$  than does  $k_1$ , particularly for small values of  $\lambda$  (i.e., when Congress goes from placing almost no weight on national outcomes to evenly balancing national and local outcomes). Hence, it would seem, the propensity of members of Congress to vote with the president should be more sensitive to marginal changes in the relative importance they assign to national outcomes than to marginal changes in uncertainty regarding national outcomes of policy.<sup>12</sup>

It is possible to recover the key comparative static with respect to  $\lambda$  in a model that relaxes the strong assumption that local outcomes do not figure at all in the president’s

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<sup>12</sup>The same substantive findings hold for alternative parameter values of  $\mu_1$ ,  $\mu_2$ , and  $x_1^P$ .

utility. Consider, for instance, a model in which both the president and legislator each have their own  $\lambda$  parameter:  $\lambda_P$  and  $\lambda_L$ , respectively. In this case, the president's utility function would become  $U_P = -\lambda_P(x_1^P - x_1)^2 - (x_2^P - x_2)^2 - \mathbb{I}\{S_P = A_1 \cup B\} * c_1^P - \mathbb{I}\{S_P = A_2 \cup B\} * c_2^P$ , and the legislator's utility function would become  $U_L = -\lambda_L(x_1^L - x_1)^2 - (x_2^L - x_2)^2 - \mathbb{I}\{S_L = A_1 \cup B\} * c_1^L - \mathbb{I}\{S_L = A_2 \cup B\} * c_2^L$ . In this setup, the core comparative statics persist as long as presidents care more about national outcomes than do legislators, i.e.,  $\lambda_P > \lambda_L$ ; and, that for any increases in  $\lambda_i$ ,  $\lambda_L$  increases at a faster rate than does  $\lambda_P$ .

### 3 An Application: Budgetary Politics in War and Peace

Specific classes of events can be expected to change  $\lambda$ , and thereby alter congressional support for the president. Some events—such as regional natural disasters—may enhance certain members' concern for their local districts, yielding a lower value of  $\lambda$  and a Congress less disposed to support the president. Other events, though, may have a more uniform effect across legislators, and therefore may be more amenable to empirical investigation. We consider one such possibility: major military conflicts. A significant body of research underscores the ways in which wars reorient both public and elite opinion around national considerations about security, citizens' shared status as Americans, and the competitiveness of the United States in the international arena (for a review, see Howell 2011). If true, and if our main theoretical prediction holds, we should find that policies enacted during war, all else equal, more closely approximate the president's preferences than those enacted during peace.

Budgets provide an ideal venue in which to explore this possibility. The basic setup of our theory, after all, constitutes something of a distillation of the appropriations process, wherein each year the president proposes and Congress disposes a federal budget. Moreover, and as others (e.g. Canes-Wrone 2006) have pointed out, appropriations mitigate a host

of problems endemic to empirical work on separation of powers issues. First, and perhaps foremost, budgets allay the deep endogeneity issues associated with presidential position-taking. Unlike the traditional legislative process, the appropriations process does not permit presidents to remain silent on particularly controversial bills or members of Congress to refuse to cast judgment on presidential proposals. Second, with budgets, unlike legislation, we have a reasonably clear and continuous measure of presidential success—and one, moreover, that can be readily compared across policy domains. Third, presidents tend to want to give more money to agencies than do legislators (Fenno 1966), an empirical regularity that lends itself to relatively clean empirical testing. Hence, the more members of Congress wish to accommodate the president’s proposal, the smaller the observed differences between proposed and actual appropriations will be. And should members decide to give the president exactly what he wants, these differences will vanish altogether.

## Data

We track budgetary proposals and allotments for the same 77 agencies and programs that Roderick Kiewiet and Mathew McCubbins (1991) analyzed in their seminal work on delegation.<sup>13</sup> In the empirical analyses that follow, therefore, the unit of observation is a particular agency and/or program budget in a particular year. The dataset spans 74 years, covering 1933 to 2006 inclusive.

The agencies and programs in our dataset address a wide range of policy issues. Twenty of them focus on defense policy, while the remaining 57 cover a wide range of foreign and domestic policies. For example, the list includes funds to cover all aspects of military construction as well as the Office of Education, which, as the predecessor to the Department of Education, the federal government’s involvement in education policy. The agencies and pro-

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<sup>13</sup>In order to extend the dataset back to 1933, we also include a handful of the predecessors to agencies in the Kiewiet and McCubbins dataset. None of the key findings presented below, however, depend upon their inclusion.

grams also vary significantly in size, as measured both by the number of personnel working within them and the size of their annual budgets. Some of these agencies are quite large, such as the Food and Drug Administration, the Federal Bureau of Investigation, and the Bureau of Indian Affairs. Others are relatively small, such as the Federal Power Commission and the Federal Trade Commission. Some agencies, such as the Food and Drug Administration, the Occupational Safety and Health Administration, and the National Aeronautics and Space Administration, are well known. Others, such as the Rural Waste, Water, and Disposal Grants, are more obscure.

In total, we have 3,201 observational units, which is significantly less than the possible number of cases supported by this dataset (77 agency times 74 years yields 5,698 observations). The cause for the drop-off is threefold. First, in some instances budgetary data for a particular agency in a particular year is simply not available. More commonly, though, an agency does not exist in a given year, either because the date precedes its establishment, or because the date appears after the agency's merger with another agency, internal division, or outright termination. Third, and finally, we recognize that in the first year of a president's first term, the official budget proposal comes from the previous president. We therefore drop these observations, limiting the sample to the first three years of a president's first term, and all four years of the president's second term.

For each agency-by-year observation, we identify the president's budget proposal and the actual appropriations allotted to that agency (standardized to 1983 dollars).<sup>14</sup> When

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<sup>14</sup>For the years 1948-1985, we use data collected by Kiewiet and McCubbins. Brandice Canes-Wrone furnished data between 1986 and 2001. (We cross-checked all of these data, which Senate documents showed to be accurate.) For the years 1933-1947 and 2002-2006, we collected data from the *Congressional Record*. For each fiscal year, the Senate document entitled "Appropriations, Budget Estimates, Etc" lists the president's proposal (referred to as the "budget estimate") and the amount appropriated, broken down by agency and/or program. In some cases, data on the full appropriations to an agency are not provided. In these cases we use the salaries and expenses allotted for the agency. Additionally, a handful of agencies changed names over time (such as the General Land Office, which became the Bureau of Land Management in 1948). In these cases we treat the agencies as a continuously operating unit. (Estimating models that treats such agencies as different does not change any of the substantive results.) Only when an agency splits, merges, or dies does it fall out of our dataset.

considering all the observations in our dataset, the president requests on average \$4,382,662 per agency each year, while Congress allocates \$4,368,323, a difference of \$14,339. Over the course of their lifespans, 48 out of 77 agencies received less money from Congress per year than the president requested. Likewise, Congress granted fewer real dollars per agency than requested by the president in 55 out of 74 years. Not surprisingly, agency budgets routinely increase during times of war. On average, presidential budgetary estimates grow from \$4.1 to \$5.1 million per agency-year during war, and likewise Congress’s approved budget increases from \$4.1 to \$5.1 million. In times of war, Congress allocates more money per agency than the president requests (by \$19,691), while during peace Congress allocates less per agency than the president requests (by \$26,629).

## Empirical Strategy

Our dependent variable characterizes discrepancies between proposed and final appropriations for each agency in each year. The distribution of these differences reveals substantial skewness. As our dependent variable, therefore, we take the natural log of the absolute value of the difference between proposed and final appropriations for each agency in each year—that is,  $\ln(|Prop_{it} - Approp_{it}| + 1)$ .<sup>15</sup> Larger values of this variable indicate greater discrepancy between what the president requested and what Congress ultimately granted; and smaller values indicate less discrepancy.<sup>16</sup> When interpreting the effects of any particular covariate, positive values indicate an expansion of the difference between proposed and final appropriations, while negative values indicate a contraction.

Our primary independent variable of interest is war, which proxies for the importance of national outcomes ( $\lambda$ ). Following other scholars (e.g., Epstein et al 2005, Clark 2006),

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<sup>15</sup>Below, we discuss other plausible characterizations of the dependent variable.

