Cabinet Decision Rules and Political Uncertainty in Parliamentary Bargaining

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We investigate how cabinet decision-making rules interact with political uncertainty to affect the outcomes of bargaining processes in parliamentary systems. Our formal models compare two types of decisions rules: (1) those that give prime ministers unilateral authority to demand a vote of confidence and (2) those that require prime ministers to obtain collective cabinet approval for confidence motions. We examine these models under assumptions of complete information and of political uncertainty, that is, party leaders lack information about the precise policies that others in the governing coalition will support. Our analysis suggests that the nature of the cabinet decision rules should influence the distribution of bargaining power, the ability to exploit political uncertainty, the likelihood of inefficient government terminations, the circumstances surrounding such failures, and, indirectly, the political considerations that parties face when choosing prime ministers during government formation. Simple empirical tests support some of these insights.

In parliamentary democracies, if members of the governing coalition have diverse policy interests, they must bargain and compromise to achieve policy change after government formation is complete. The outcomes from these bargaining processes are quite diverse. There is variation, for example, in whether they result in successful policy change or in bargaining failure and government termination. If successful policy change occurs, there is variation in the nature of the policy agreements themselves, and some coalition partners seem to do better than others in their efforts to influence policy outcomes. If bargaining failure occurs, there is variation in the actual mode of failure. Sometimes, for instance, the government voluntarily resigns before even attempting to shepherd a new policy initiative through parliament. At other times members of the governing coalition proceed with parliamentary debate on a bill, only to suffer a dramatic defeat and be forced to step down.

What explains the various outcomes that can occur from bargaining among members of a divided coalition? What determines, for example, whether bargaining will end in policy change or government termination? Why do some members of a governing coalition seem to have an upper hand over others in the bargaining processes that determine policy outcomes? Why do some prime ministers seem weaker than others? And why do some governments, when faced with conflict, give up without a fight, whereas others take the battle to the floor of parliament, only to lose and be forced out of office?

We address these questions by focusing on a distinction that exists in the institutional arrangements for cabinet decision making, on the one hand, and on the strategic incentives created by political uncertainty, on the other. The institutional arrangements we examine affect how decisions are made in the cabinet and parliament after government formation is complete. Specifically, we examine limits that can exist on the authority of prime ministers to demand confidence votes on the policies they espouse. In some countries, they can unilaterally demand a vote of confidence on any policy they wish. In other countries, they can only demand a vote of confidence on a policy after obtaining the collective approval of the cabinet. We argue that this distinction between unilateral authority and collective approval has a significant effect on parliamentary bargaining processes and ultimately on the policies enacted and the stability of governing coalitions.

Political uncertainty refers to the lack of information that party leaders often have about the precise policies that other participants in the governing coalition will support on the floor of parliament. Whenever a new policy issue arises, each member of the governing coalition must decide which policy changes are acceptable, that is, which policy changes they would prefer to accept rather than end the government. Since the precise nature of these acceptable policies is private information, participants in the governing coalition may at times have incentives and opportunities to make exaggerated claims about the specific policy concessions of other partners necessary to preserve the coalition. If a coalition participant goes too far, however, and rigidly insists on concessions that other members of the government have no intention of making, then inefficient bargaining failures can occur, that is, a government termination may happen even though an identifiable majority collectively prefers that it does not.

We explore how cabinet decision rules and political uncertainty together interact to affect bargaining outcomes. To this end, we examine three aspects. First, we describe variation in the institutional structures of the confidence relationship in parliamentary systems, and we use two brief examples of bargaining failure from Norway and the Netherlands to discuss how the procedures can influence the outcomes of bargaining

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processes.[1] Second, we analyze two game theoretic models that allow us to compare the effects of unilateral confidence procedures to the effects of confidence procedures that require collective cabinet approval. We examine these models under the assumptions of incomplete information to determine the effect of political uncertainty on bargaining outcomes. Third, we discuss the substantive implications of the results and provide some empirical evidence in support of our arguments.

CABINET DECISION RULES, POLITICAL UNCERTAINTY, AND BARGAINING FAILURES

Models of bargaining in parliamentary systems typically focus on the government formation process. Their objective is to understand either which parties enter government coalitions (e.g., Austen-Smith and Banks 1988; Baron 1991, 1993) or which parties receive specific portfolios within the government (e.g., Austen-Smith and Banks 1990; Laver and Shepsle 1990, 1996). These models implicitly assume that policy outcomes are determined at the time of government formation, and therefore it is unnecessary to examine the dynamics of bargaining processes that occur after formation is complete.