<sup>16</sup>This characterization comports with other spatial models of the budgetary process, including (Canes-Wrone 2006; Kiewiet and McCubbins 1988; Ferejohn and Krehbiel 1987). In each of these models, the president is assumed to have an ideal appropriation amount for a given unit at a given time period, and the utility he derives from actual appropriations is decreasing in their difference from this ideal amount.

we identify major wars as World War II, the Korean War, Vietnam War, Gulf War, and the Afghanistan War. To be identified as a war year, the United States must have been at war when appropriations were proposed. Hence, 1941 is not coded as a war year, since the United States did not enter World War II until after the Pearl Harbor attacks of December 7. Meanwhile, 1991 is coded as a war year, as Bush issued his proposal while the Gulf War remained ongoing, even though Congress set final appropriations after that war had ended. The variable *War*, therefore, identifies the following calendar years: 1942-45; 1951-53; 1965-73; 1991; 2002-2006 (when our panel ends).

The likelihood that Congress accommodates the president's requests depends upon more than just the presence of peace or war. Most importantly, perhaps, it depends upon just how much money the president requests. At the margin, we expect that Congress will look more favorably upon smaller requests than larger ones. We therefore control for the logged value of the president's proposal for each agency in each year.

Congress's response to the president surely also depends upon the level of political support that he enjoys within its chambers. Presidents who confront congresses with large numbers of ideological or partisan supporters are likely to secure appropriations that more closely approximate their requests than presidents who face off against congresses dominated by the opposition party. Following Kiewiet and McCubbins (1985*a*, 1985*b*), we therefore control for the percent of House seats held by the president's party in each year.<sup>17</sup>

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<sup>17</sup>We have also estimated models that control for the percent of Senate seats held by the president's party in each year, and that control for both the House and the Senate. These models yield substantively similar results. We emphasize the role of the House because appropriations bills originate in the House rather than the Senate, and several scholars have demonstrated that the House has greater influence over the appropriations process than does the Senate (Wildavsky 1964, Fenno 1966, Schick 2007). Separately, we have estimated models that control for the distance between the president's and the median House member's NOMINATE score, which characterizes the degree of preference convergence across the branches of government. These models furnish comparable results. For two reasons, however, we are reluctant to make much of them. First, DW-NOMINATE scores are partly a cause and partly a consequence of the very phenomenon we seek to explain—legislative support for the president's positions (Clinton 2007). And second, presidential DW-NOMINATE scores are highly unreliable due to the small and non-random sample of bills on which presidents take positions (Treier 2010).

We also include three economic indicators: the average unemployment rate during the year when appropriations are proposed and set; the national growth rate since the previous year; and the total budget deficit from the previous year. One might expect that presidents receive greater popular support when the economy is doing well, and further, that the economy might do better in times of war due to increased government spending. By controlling for these three economic indicators, we preclude their ability to bias the effect of war on presidential bargaining success.

Finally, all our statistical models include fixed effects that account for all observable and unobservable time-invariant characteristics of individual agencies and presidents. Identification in the model, therefore, comes from changes in appropriations within agencies and within presidential administrations.

Our statistical model takes the following general form:

$$y_{it} = \beta_0 + \beta_1 War_t + \beta_2 Prop_{it} + \beta_3 CongSupp_t + ECO_{t,t-1}\Psi + D_i + P_t + \varepsilon_{it}, \quad (1)$$

where  $y_{it}$  characterizes the discrepancy between the president's proposed budget (*Prop*) and Congress's final appropriations (*Approp*) for agency  $i$  in calendar year  $t$  (or fiscal year  $t + 1$ ); *War* identifies whether appropriations were proposed during times of war; *CongSupp* identifies the level of partisan support for the president in Congress; *ECO* is a vector of covariates that characterize the state of the economy;  $D_i$  is a vector of agency-specific fixed effects;  $P_t$  is a vector of president-specific fixed effects; and  $\beta_0$  and  $\varepsilon_{it}$  are constant and error terms, respectively. To account for any serial correlation, we conservatively cluster the standard errors on agencies.<sup>18</sup>

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<sup>18</sup>We recognize that within any given year, presidential proposals for different agencies may not be independent of one another. Facing budgetary constraints, presidents may trade increased spending proposals for one agency for lower spending on another. When clustering the standard errors on fiscal year rather than agency, the standard errors increase very slightly. The main results reported below, however, carry through entirely.

## Results

Table 1 presents the estimated impact of war on Congress’s willingness to abide the president’s budgetary requests. The effect, as expected, is negative, substantively large, and statistically significant. During periods of war, differences between proposed and final appropriations attenuate substantially. Taking the inverse log of the point estimate, this translates into a roughly 26 percent decrease in the average discrepancy between proposed and final appropriations for our sample of agencies during the period under investigation.

The other variables in the model also behave as expected. Presidents who confront congresses with larger numbers of House co-partisans enjoy higher levels of budgetary success than do presidents who must work with larger numbers of partisan opponents—an effect that is substantively large and statistically significant. Congress demonstrates greater accommodation to the president’s proposed budget when national growth rates are large, and less accommodation when available revenues (as measured by budget deficits) are relatively scarce.<sup>19</sup> Consistent with expansionary fiscal policy during periods of unemployment, presidents also experience more accommodation from Congress when unemployment rates are high.<sup>20</sup> We also find that Congress appropriates monies that more closely approximate smaller budgetary requests than for larger ones—another effect that is substantively large and highly statistically significant. Finally, the agency and presidential fixed effects, which are not reported in order to conserve space, are both jointly significant.

The second column of table 1 considers a characterization of the dependent variable that distinguishes instances when Congress appropriates larger amounts than the president requests from instances when Congress appropriates smaller amounts. The logic for doing so is straightforward enough. When Congress refuses to appropriate the full amount of

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<sup>19</sup>The first two estimates are both statistically significant, and the latter estimate just misses standard thresholds for statistical significance ( $p = .147$ ).

<sup>20</sup>The effects of these economic variables are also observed when they are either represented individually or as subsets within the models.

money requested for a specific agency, it clearly constrains the agency’s ability to either perform at a level of activity that the president would like or to pursue specific policy functions that constitute presidential priorities. But given the president’s ability to influence, ex post, how monies are spent—whether by discouraging bureaucrats from vigorously enforcing their mandate, reprogramming or transferring funds from one account to another, or simply impounding funds, as was done for much of the period under investigation—Congress may have a difficult time inducing agencies to either more vigorously pursue their mandate or to administer a larger number of policy activities. Congressional influence, under this account, constitutes a greater influence as a constraint than as a stimulant to executive activity. Congress can readily impede executive functioning, but it has a much more difficult time either galvanizing existing executive functions or jumpstarting altogether new ones. To account for this asymmetry, we generate a dependent variable that continuously measures final appropriations that are lower than the president’s proposal, but that treats appropriations that exceed proposals as equivalent to ones that exactly meet them—that is,  $|Prop_{it} - Approp_{it}| = \ln(|Prop_{it} - Approp_{it}| + 1)$  if  $Prop_{it} > Approp_{it}$ , and zero otherwise. The results compare well with those observed in our preferred specification. Once again, we find a negative, substantively meaningful, and statistically significant relationship between war and the observed discrepancy between proposed and final appropriations.

## General Robustness Checks

We have estimated a wide variety of models that use alternative versions of the dependent variable, include alternative sets of control variables, and consider periods of the time series when budget proposals may better reflect presidential preferences. In the vast majority of instances, the core findings in table 1 hold.

As alternative characterizations of the dependent variable, we have estimated models that consider the logged absolute value of the difference between proposed and final ap-

proportions as a percentage of the president’s proposal for each agency in each year—that is,  $\ln(|Prop_{it} - Appropri_{it}|/Prop_{it}) + 1$ ). We have estimated models with the dependent variable as the raw differences between proposed and final appropriations in columns 1 and 2—that is, as  $|Prop_{it} - Appropri_{it}|$ . We have examined the dependent variable as the proportion of the president’s proposal that is enacted into law—that is,  $Appropri_{it}/Prop_{it}$ . In an effort to address the possibility of asymmetric effects associated with under- and over-appropriations, we also have set an upper limit on this proportion at one, such that  $y_{it} = Appropri_{it}/Prop_{it}$  if  $Appropri_{it}/Prop_{it} < 1$ , and  $y_{it} = 1$  otherwise. And finally, we also have utilized a measure developed by Brandice Canes-Wrone (2006) in her study of the impact of public appeals on Congress’s willingness to abide the president’s budgetary proposals. Canes-Wrone estimates the absolute value of the difference in annual percentage changes in presidential proposals and annual percentage changes in final appropriations—that is,  $|((Prop_{it} - Prop_{it-1})/Prop_{it-1}) - (Appropri_{it} - Appropri_{it-1})/Appropri_{it-1}|$ . Every one of these alternative specifications furnished comparable results.

We also have explored a wide array of alternative model specifications. We have estimated models that exclude the president’s proposal from the regressors; include the raw value of the president’s proposal; include subsets of the economic variables; account for the partisan composition of the Senate as well as (or in lieu of) the House; exclude the substantial number of president and agency-specific fixed effects; and include controls for periods of unified and divided government, election years, each agency’s budget authority from the previous year, and the president’s term in office. In nearly every instance, the main results with respect to war hold.<sup>21</sup>

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<sup>21</sup>The general results do appear to be sensitive to the inclusion of a control variable for unemployment. When this variable is excluded from models that span the entire time series, the estimated effect of war approaches zero. This finding, however, appears to be an artifact of the historically high unemployment rates during Roosevelt’s first two terms in office. When dropping unemployment from the model but limiting the sample to the post-WWII era, the estimated effect of war remains negative and statistically significant, as it also does when unemployment is included for this shorter time series.

We also recognize the possibility that presidential proposals and Congress’s final appropriations are themselves functions of the public’s demand for government activism. Indeed, the public’s appetite for government spending may frame inter-branch disagreements about budgetary priorities. And if this appetite itself varies during times of war and peace, then the evidence presented thus far may overstate the independent influence of war on the president’s budgetary success. To investigate this possibility, we have estimated models that include a control for “public mood,” as developed by James Stimson.<sup>22</sup> None of the results change. Indeed, the effect of war and every other covariate remains virtually identical, while the mood measure itself registers a null effect.<sup>23</sup>

As Richard Neustadt documents in his classic 1954 article on budgetary clearance, the president did not immediately assume full control over the proposal-making process the moment that Congress granted it to him in 1921. Rather, the construction of budgetary clearance procedures constituted a work in progress, with the most significant strides being made in 1939, when the Bureau of the Budget was officially recognized as an agent of the president with new, comprehensive oversight powers, and 1947, when James Webb, Truman’s new Director of the Budget, overhauled and strengthened budgetary review processes. We therefore re-estimated our main models for the post-1938 and post-1946 periods. The recovered estimates associated with war are indistinguishable from those presented in table 1.

We also have estimated a variety of models designed to account for changes in Congress’s propensity to support the president over the course of a war. Given the short duration of

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<sup>22</sup>Stimson 1999. Aggregating citizens’ responses to a wide array of survey items, Stimson tracks annual changes in the public’s demand for government services. The measure is available only back to 1952. When looking at the restricted period between 1952 and 2006, we again find that Congress enacts budgets that more closely resemble presidential proposals during war than during peace.

<sup>23</sup>The mood measure does correlate positively with aggregate spending. It is not surprising, then, that mood does correlate with the version of the dependent variable that merely distinguishes cases where Congress appropriates less than the president’s request. Even here, though, the effect of war remains negative and significant.

rally effects, for instance, one might expect that Congress's propensity to stand behind the president would be short lived, and, moreover, that once the costs of war (both financial and human) materialize, members of Congress would become emboldened to vote against the president. If true, then evidence of heightened presidential influence should be confined to the first year or two of an ongoing military venture. We do not find any support for such a supposition, however. Indeed, to the extent that we find any evidence of temporal effects, they suggest that appropriations more closely approximate presidential proposals later in a war rather than earlier. For example, when estimating the same model as shown in column 1 of table 1, but adding a simple counter for the number of years that had passed since the onset of war, we observe a negative effect that just misses standard thresholds of statistical significance ( $p=.106$ ). Other models that include indicator variables for each year of a war, or that isolate only the first year of a war, generate comparable effects. And in no instance do we find any evidence that congressional accommodation is confined to the early stages of a war.

Finally, we also have estimated separate models for defense and non-defense related agencies. Once again, we find large, negative effects for both sub-samples of agencies. Because they constitute a disproportionate share of the overall sample, though, only the non-defense related agencies generate statistically significant effects.

## **Strategic Proposal Making**

The most nettlesome problem associated with this kind of analysis is the possibility that presidential proposals do not represent the president's actual preferences about how federal monies are allocated. That our formal model effectively rules out the possibility of strategic proposal-making does not mean that in the real world such behavior is uncommon. Presidents, after all, are acutely aware of their political surroundings. And when contemplating how much to ask for any individual agency, presidents and their advisors may maintain a

steady gaze on how the larger polity will receive their requests.

If presidents consistently request a fixed portion more (or less) than they would like, then the estimates from table 1 appropriately interpret the impact of war on the president's ability to secure appropriations that reflect his sincere (though unobserved) preferences. On the other hand, if the strategies of writing peacetime and wartime proposals systematically differ from one another, then the estimates from table 1 could be biased either upward or downward. To account for any biases that may emerge from strategic behavior on the part of the president, we assess variation in budgetary requests in war and peace years, and re-estimate the models of table 1 using a simultaneous equations approach in an attempt to control for strategic proposal-making. The results largely confirm our assumption that presidents do not engage in strategic proposal making—or if they do, this strategic behavior is uncorrelated with the incidence of war.

### **Who Accommodates Whom?**

That final appropriations more closely approximate presidential proposals could be evidence of one of three scenarios: (1) during war, members of Congress go out of their way to accommodate presidential preferences; (2) during war, presidents go out of their way to accommodate congressional preferences; or (3), during war, both members of Congress and presidents go out of their way to accommodate each other's preferences. To argue that presidential influence increases during war, we are laying our bets on the first scenario. Obviously, though, all three scenarios produce observationally equivalent predictions with respect to our key finding.

By investigating trends in presidential proposals during war and peace, however, we can make some headway in distinguishing among these possibilities. If during war, for instance, we find that presidents scale back their proposals, particularly those involving domestic agencies and programs, then confidence in our preferred interpretation necessarily erodes.

On the other hand, if presidential proposals remain constant during war, then it is hard to tell a plausible story in which our results derive from heightened presidential accommodation to Congress during periods of war. And if presidential proposals increase during war, then the recovered estimates may actually understate the extent to which wars augment presidential influence over budgetary outcomes.

Figure 2 plots the average peace- and wartime proposals for each agency within those presidential administrations for which both observations are observed. The y-axis denotes wartime values, and the x-axis denotes peace-time values. By construction, observations from those presidents who served only in time of peace or war (Eisenhower, Kennedy, Ford, Carter, Reagan, and Clinton) are excluded from the analysis, as they do not contribute anything to our estimates of the impact of war. If presidents recommend the same proposal amounts, on average, during times of war and peace, then the observations should cluster around the 45 degree line. If they request less during war than during peace, they will appear below the 45 degree line; and if they request more, than they will appear above it.

As is plain, most observations for all proposals (far left panel), as well as the subset of defense (middle) and non-defense (far right) proposals, are clustered right around the 45 degree line. Those that stray, meanwhile, almost always do so above the 45 degree line. For these presidents, wartime proposals are more than twice as large as peacetime proposals overall. Non defense-related proposals roughly double, whereas defense proposals triple, when moving from periods of peace to war.<sup>24</sup> Systematically, these presidents ask for higher appropriations during war than during peace.

When estimating regressions that posit presidential proposals as a function of war along with agency and president fixed effects, the recovered effect of war is positive and statistically significant. During war, presidents request, on average, 60 percent more for defense-oriented

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<sup>24</sup>Average overall requests during peace were \$1,994,758, and \$5,094,777 during war. For defense programs and agencies, average requests increase from \$8,167,029 when moving from peace to war, whereas non-defense requests increase from \$636,188 to \$1,704,327.

programs and agencies, and 19 percent more for domestic ones than they do during peace. But after accounting for some basic controls, meanwhile, differences between peacetime and wartime proposals disappears. When adding to these models our full bevy of political and economic controls, the estimated effect of war hovers around zero and does not approach statistical significance.

It seems clear, then, that presidents do not scale back their wartime budgetary requests. Presidents may even increase them. This fact bodes well for our preferred interpretation, as it suggests that Congress appropriates amounts that better reflect presidential proposals during war than during peace, *even though presidential requests, depending on how they are characterized, either remain the same or increase.*

### Estimates from Instrumental Variables Models

Instead of directly gauging the extent of strategic proposal-making on the basis of trends in actual peace- and wartime proposals, in principle it is possible to account for such unobserved behavior within our main statistical models. To make inroads on the problem of strategic proposal-making in this way, we would need to identify factors that encourage a president to request higher spending on some agencies and lower spending on others during periods of war and peace for reasons that have nothing to do with his expectations on how these requests will be received.