More recently, scholars have begun to analyze post-election bargaining processes. Lupia and Strøm (1995) examine a model of coalition termination in which an exogenous event initiates bargaining among parties that can lead to maintenance of the status quo, to the formation of a new government, or to an election. Tsebelis and Money (1995, 1997) explore how the institutions of bicameralism affect strategic bargaining processes between an upper and lower house. Tsebelis (1999) and Bawn (1999) investigate how diversity in the preferences of coalition partners affects the adoption of significant policy changes. Strøm (1994) examines bargaining processes among opposition parties that are attempting to bring down the government. Baron (1998), Diermeier and Feddersen (1998), and Huber (1996b) develop models that analyze the effect of confidence procedures on various aspects of parliamentary bargaining processes.

We address two limitations of this literature. First, no model examines institutional variation in cabinet decision-making processes, and a central objective of our analysis is to compare explicitly the effects of unilateral autonomy for the prime minister on confidence votes with collective cabinet decision rules. Second, each model except that of Strøm (1994) assumes bargaining agents have complete information about the preferences of other actors.[2] Thus, if governments fall during the course of parliamentary bargaining, such terminations are always "efficient" in that they are preferred by a majority to any alternative that keeps the government in power. We relax this assumption of complete information in our analysis of the two different types of cabinet decision rules.

To see how institutional variations may effect coalition bargaining, we consider countries in which the prime minister can act unilaterally to make a vote on a particular policy a vote on the continued existence of the government.[3] In such systems, if members of parliament adopt or threaten to adopt a bill that the prime minister does not like, s/he can make his or her preferred policy a question of confidence. This forces the parliament either to accept the prime minister's policy or to bring the government down.

As the following example from Norway illustrates, the unilateral confidence procedure is a powerful weapon, but its use carries with it considerable risk for the prime minister. In early March 2000, Norway's minority government, led by Prime Minister Kjell Magne Bondevik, a Christian Democrat, was attempting to push through parliament a policy that would permit the development of a major technology park. The two major opposition parties, Labour and Progress, refused to support it. On March 7 Bondevik threatened to make the issue a question of confidence in the government. The opposition parties backed down, which allowed development of the technology park to proceed.

The next day, the *Financial Times* argued that Bondevik's position was strengthened by this victory. The newspaper predicted that his government was now unlikely to lose on the next conflictual agenda item, which involved the construction of several new gas-fired power plants. Bondevik wanted to delay the projects until new antipollution technology could be evaluated, whereas the major opposition parties wanted to begin construction immediately. Bolstered by his victory on the technology park, Bondevik made his policy on the power plants an explicit question of confidence. The motion was defeated on the floor, which ushered in a leftist government that excluded the Christian Democrats.

As this example illustrates, the unilateral confidence procedure presents a strategic dilemma to prime ministers. Its use allows them significant influence over policy outcomes, but a defeat may cost them their job.

It is interesting to contrast the bargaining dynamics in this example with bargaining processes in systems that require collective cabinet approval on confidence motions.[4] In such countries, if the partners in government withhold approval, the prime minister cannot make the final policy proposal a confidence issue. Instead, either s/he must resign (if s/he does not support the policy) or the bill proposed in parliament is voted against the status quo, and a defeat results in

[1] For a more general model of the distributive consequences of the allocation of veto and proposal rights, see McCarty 2000.

[2] Although Strøm (1994) considers the effect of incomplete preference information on bargaining outcomes, he does not examine the cabinet decision rules that are central to this article, and he does not model the process by which political uncertainty may be resolved, which is a primary purpose of this work.

[3] These countries include Australia, Belgium, Canada, Denmark, France, Germany, Ireland, New Zealand, Norway, Portugal, and the United Kingdom (Huber 1996b, Table 1).

[4] These countries include Finland, Italy, Luxembourg, Netherlands, Spain, and Sweden (Huber 1996b).

maintenance of the status quo (but not government failure).