Following Kiewiet and McCubbins, we instrument on a collection of variables that identify how long a president has held office when a proposal is issued. Specifically, we estimate the following system of equations:

$$Prop_{it} = \beta_0 + \beta_1 War_t + \beta_2 CongSupp_t + \beta_3 T_i + \Psi_1 ECO_{t,t-1} + Yr_t + D_i + P_t + \varepsilon_{1it} \quad (2)$$

$$y_{it} = \beta_4 + \beta_5 War_t + \beta_6 \hat{Prop}_{it} + \beta_7 CongSupp_t + \Psi_2 ECO_{t,t-1} + D_i + P_t + \varepsilon_{2it} \quad (3)$$

where each of the characters and subscripts remain as they were defined in equation 1. In the first equation, we estimate presidential proposals for agency  $i$  in year  $t$  as a function of all the same covariates used to predict the difference between proposed and final appropriations. The key difference, and what allows us to identify this system of equations, is the addition of  $T_t$  and  $Yr_t$ , which identify first-term presidents and the year of each term during which proposals are made and budgets set.<sup>25</sup> As before,  $\varepsilon_{1it}$  and  $\varepsilon_{2it}$  are error terms, and standard errors are clustered by agency.

For this system of equations to generate unbiased estimates of  $\beta_6$ , the impact of war on the president's budgetary success,  $T_t$  and  $Yr_t$  must satisfy two requirements. First, they must be correlated with the size of the president's budget. Each of our instruments generates estimates that are substantively large and statistically significant, both individually and jointly. First term presidents request smaller budgets than do second (and in the case of Roosevelt, third and fourth) term presidents. And over the course of a single presidential term, presidents request larger and larger budgets.

The second requirement is that  $T_t$  and  $Yr_t$  influence  $y_{it}$  only through  $Prop_{it}$ , and hence both are uncorrelated with  $\varepsilon_{2it}$ . To wit, presidents are more apt to recommend cuts in agencies and programs when they first assume office. Presidents do so, after all, because a greater portion of these programs and agencies pursue mandates not of their making, and include employees not of their choosing. Irrespective of their expectations about how Congress will receive their proposals, presidents should propose systematically lower proposals in the first year of their first term in office (Schick 2007, 109). Over time, though, presidents have ample opportunities to reorganize and staff their bureaucracy to their liking. Having done so, presidents can be expected to request more spending. Moreover, they do so regardless of their expectations about whether Congress will actually comply, something that we do not observe. Technically, then, as long as  $Prop_{it}$  operates independently of  $\varepsilon_{it}$  through  $T_t$  and

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<sup>25</sup>Comparable results are recovered when using only  $T_t$  or  $Yr_t$  as instruments.

$Yr_t$  it satisfies the exclusion restriction.<sup>26</sup>

In table 2, we report the main estimates from equation 2 (in column 3) and equation 3 (in columns 1 and 2). The results for the first stage of the equation are encouraging. Individually, our instruments are highly significant; and jointly, they generate an F-statistic that exceeds conventional norms. Moreover, the pattern of results broadly conforms to our rationale for using employing these particular instruments.

In columns 1 and 2 of table 2, the point estimates on all of the control variables appear remarkably similar to those from columns 1 and 2 of table 1. Though the standard error on baseline requests increases substantially, which is to be expected, its associated point estimate remains highly significant. Most importantly, though, the estimated effect of war remains large, negative, and statistically significant.<sup>27</sup>

## 4 Conclusion

Policies routinely produce distinct local and national outcomes. This basic fact, we argue, has important implications for policy making in a system of separated powers. Because presidents represent the country as a whole, whereas individual members of Congress represent a single district or state, inter-branch bargaining can be expected to feature disagreements

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<sup>26</sup>Of course, this is not the only rationale one could offer for the relevance of year-of-term effects in budgetary politics. If, for instance, presidents have greater incentive to pander to public opinion in election years, as some have argued (Canes-Wrone et al. 2001); and if in pandering presidents propose budgets to which members of Congress more closely adhere, then the exclusion restriction is violated. Two facts, however, temper this concern. First, we do not find any evidence in our models of heightened presidential success in presidential elections. And second, it bears remembering that presidents and members of Congress serve altogether different constituencies. Hence, even if they both have incentives to pander, and even if this pandering amounts to more than just across-the-board spending increases, it is not at all clear that presidents and members of Congress will converge on a preferred set of budgetary priorities.

<sup>27</sup>It is worth recognizing, though, that instrumental variables recover only the local average treatment effect of war, not the overall average effect. Since our chosen instruments are not themselves direct measures of presidential preferences, it is possible that estimates based upon them—even if consistent and unbiased—do not speak to Congress’s propensity to accommodate the president during periods of war and peace. Unfortunately, it is difficult to conceive of a plausibly exogenous source of variation in presidential preferences, and hence an alternative instrument.

about both the merits of policy alternatives and the relevant criteria by which to evaluate them.

We elaborate a theory that explicitly accounts for these jurisdictional—and by extension criterial—differences. We identify conditions under which presidential bargaining success increases as legislators assign greater importance to national vis-à-vis local outcomes. Further, we find empirical support for this prediction when examining the United States appropriations process. During war—a time when the national outcomes of policy are paramount—congressional appropriations more closely align with presidential requests than they do during peace. This finding is robust to a variety of measurement strategies, model specifications, and identification strategies.

Our model also supports an eclectic array of additional implications that align with previously established empirical regularities. It suggests, for instance, that presidents should experience greater bargaining success on policies that centrally concern the nation’s welfare, and less success on policies that invoke stronger regional considerations. For this reason, we should expect presidents to fare better on foreign policies—noted primarily for their national outcomes—and worse on domestic policies. Though for decades the so-called “two presidencies thesis” attracted a fair measure of controversy (compare, for example, Wildavsky 1966 and Oldfield and Wildavsky 1989), recent research shows that presidents do in fact fare better on foreign policies (e.g., Canes-Wrone et al. 2008). Also consistent with our model, members of Congress are more supportive of the president’s policy agenda on the subset of foreign policy issues with a distinctly national focus (e.g. security) than those issues (such as foreign aid and trade) with stronger regional implications (Milner and Tingley 2010, 2011).

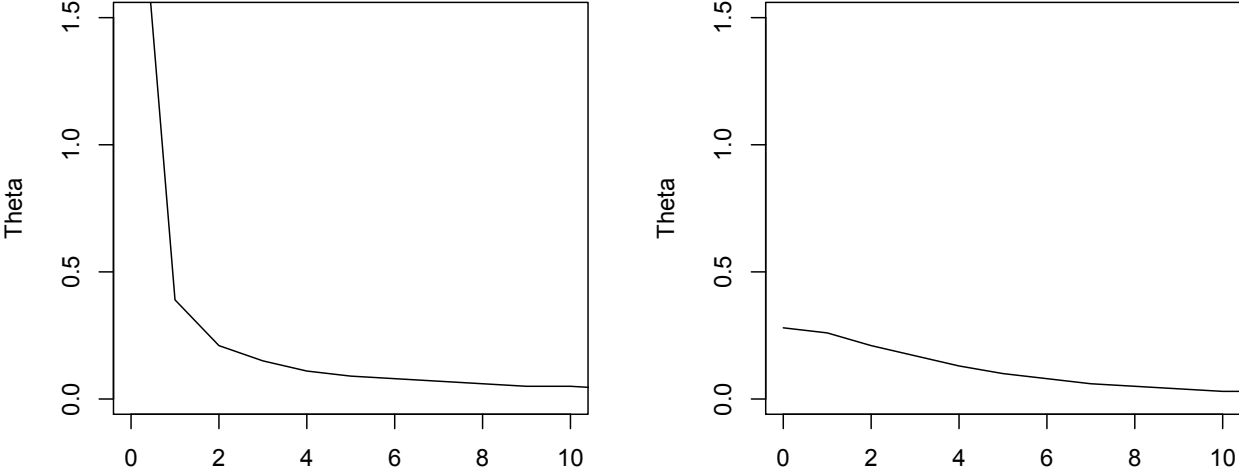
Suppose, further, that the national media and presidents themselves focus their attention on those policies that, by reference to some fixed criteria, evoke stronger national concerns. If true, then we should expect presidents to experience greater congressional deference on these subsets of policies, a finding that is consistent with a large literature indicating that

presidents improve their bargaining leverage by “going public” (Canes-Wrone 2006, Kernell 2007; Rudalevige 2002). By a similar logic, those members of Congress who assign relatively greater importance to national outcomes, all else equal, can be expected to vote in ways that better reflect the president’s policy preferences. True to form, a number of scholars (Bond and Fleisher 1990; Edwards 1989; Grofman et al. 2002; Jessee and Malhotra 2010) have found that party leaders, committee chairs, and members of Congress who plan to run for the presidency tend to vote more consistently with the president than do rank and file members of Congress.