As the following example from the Netherlands illustrates, collective cabinet decision rules create a strategic dilemma not so much for the prime minister as for the governing partners. In 1982, a majority coalition was formed between the Christian Democratic Appeal (CDA) and the People's Party for Freedom and Democracy (VVD), with the CDA's Ruud Lubbers as prime minister. This coalition governed Dutch politics for most of the 1980s, but the collaboration broke down in May 1989, when the two parties clashed over the financing arrangements for a major plan to reduce environmental pollution. The CDA wanted to increase gas taxes and eliminate tax deductions for car commuters, whereas the VVD strongly opposed the tax increases and preferred to use general government revenues to pay for the plan. The VVD threatened to submit a no-confidence motion if its policy demands on financing were not met. Rather than cede to these demands, Lubbers resigned on May 2.

At the request of the queen, Lubbers stayed on until new elections could be held in September. Under this caretaker government, parliament adopted the CDA's policy on the environment without VVD support. In the September elections, the VVD suffered its worst showing since 1973, whereas the CDA maintained its seat share in parliament and formed a majority coalition with the Labour Party (PvdA), which made it possible for Lubbers to remain as prime minister.

In both of these examples, it seems that political uncertainty (as defined above) played a role in the bargaining failures that occurred, but it worked quite differently under the two cabinet decision rules. In Norway, the prime minister's apparent miscalculation about what policies could be adopted using the confidence procedure led to his downfall. In the Netherlands, the VVD apparently miscalculated by pushing for its preferred energy policy, which led to resignation by the prime minister. In both cases, the consequences were severe for the agents that miscalculated—Bondevik lost his job, and the Christian Democrats (in Norway) and VVD (in the Netherlands) lost their membership in the governing coalition.

Although these cases illustrate how political uncertainty can influence bargaining under the two types of cabinet decision rules, the examples are incomplete because we can never know precisely what was going on in the minds of the participants. Did Bondevik prefer to lose his job rather than compromise on the power plants issue? Did the VVD prefer to leave the government and suffer an electoral defeat rather than compromise on energy taxes? It seems unlikely that we can get reliable answers to such questions, and the participants may have thought their actions would lead to different consequences. We should also note that both examples focus on bargaining failures. Although such failures are interesting, they are only one type of outcome. As a purely empirical matter, they are much more rare than successes, as government coalitions typically are able to adopt new policies rather than break up.

Instead of examples, we need a clear and testable theory of the dynamics of strategic bargaining under the two cabinet decision rules when political uncertainty exists. We will develop formal models of each procedure and then offer two simple tests, one of a direct implication of our theory, and one of an indirect (and more speculative) implication about the choice of prime minister during government formation.

MODELS OF UNILATERAL AND COLLECTIVE CABINET DECISION-MAKING PROCEDURES

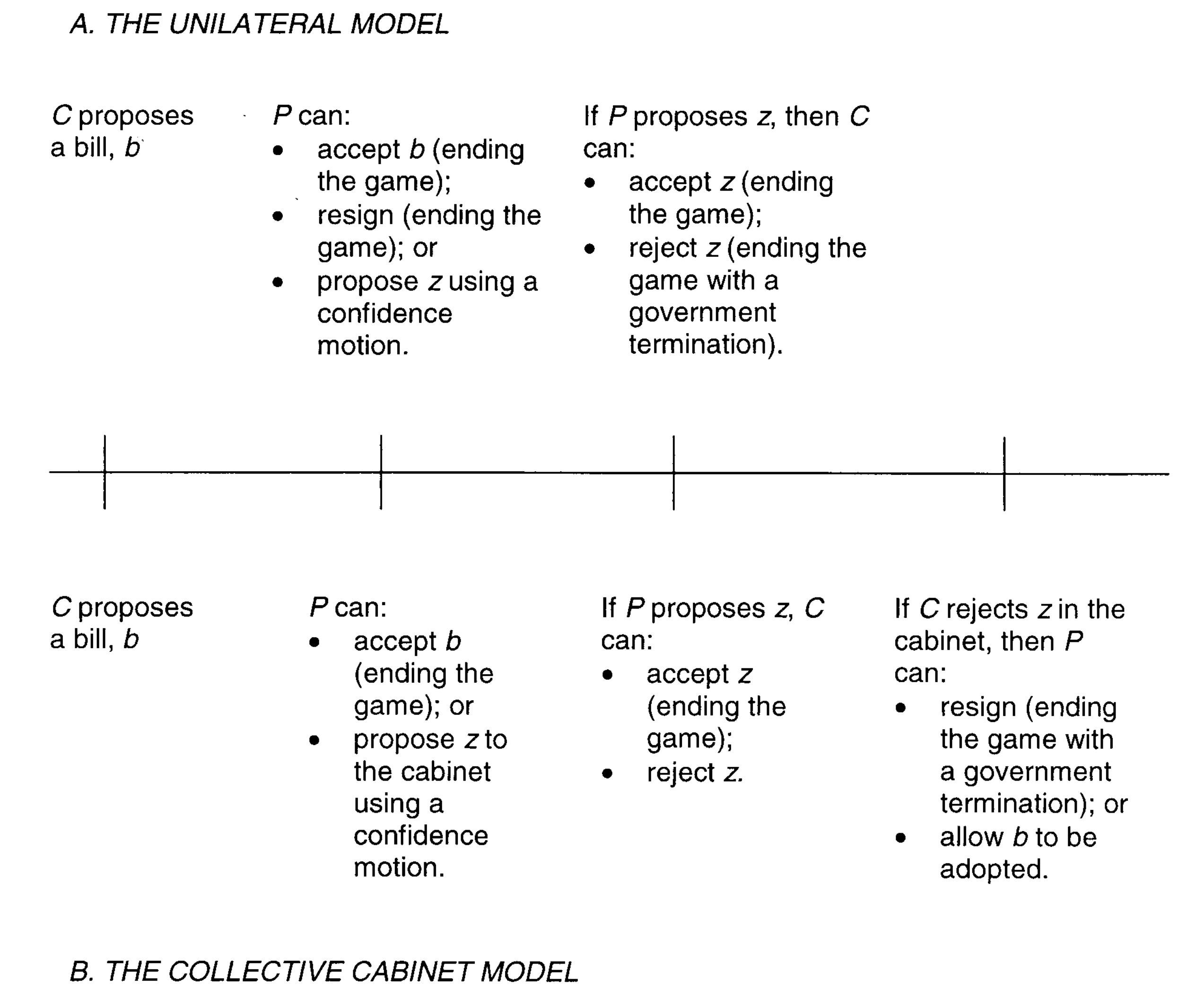
Both of our models analyze interactions between two players, a *Prime Minister*, P, and the *Coalition Partner*, C. The latter may be a cohesive group of deputies (such as the Euro-Rebels in Britain's Conservative Party under John Major) or a party (such as the VVD in the Dutch example). In our model, C is the pivotal member of the governmental majority with whom the prime minister must bargain. The partner can ensure that a bill passes or that the government falls in a vote of confidence. The two players bargain to determine a policy outcome in a unidimensional policy space, although their roles differ subtly according to cabinet decision rules. To enhance readability, we assign a female gender to the prime minister and a male gender to the coalition partner.

The unilateral model (the prime minister can invoke a confidence motion without cabinet approval) is summarized in Figure 1A. In the initial stage, the coalition partner proposes a bill, b, which is any policy on the real line. This is the policy that takes effect if the prime minister does not invoke a confidence vote. The prime minister reacts to the partner's bill in one of three ways: (1) acceptance (ending the game, with b as the outcome); (2) resignation (ending the game, and retaining the status quo policy), or (3) unilateral invocation of a confidence vote procedure to propose any other policy, z. If the prime minister uses a confidence vote, then the coalition partner decides whether to accept or reject z. If the partner accepts z, then z is the outcome. If z is rejected, the government falls, and the status quo, x_0, is retained.

The collective cabinet model (the prime minister must obtain cabinet approval for a confidence motion) is depicted in Figure 1B. The game begins with the coalition partner proposing b. The prime minister can (1) accept b or (2) make a motion in the cabinet that policy z be treated as a question of confidence. At this stage, the major difference with the unilateral model occurs. If the prime minister makes a motion of confidence, then the partner must decide whether to approve or reject it in the cabinet. Thus, we assume that the coalition partner is in the cabinet, an assumption that is not necessary in the unilateral model.[5] If the

[5] Under collective rules during coalition minority government, we assume that the pivotal coalition partner is in the opposition (see discussion below). In this case, we treat the unilateral model as appropriate because the prime minister need not obtain the opposition party's approval in the cabinet in order to proceed with a

FIGURE 1. Sequence of Interactions in the Two Models



partner accepts the motion, then the outcome is the prime minister's motion, z.[6] If the partner rejects the motion, the prime minister can either allow b to be adopted on the floor or resign, preserving the status quo policy.

The utility functions for the prime minister and her coalition partner have several components. First, each player's policy preferences are represented by strictly quasi-concave utility functions, $u_P(\cdot)$ and $u_C(\cdot)$. The prime minister has an ideal point of x_P, and the coalition partner has an ideal point of x_C. Without loss of generality, let $x_P < x_C$.