This paper invites a variety of extensions. As a simplifying assumption, we treat the mappings of policies into local and national outcomes as orthogonal to one another. Future work might allow for these these processes to be correlated, and then estimate comparative statics on the strength of correlation. Rather than limit the president to proposal making, as we do, future work might allow the president to either veto legislation or exercise an option to act unilaterally. And finally, scholars would do well to investigate the conditions under which multiple members of Congress, as opposed to a single representative member, invest in expertise about the intermittently discrete and overlapping mapping processes of policies into national and local outcomes.

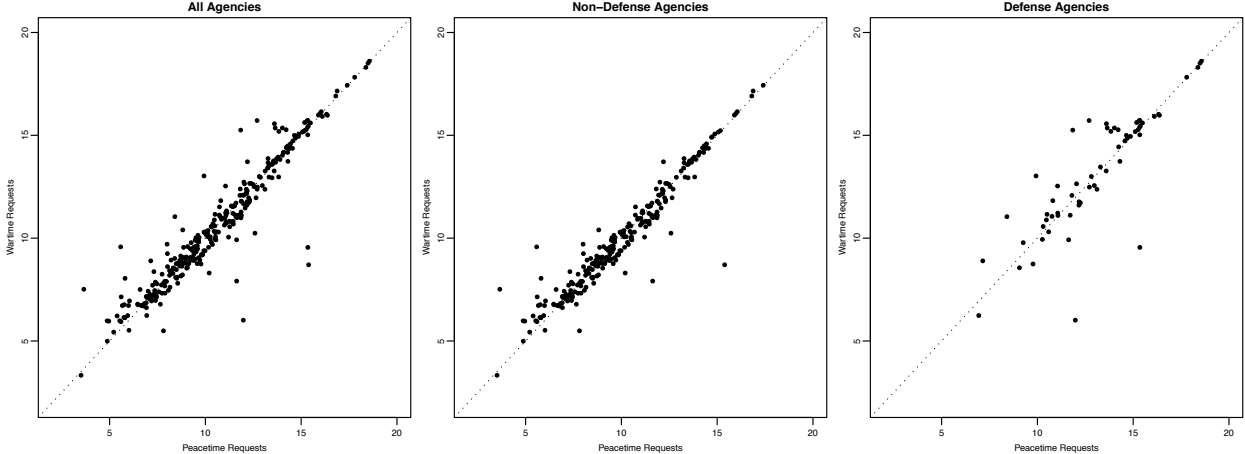
# Figures and Tables

Figure 1: Comparative Statics of Presidential Bargaining Success



The left-hand figure shows the comparative statics of  $\lambda$ , while the right-hand figure shows the comparative statics of  $k_1$ .

Figure 2: Presidential Budget Requests during War and Peace



Limiting the analyses to the six presidents (Roosevelt, Truman, Eisenhower, Johnson, Nixon, and George H.W. Bush) who submitted budget requests during times of both peace and war, we calculated the average agency budget requests for each president during peacetime and wartime. The x-axes in the above plots represent presidents' average peacetime requests, and the y-axes represent presidents' average wartime requests. Amounts shown are the logged values of the budget requests in 1983 dollars. Points located above the 45-degree line indicate that a president requested more agency funds during wartime than during peace; points below the line indicate that he requested less.

**Table 1: Comparing War and Peace**

	Logged Differences	Accounting for Asymmetries
War	-0.300** (0.129)	-0.495** (0.199)
House Seat Share	-2.190*** (0.744)	-3.300*** (1.074)
ln(Unemployment)	-0.360*** (0.135)	-0.615*** (0.189)
Real Deficit	0.090 (0.057)	0.305** (0.134)
Real GDP Growth	-2.341** (1.028)	-3.000** (1.450)
ln(Proposal)	1.055*** (0.105)	0.982*** (0.150)
(Intercept)	0.761** (1.538)	-5.414** (2.472)
N	3201	3201
R <sup>2</sup>	0.74	0.32
MSE	2.11	3.84

Entries are linear regression coefficients with standard errors shown in parentheses. In column 1, the dependent variable is  $\ln(|Prop_{it} - Approp_{it}| + 1)$ . In column 2, the dependent variable is  $\ln(|Prop_{it} - Approp_{it}| + 1)$  if  $Prop_{it} > Approp_{it}$ , and zero otherwise. Though not reported, all models include president and agency/program fixed effects. \*\*\* indicates  $p < .01$ ; \*\* indicates  $p < .05$ ; \* indicates  $p < .10$ , two-tailed tests.

**Table 2: Strategic Proposals**

	Second Stage Results		First Stage Results
	Logged Differences	Accounting for Asymmetries	ln(Proposal)
War	-0.302** (0.130)	-0.494** (0.199)	-0.102 (0.065)
House Seat Share	-1.702* (1.106)	-3.649*** (1.360)	-1.175*** (0.431)
ln(Unemployment)	-0.323** (0.134)	-0.641*** (0.191)	-0.209*** (0.059)
Real Deficit	0.097* (0.057)	0.301** (0.136)	0.076*** (0.022)
Real GDP Growth	-2.622*** (1.015)	-2.796** (1.392)	0.894* (0.476)
ln(Proposal)	1.276*** (0.224)	0.823** (0.350)	
Year 1			-0.271*** (0.057)
Year 2			-0.109** (0.047)
Year 3			-0.059 (0.043)
First Term			-0.524*** (0.048)
(Intercept)	-6.209* (3.437)	-3.078 (5.184)	14.708*** (0.219)
N	3201	3201	3201
R <sup>2</sup>	0.74	0.32	0.93
MSE	2.12	3.84	0.86

Entries are linear regression coefficients with standard errors shown in parentheses. Columns 1 and 2 report the results of the second stage of the 2 Stage Least Squares model, while column 3 reports the results of the first stage of the model. In column 1, the dependent variable is  $\ln(|Prop_{it} - Approp_{it}| + 1)$ . In column 2, the dependent variable is  $\ln(|Prop_{it} - Approp_{it}| + 1)$  if  $Prop_{it} > Approp_{it}$ , and zero otherwise. In column 3, the dependent variable is  $\ln(Prop_{it})$ . Though not reported, all models include fixed president and agency/program effects.  $T_t$  and  $Yr_t$  serve as instruments. The F-statistic for  $T_t$  and  $Yr_t$  is 23, which satisfies the requirement for strong instruments. \*\*\* indicates  $p < .01$ ; \*\* indicates  $p < .05$ ; \* indicates  $p < .10$ , two-tailed tests.

# Appendix

## Theorem 1

For sufficiently large  $c_1^L$  and sufficiently small  $c_2^L$  and  $c_1^P$ , an equilibrium exists wherein the president acquires expertise on only national outcomes and proposes the policy that induces his ideal national outcome, and the legislator acquires expertise on only local outcomes and enacts a policy.

## Proof

In this equilibrium, the strategies are as follows:

$$S_P = (A_1, p^P = \frac{x_1^P}{\mu_1})$$

$$S_L = \begin{cases} (A_2, p^L = \frac{\frac{1}{3}\lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2}) & \text{if } S_P = (A_1, p^P \leq \frac{x_1^P}{\mu_1}) \\ (A_2, p^L = 0) & \text{if } S_P = (A_1, p^P > \frac{x_1^P}{\mu_1}) \\ (A_2, p^L = 0) & \text{if } S_P = (A_2, p^P \leq \frac{x_1^P}{\mu_1}) \\ (A_2, p^L = 0) & \text{if } S_P = (A_2, p^P > \frac{x_1^P}{\mu_1}) \\ (A_2, p^L = \frac{\frac{1}{3}\lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2}) & \text{if } S_P = (B, p^P \leq \frac{x_1^P}{\mu_1}) \\ (A_2, p^L = 0) & \text{if } S_P = (B, p^P > \frac{x_1^P}{\mu_1}) \\ (A_2, p^L = 0) & \text{if } S_P = (\emptyset, p^P \leq \frac{x_1^P}{\mu_1}) \\ (A_2, p^L = 0) & \text{if } S_P = (\emptyset, p^P > \frac{x_1^P}{\mu_1}) \end{cases}$$

Both  $P$  and  $L$  must be best-responding to the other player's strategies. Solving by backwards induction, we begin by calculating the optimal policy  $p^L$  that  $L$  will enact. This is done by choosing  $p^L$  to maximize  $\mathbb{E}(U_L)$  conditional on  $S_P$  and  $S_L$  ( $\max_{p^L} \mathbb{E}(U_L(p^L|S_P, S_L))$ ). Note that  $\mathbb{E}(x_j) = \mathbb{E}(\psi_j(p^i))$ , and variations in  $\psi_j$  will lead the utility function to take different forms in different sub-games. On the equilibrium path, for instance,  $\mathbb{E}(U_L) = \lambda[-(\mu_1 p^L + (p^P - p^L)z_1)^2] - (\mu_2 p^L)^2 = -\lambda(\mu_1 p^L)^2 - \lambda(p^P - p^L)^2(\frac{k_1^2}{3}) - (\mu_2 p^L)^2$ . We then plug this value of  $(p^L)^*$  into  $\mathbb{E}(U_L)$ , and compare the expected utilities across the four actions available to  $L$  in each subgame. There are four subgames to consider (we omit the four subgames in which  $P$  proposes a policy greater than that which would induce his ideal national outcome, as those subgames are equivalent to the fourth case shown below).