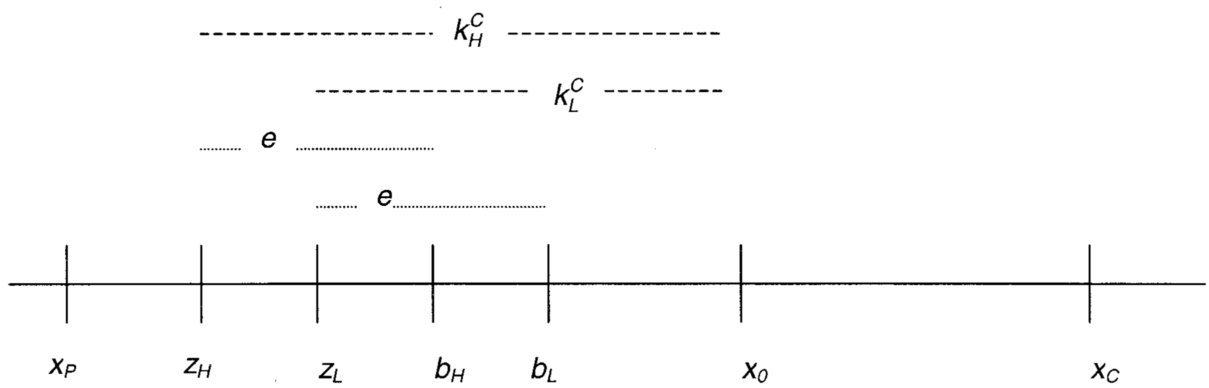
Second, in the unilateral game only, we assume that if the prime minister uses a confidence vote procedure she may pay some exogenous "electoral cost" or "audience cost," $e \geq 0$. This cost, the motivation for which is described in detail by Huber (1996a), is due to the fact that the confidence vote procedure is a dramatic event that attracts a great deal of attention, and it often leads to the perception that the prime minister has no true majority for her policy and therefore must use "procedural force" against members of her own majority. All else equal, then, a prime minister would prefer to obtain her policy goals without resorting to this dramatic procedure. We assume $e = 0$ under collective cabinet decision rules for the obvious reason that a partner cannot claim the prime minister is using procedural force against it because the partner has to approve the confidence vote in the cabinet in the first place.

Third, we assume in both models that the prime minister and partner may value the continued existence of the government, which implies that if the game ends in a government termination, both players may pay some positive cost (which for P and C is due to the time and risk associated with facing an election or forming a new government, and which for P is also due to the

confidence motion. An extension of the model would involve three players to cover this situation: the prime minister, a partner in the cabinet, and a partner in parliament.

[6] We show in the Appendix that a formal voting stage on the floor is superfluous once the motion passes in the cabinet.

FIGURE 2. Strategic Interactions under the Unilateral Procedure



costs of being fired). Let k_t^P be the prime minister's termination cost, which is a function of P's type. These costs are known to the prime minister but not her partner and are either high ($t = H$) or low ($t = L$). Thus, $0 < k_L^P < k_H^P$. "Nature" determines these costs, and the partner believes that P has high costs with probability q_0. Upon observing a confidence vote strategy by the prime minister, the partner updates his beliefs by Bayes's rule, with q_1 representing the updated belief that the prime minister has high termination costs.

Similarly, the partner's government termination costs, k_t^C, are private information, known only by the partner. These costs can be either low ($t = L$) or high ($t = H$), with $0 < k_L^C < k_H^C$. The prime minister's ex ante belief that C has high costs is p_0, and (upon observing the partner's initial policy proposal) her updated belief is p_1.

We assume that these termination costs are nonnegative because, if this were not true for either player, then that player should simply resign, bringing down the government and recouping the benefits of so doing. We also assume that the prime minister's termination costs are large relative to the audience costs of using a confidence motion, so that $e < k_L^P$. This assumption seems appropriate substantively (we might expect the electoral cost of simply invoking a specific procedure to be smaller than the costs of losing one's job), and it eliminates the trivial case in which the prime minister always prefers to accept her partner's ideal point rather than propose the best policy that she can obtain using a confidence vote procedure.