**Case 1:**  $S_P = (A_1, p^P)$

1.  $EU_L(S_L = A_1, p^L) = -\lambda\mu_1^2(p^L)^2 - (\mu_2 p^L)^2 - \frac{k_1^2}{3} - c_1^L$   
 $\Rightarrow (p^L)^* = 0$   
 $\Rightarrow EU_L(\cdot) = -\frac{k_1^2}{3} - c_1^L$

2.  $EU_L(S_L = (A_2, p^L)) = \lambda[-(\mu_1 p^L)^2 - (\frac{x_1^P}{\mu_1} - p^L)^2 \frac{k^2}{3}] - (\mu_2 p^L)^2 - c_2^L$   
 $\Rightarrow (p^L)^\star = \frac{\frac{1}{3} \lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda \mu_1^2 + \frac{1}{3} \lambda k_1^2 + \mu_2^2}$   
 $\Rightarrow EU_L(\cdot) = \lambda[-(\mu_1 (\frac{\frac{1}{3} \lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda \mu_1^2 + \frac{1}{3} \lambda k_1^2 + \mu_2^2}))^2 - (\frac{x_1^P}{\mu_1} - (\frac{\frac{1}{3} \lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda \mu_1^2 + \frac{1}{3} \lambda k_1^2 + \mu_2^2}))^2 \frac{k^2}{3}] - (\mu_2 (\frac{\frac{1}{3} \lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda \mu_1^2 + \frac{1}{3} \lambda k_1^2 + \mu_2^2}))^2 - c_2^L$
3.  $EU_L(S_L = B, p^L) = \lambda(-\mu_1 p^L)^2 - (\mu_2 p^L)^2 - c_1^L - c_2^L$   
 $\Rightarrow (p^L)^\star = 0$   
 $\Rightarrow EU_L(\cdot) = -c_1^L - c_2^L$
4.  $EU_L(S_L = \emptyset, p^L) = \lambda[-(\mu_1 p^L)^2 - (\frac{x_1^P}{\mu_1} - p^L)^2 \frac{k^2}{3}] - (\mu_1 p^L)^2 - \frac{k^2}{3}$   
 $\Rightarrow (p^L)^\star = \frac{\frac{1}{3} \lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda \mu_1^2 + \frac{1}{3} \lambda k_1^2 + \mu_2^2}$   
 $\Rightarrow EU_L(\cdot) = \lambda[-(\mu_1 (\frac{\frac{1}{3} \lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda \mu_1^2 + \frac{1}{3} \lambda k_1^2 + \mu_2^2}))^2 - (\frac{x_1^P}{\mu_1} - (\frac{\frac{1}{3} \lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda \mu_1^2 + \frac{1}{3} \lambda k_1^2 + \mu_2^2}))^2 \frac{k^2}{3}] - (\mu_1 (\frac{\frac{1}{3} \lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda \mu_1^2 + \frac{1}{3} \lambda k_1^2 + \mu_2^2}))^2 - \frac{k^2}{3}$

In this subgame, (b) is preferred to (a) if  $c_1^L > \lambda[(\mu_1 (\frac{\frac{1}{3} \lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda \mu_1^2 + \frac{1}{3} \lambda k_1^2 + \mu_2^2}))^2 + (\frac{x_1^P}{\mu_1} - (\frac{\frac{1}{3} \lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda \mu_1^2 + \frac{1}{3} \lambda k_1^2 + \mu_2^2}))^2 \frac{k^2}{3}] + (\mu_2 (\frac{\frac{1}{3} \lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda \mu_1^2 + \frac{1}{3} \lambda k_1^2 + \mu_2^2}))^2 + c_2^L - \frac{k_1^2}{3}$ . (b) is preferred to (c) if  $c_1^L > \lambda[(\mu_1 (\frac{\frac{1}{3} \lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda \mu_1^2 + \frac{1}{3} \lambda k_1^2 + \mu_2^2}))^2 + (\frac{x_1^P}{\mu_1} - (\frac{\frac{1}{3} \lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda \mu_1^2 + \frac{1}{3} \lambda k_1^2 + \mu_2^2}))^2 \frac{k^2}{3}] + (\mu_2 (\frac{\frac{1}{3} \lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda \mu_1^2 + \frac{1}{3} \lambda k_1^2 + \mu_2^2}))^2$ . And (b) is preferred to (d) if  $c_2^L < \frac{k^2}{3}$ .

**Case 2:**  $S_P = (A_2, p^P)$

1.  $EU_L(S_L = A_1, p^L) = -\lambda(\mu_1 p^L)^2 - (\mu_2 p^L)^2 - (\frac{x_1^P}{\mu_1} - p^L)^2 \frac{k_2^2}{3} - c_1^L$   
 $\Rightarrow (p^L)^\star = \frac{\frac{1}{3} p^P k_2^2}{\lambda \mu_1^2 + \frac{1}{3} k_2^2 + \mu_2^2}$   
 $\Rightarrow EU_L(\cdot) = -\lambda(\mu_1 (\frac{\frac{1}{3} p^P k_2^2}{\lambda \mu_1^2 + \frac{1}{3} k_2^2 + \mu_2^2}))^2 - (\mu_2 (\frac{\frac{1}{3} p^P k_2^2}{\lambda \mu_1^2 + \frac{1}{3} k_2^2 + \mu_2^2}))^2 - (\frac{x_1^P}{\mu_1} - (\frac{\frac{1}{3} p^P k_2^2}{\lambda \mu_1^2 + \frac{1}{3} k_2^2 + \mu_2^2}))^2 \frac{k_2^2}{3} - c_1^L$
2.  $EU_L(S_L = A_2, p^L) = -\lambda(\mu_1 p^L)^2 - \lambda \frac{k_1^2}{3} - (\mu_2 p^L)^2 - c_2^L$   
 $\Rightarrow (p^L)^\star = 0$   
 $\Rightarrow EU_L(\cdot) = -\lambda \frac{k_1^2}{3} - c_2^L$
3.  $EU_L(S_L = B, p^L) = -\lambda(\mu_1 p^L)^2 + (\mu_2 p^L)^2 - c_1^L - c_2^L$   
 $\Rightarrow (p^L)^\star = 0$   
 $\Rightarrow EU_L(\cdot) = -c_1^L - c_2^L$
4.  $EU_L(S_L = \emptyset, p^L) = -\lambda(\mu_1 p^L)^2 - \lambda \frac{k_1^2}{3} - (\mu_2 p^L)^2 - (p^P - p^L)^2 \frac{k_2^2}{3}$   
 $\Rightarrow (p^L)^\star = \frac{\frac{1}{3} p^P k_2^2}{\lambda \mu_1^2 + \frac{1}{3} k_2^2 + \mu_2^2}$   
 $\Rightarrow EU_L(\cdot) = -\lambda(\mu_1 (\frac{\frac{1}{3} p^P k_2^2}{\lambda \mu_1^2 + \frac{1}{3} k_2^2 + \mu_2^2}))^2 - \lambda \frac{k_1^2}{3} - (\mu_2 (\frac{\frac{1}{3} p^P k_2^2}{\lambda \mu_1^2 + \frac{1}{3} k_2^2 + \mu_2^2}))^2 - (\frac{x_1^P}{\mu_1} - (\frac{\frac{1}{3} p^P k_2^2}{\lambda \mu_1^2 + \frac{1}{3} k_2^2 + \mu_2^2}))^2 \frac{k_2^2}{3}$

In this subgame, (b) is preferred to (a) if  $c_1^L > -\lambda(\mu_1(\frac{\frac{1}{3}x_1^P k_2^2}{\lambda\mu_1^2 + \frac{1}{3}k_2^2 + \mu_2^2}))^2 - (\mu_2(\frac{\frac{1}{3}x_1^P k_2^2}{\lambda\mu_1^2 + \frac{1}{3}k_2^2 + \mu_2^2}))^2 - (\frac{x_1^P}{\mu_1} - (\frac{\frac{1}{3}x_1^P k_2^2}{\lambda\mu_1^2 + \frac{1}{3}k_2^2 + \mu_2^2}))^2 \frac{k_2^2}{3} + \lambda \frac{k_1^2}{3} + c_2^L$ . (b) is preferred to (c) if  $c_1^L > \lambda \frac{k_1^2}{3}$ . And (b) is preferred to (d) if  $c_2^L < \lambda(\mu_1(\frac{\frac{1}{3}x_1^P k_2^2}{\lambda\mu_1^2 + \frac{1}{3}k_2^2 + \mu_2^2}))^2 + \lambda \frac{k_1^2}{3} + (\mu_2(\frac{\frac{1}{3}x_1^P k_2^2}{\lambda\mu_1^2 + \frac{1}{3}k_2^2 + \mu_2^2}))^2 + (\frac{x_1^P}{\mu_1} - (\frac{\frac{1}{3}x_1^P k_2^2}{\lambda\mu_1^2 + \frac{1}{3}k_2^2 + \mu_2^2}))^2 \frac{k_2^2}{3} - \lambda \frac{k_1^2}{3}$ .

**Case 3:**  $S_P = (B, p^p)$

1.  $EU_L(S_L = A_1, p^L) = -\lambda(\mu_1 p^L)^2 - (\mu_2 p^L)^2 - (\frac{x_1^P}{\mu_1} - p^L)^2 \frac{k_2^2}{3} - c_1^L$   
 $\Rightarrow (p^L)^* = \frac{\frac{1}{3}p^P k_2^2}{\lambda\mu_1^2 + \frac{1}{3}k_2^2 + \mu_2^2}$   
 $\Rightarrow EU_L(\cdot) = -\lambda(\mu_1(\frac{\frac{1}{3}p^P k_2^2}{\lambda\mu_1^2 + \frac{1}{3}k_2^2 + \mu_2^2}))^2 - (\mu_2(\frac{\frac{1}{3}p^P k_2^2}{\lambda\mu_1^2 + \frac{1}{3}k_2^2 + \mu_2^2}))^2 - (\frac{x_1^P}{\mu_1} - (\frac{\frac{1}{3}p^P k_2^2}{\lambda\mu_1^2 + \frac{1}{3}k_2^2 + \mu_2^2}))^2 \frac{k_2^2}{3} - c_1^L$
2.  $EU_L(S_L = A_2, p^L) = -\lambda(\mu_1 p^L)^2 - \lambda(\frac{x_1^P}{\mu_1} - p^L)^2 \frac{k_1^2}{3} - (\mu_2 p^L)^2 - c_2^L$   
 $\Rightarrow (p^L)^* = \frac{\frac{1}{3}\lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2}$   
 $\Rightarrow EU_L(\cdot) = -\lambda(\mu_1(\frac{\frac{1}{3}\lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2}))^2 - \lambda(\frac{x_1^P}{\mu_1} - (\frac{\frac{1}{3}\lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2}))^2 \frac{k_1^2}{3} - (\mu_2(\frac{\frac{1}{3}\lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2}))^2 - c_2^L$
3.  $EU_L(S_L = B, p^L) = -\lambda(\mu_1 p^L)^2 - (\mu_2 p^L)^2 - c_1^L - c_2^L$   
 $\Rightarrow (p^L)^* = 0$   
 $\Rightarrow EU_L(\cdot) = -c_1^L - c_2^L$
4.  $EU_L(S_L = \emptyset, p^L) = -\lambda(\mu_1 p^L)^2 - \lambda(\frac{x_1^P}{\mu_1} - p^L)^2 \frac{k_1^2}{3} - (\mu_2 p^L)^2 - (\frac{x_1^P}{\mu_1} - p^L)^2 \frac{k_2^2}{3}$   
 $\Rightarrow (p^L)^* = \frac{\frac{1}{3}p^P(\lambda k_1^2 + k_2^2)}{\lambda\mu_1^2 + \mu_2^2 + \frac{1}{3}(\lambda k_1^2 + k_2^2)}$   
 $\Rightarrow EU_L(\cdot) = -\lambda(\mu_1(\frac{\frac{1}{3}p^P(\lambda k_1^2 + k_2^2)}{\lambda\mu_1^2 + \mu_2^2 + \frac{1}{3}(\lambda k_1^2 + k_2^2)}))^2 - \lambda(\frac{x_1^P}{\mu_1} - (\frac{\frac{1}{3}p^P(\lambda k_1^2 + k_2^2)}{\lambda\mu_1^2 + \mu_2^2 + \frac{1}{3}(\lambda k_1^2 + k_2^2)}))^2 \frac{k_1^2}{3} - (\mu_2(\frac{\frac{1}{3}p^P(\lambda k_1^2 + k_2^2)}{\lambda\mu_1^2 + \mu_2^2 + \frac{1}{3}(\lambda k_1^2 + k_2^2)}))^2 - (\frac{x_1^P}{\mu_1} - (\frac{\frac{1}{3}p^P(\lambda k_1^2 + k_2^2)}{\lambda\mu_1^2 + \mu_2^2 + \frac{1}{3}(\lambda k_1^2 + k_2^2)}))^2 \frac{k_2^2}{3}$

In this subgame, (b) is preferred to (a) if  $c_1^L > \lambda(\mu_1(\frac{\frac{1}{3}\lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2}))^2 + \lambda(\frac{x_1^P}{\mu_1} - (\frac{\frac{1}{3}\lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2}))^2 \frac{k_1^2}{3} + (\mu_2(\frac{\frac{1}{3}\lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2}))^2 + c_2^L - \lambda(\mu_1(\frac{\frac{1}{3}p^P k_2^2}{\lambda\mu_1^2 + \frac{1}{3}k_2^2 + \mu_2^2}))^2 - (\mu_2(\frac{\frac{1}{3}p^P k_2^2}{\lambda\mu_1^2 + \frac{1}{3}k_2^2 + \mu_2^2}))^2 - (\frac{x_1^P}{\mu_1} - (\frac{\frac{1}{3}p^P k_2^2}{\lambda\mu_1^2 + \frac{1}{3}k_2^2 + \mu_2^2}))^2 \frac{k_2^2}{3}$ . (b) is preferred to (c) if  $c_1^L > \lambda(\mu_1(\frac{\frac{1}{3}\lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2}))^2 + \lambda(\frac{x_1^P}{\mu_1} - (\frac{\frac{1}{3}\lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2}))^2 \frac{k_1^2}{3} + (\mu_2(\frac{\frac{1}{3}\lambda k_1^2 \frac{x_1^P}{\mu_1}}{\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2}))^2$ . And (b) is preferred to (d) if  $c_2^L < \lambda(\mu_1(\frac{\frac{1}{3}p^P(\lambda k_1^2 + k_2^2)}{\lambda\mu_1^2 + \mu_2^2 + \frac{1}{3}(\lambda k_1^2 + k_2^2)}))^2 + \lambda(\frac{x_1^P}{\mu_1} - (\frac{\frac{1}{3}p^P(\lambda k_1^2 + k_2^2)}{\lambda\mu_1^2 + \mu_2^2 + \frac{1}{3}(\lambda k_1^2 + k_2^2)}))^2 \frac{k_1^2}{3} + (\mu_2(\frac{\frac{1}{3}p^P(\lambda k_1^2 + k_2^2)}{\lambda\mu_1^2 + \mu_2^2 + \frac{1}{3}(\lambda k_1^2 + k_2^2)}))^2 + (\frac{x_1^P}{\mu_1} - (\frac{\frac{1}{3}p^P(\lambda k_1^2 + k_2^2)}{\lambda\mu_1^2 + \mu_2^2 + \frac{1}{3}(\lambda k_1^2 + k_2^2)}))^2 \frac{k_2^2}{3} - \lambda(\mu_1 p^L)^2 - \lambda(\frac{x_1^P}{\mu_1} - p^L)^2 \frac{k_1^2}{3} - (\mu_2 p^L)^2$ .

**Case 4:**  $S_P = (\emptyset, p^p)$

1.  $EU_L(S_L = A_1, p^L) = -\lambda(\mu_1 p^L)^2 - (\mu_2 p^L)^2 - \frac{k_2^2}{3} - c_1^L$   
 $\Rightarrow (p^L)^* = 0$   
 $\Rightarrow EU_L(\cdot) = -\frac{k_2^2}{3} - c_1^L$
2.  $EU_L(S_L = A_2, p^L) = -\lambda(\mu_1 p^L)^2 - \frac{\lambda k_1^2}{3} - (\mu_2 p^L)^2 - c_2^L$   
 $\Rightarrow (p^L)^* = 0$   
 $\Rightarrow EU_L(\cdot) = -\frac{\lambda k_1^2}{3} - c_2^L$
3.  $EU_L(S_L = B, p^L) = -\lambda(\mu_1 p^L)^2 - (\mu_2 p^L)^2 - c_1^L - c_2^L$   
 $\Rightarrow (p^L)^* = 0$   
 $\Rightarrow EU_L(\cdot) = -c_1^L - c_2^L$
4.  $EU_L(S_L = \emptyset, p^L) = -\lambda(\mu_1 p^L)^2 - \lambda \frac{k_1^2}{3} - (\mu_2 p^L)^2 - \frac{k_2^2}{3}$   
 $\Rightarrow (p^L)^* = 0$   
 $\Rightarrow EU_L(\cdot) = -\frac{\lambda k_1^2}{3} - \frac{k_2^2}{3}$

In this subgame, (b) is preferred to (a) if  $c_1^L > \frac{\lambda k_1^2}{3} - \frac{k_2^2}{3} + c_2^L$ . (b) is preferred to (c) if  $c_1^L > \frac{\lambda k_1^2}{3}$ . And (b) is preferred to (d) if  $c_2^L < \frac{k_2^2}{3}$ . Thus, for sufficiently large  $c_1^L$  and sufficiently small  $c_2^L$ ,  $L$ 's optimal strategy is as defined above.

Moving backwards up the game tree, we compare the expected utilities for the president ( $EU_P$ ) available at each of his possible actions.  $P$  always prefers a strategy that includes  $A_1$  to one that includes  $B$ , and a strategy that includes  $\emptyset$  to  $A_2$ . Further, any strategy in which  $p^P \neq \frac{x_1^P}{\mu_1}$  is dominated by one where  $p^P = \frac{x_1^P}{\mu_1}$ . Therefore, we need only to show that  $EU_P(S_P = (A_1, p^P = \frac{x_1^P}{\mu_1} | S_L)) > EU_P(S_L = (\emptyset, p^P = \frac{x_1^P}{\mu_1} | S_L))$ . This requires  $-(x_1^P)^2(1 - \frac{\frac{1}{3}\lambda k_1^2}{\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2})^2 - c_1^P > -(x_1^P)^2 \Rightarrow (x_1^P)^2(1 - (1 - \frac{\frac{1}{3}\lambda k_1^2}{\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2})^2) > c_1^P \Rightarrow (x_1^P)^2(\frac{\frac{1}{3}\lambda k_1^2}{\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2})(2 - \frac{\frac{1}{3}\lambda k_1^2}{\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2}) > c_1^P$ .

Thus, for sufficiently small  $c_1^P$  and  $c_2^L$  and sufficiently large  $c_1^P$ , the strategies listed above form an equilibrium.

## Theorem 2

The following five comparative statics hold on presidential bargaining power ( $\Theta^*$ ):

1.  $\frac{\partial \Theta^*}{\partial \mu_1} \leq 0$  iff  $k_1^2 \leq \frac{3\lambda^2 \mu_1^4 + 6\lambda \mu_1^2 \mu_2^2 + 3\mu_2^4}{\lambda^2 \mu_1^2 - \lambda \mu_2^2}$ .
2.  $\frac{\partial \Theta^*}{\partial \mu_2} \geq 0 \forall \mu_2$ .
3.  $\frac{\partial \Theta^*}{\partial x_1^P} \geq 0 \forall x_1^P$ .
4.  $\frac{\partial \Theta^*}{\partial k_1} \leq 0 \forall k_1$ .
5.  $\frac{\partial \Theta^*}{\partial \lambda} \leq 0 \forall \lambda$ .

## Proof

$$(p^L)^* = \frac{\frac{1}{3}k_1^2\lambda p^P}{\lambda\mu_1^2 + \frac{1}{3}k_1^2\lambda + \mu_2^2} = \frac{\frac{1}{3}k_1^2\lambda \frac{x_1^P}{\mu_1}}{\lambda\mu_1^2 + \frac{1}{3}k_1^2\lambda + \mu_2^2} = \frac{\frac{1}{3}k_1^2 \frac{x_1^P}{\mu_1}}{\mu_1^2 + \frac{1}{3}k_1^2 + \frac{\mu_2^2}{\lambda}}$$

$$\Theta^* = \frac{x_1^P}{\mu_1} - \frac{\frac{1}{3}k_1^2 \frac{x_1^P}{\mu_1}}{\mu_1^2 + \frac{1}{3}k_1^2 + \frac{\mu_2^2}{\lambda}} = \frac{(3\lambda\mu_1^2 + 3\mu_2^2)x_1^P}{\mu_1(3\lambda\mu_1^2 + \lambda k_1^2 + 3\mu_2^2)}$$

1.  $\frac{\partial \Theta^*}{\partial \mu_2} = \frac{(6\lambda\mu_1 x_1^P)(3\lambda\mu_1^3 + \lambda\mu_1 k_1^2 + 3\mu_1\mu_2^2) - (9\lambda\mu_1^2 + \lambda k_1^2 + 3\mu_2^2)(3\lambda\mu_1^2 x_1^P + 3\mu_2^2 x_1^P)}{[\mu_1(3\lambda\mu_1^2 + \lambda k_1^2 + 3\mu_2^2)]^2} < 0$   
 $\Rightarrow 6\lambda^2\mu_1^4 + 2\lambda^2\mu_1^2 k_1^2 + 6\lambda\mu_1^2\mu_2^2 < 9\lambda^2\mu_1^4 + 9\lambda\mu_1^2\mu_2^2 + \lambda^2\mu_2^2 k_1^2 + 3\lambda\mu_1^2\mu_2^2 + 3\mu_2^4$   
 $\Rightarrow k_1^2(\lambda^2\mu_1^2 - \lambda\mu_2^2) < 3\lambda^2\mu_1^4 + 6\lambda\mu_1^2\mu_2^2 + 3\mu_2^4$   
 $\Rightarrow k_1^2 < \frac{3\lambda^2\mu_1^4 + 6\lambda\mu_1^2\mu_2^2 + 3\mu_2^4}{\lambda^2\mu_1^2 - \lambda\mu_2^2}$
2.  $\frac{\partial \Theta^*}{\partial \mu_2} = \left(\frac{x_1^P}{\mu_1}\right) - \frac{(-2\mu_2)(\frac{1}{3}k_1^2\lambda \frac{x_1^P}{\mu_1})}{(\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2)^2} > 0 \forall \mu_2$
3.  $\frac{\partial \Theta^*}{\partial x_1^P} = \frac{(3\lambda\mu_1^2 + 3\mu_2^2)}{\mu_1(3\lambda\mu_1^2 + \lambda k_1^2 + 3\mu_2^2)} > 0 \forall x_1^P$
4.  $\frac{\partial \Theta^*}{\partial k_1} = \left(\frac{x_1^P}{\mu_1}\right) - \frac{(\frac{1}{3}\lambda \frac{x_1^P}{\mu_1})(\lambda\mu_1^2 + \frac{1}{3}k_1^2\lambda + \mu_2^2) - (\frac{1}{3}\lambda)(\frac{1}{3}k_1^2\lambda \frac{x_1^P}{\mu_1})}{(\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2)^2} < 0 \forall k_1$
5.  $\frac{\partial \Theta^*}{\partial \lambda} = \left(\frac{x_1^P}{\mu_1}\right) - \frac{(\frac{1}{3}k_1^2 \frac{x_1^P}{\mu_1})(\lambda\mu_1^2 + \frac{1}{3}k_1^2\lambda + \mu_2^2) - (\mu_1^2 + \frac{1}{3}k_1^2)(\frac{1}{3}k_1^2\lambda \frac{x_1^P}{\mu_1})}{(\lambda\mu_1^2 + \frac{1}{3}\lambda k_1^2 + \mu_2^2)^2} < 0 \forall \lambda$

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