These assumptions about costs of government termination allow us to analyze the effect of political uncertainty on bargaining processes. In particular, both players have private information about which specific policy outcomes are preferable to government termination. Consequently, each player will attempt to exploit this information in order to obtain the largest possible policy concessions from the other. Yet, in doing so, both players risk a government termination that both would prefer to avoid.

We use the concept of perfect Bayesian equilibrium in these signaling models, focusing on pure strategies where they exist. Although the technical details of the analysis are somewhat complex, the central substantive insights that we have discovered from analyzing the models typically are not. Therefore, the formal analysis of the models is relegated to the Appendix, and we will concentrate on conveying the substance and logic of our main results. These concern the distributive consequences of the two rules as well as the role of uncertainty in influencing bargaining strategies and bargaining failures.

THE UNILATERAL CONFIDENCE VOTE PROCEDURE

If the prime minister decides to use a confidence motion, she will propose the policy z she most prefers from those policies that her partner will accept. To see how this policy is determined, consider Figure 2, in which we assume that the players have linear policy utility functions. If the partner votes against any z, he obtains the policy utility associated with the status quo, x_0, and incurs termination costs. Assume that the costs are k_L^C. In this case, the partner will accept any confidence motion that is closer to his ideal point than z_L. Since the prime minister knows the partner's termination costs (by the assumption of complete information), z_L is the best policy that the prime minister can propose using a confidence motion. Using the confidence procedure, however, requires the prime minister to incur a (nonnegative) audience cost, e. In Figure 2, then, the prime minister will accept the partner's initial policy, b, if it yields a higher utility than would adopting z_L and incurring this audience cost. Thus, in a subgame perfect equilibrium, the partner will adopt his preferred policy from those the prime minister will accept. This is b_L in Figure 2.

The prime minister uses her "last move advantage" to extract the coalition partner's government termination costs in policy concessions. The partner can stem these losses to a certain extent by using his "first move advantage" to extract concessions equivalent to the prime minister's audience costs. Unless these costs are unusually large ($e > k_t^C$), the threat of a confidence motion always gives the prime minister the upper hand in the bargaining process. That is, she always can exploit the partner's termination costs to make herself better off and even to make the partner worse off in policy terms.

Next, consider the effect of political uncertainty. If the prime minister does not know her partner's termination costs, she cannot be sure which confidence proposals will be accepted. By trying to extract too many policy concessions (i.e., to extract k_H^C when the partner's true costs are k_L^C), she will trigger an unwanted government termination (because her confidence motion will be rejected on the floor). We can see the logic of the prime minister's strategic dilemma in Figure 2. As noted, if the partner has low termination costs, the best policy the prime minister can achieve using a confidence vote is z_L. By a similar logic, the best policy she can obtain if the partner's termination costs are high is z_H in the figure. If the prime minister demands a confidence motion on the safe policy, z_L, she knows she cannot be defeated. But if she tries to extract more concessions by demanding a confidence vote on z_H, she will be defeated, and the government will fall if in fact the partner's true costs are low.

Because the prime minister can always make a "safe" proposal by using a confidence motion to extract small policy concessions (k_L^C), the model yields the substantively interesting result that, under unilateral cabinet rules, resignation occurs with zero probability (so long as the reasonable assumption that $k_L^P > e$ is maintained). This is true because the prime minister always prefers to adopt the safe confidence motion rather than resign. We prove this result formally as lemma 1 in the Appendix.

The prime minister, of course, does not simply choose between adopting the risky confidence motion and adopting the safe one—she can also choose to accept the coalition partner's policy proposal, invoking no confidence procedure at all. Which of these three strategies she prefers depends on the partner's proposal and on the prime minister's updated beliefs, p_1, about the coalition partner's termination costs. In perfect Bayesian equilibria, these beliefs depend on whether the partner adopts a separating strategy (whereby each type adopts a different policy, fully resolving uncertainty), a pooling strategy (whereby each type adopts the same strategy, making it impossible to update beliefs), or a semipooling strategy (whereby the types partially pool and partially separate, allowing some learning by the prime minister to occur).

In the Appendix, we show that pooling, separating, and semipooling equilibria can exist. The properties of these different equilibria, and the circumstances under which they exist, depend on a set of conditions that involve initial beliefs, termination and audience costs, and the location of the status quo. There are a large number of cases to consider, but several substantive points emerge from the analysis of the model.[7] These are summarized below for perfect Bayesian equilibria under unilateral cabinet decision rules.

Distributive consequences: The prime minister never makes policy concessions to the partner (relative to the status quo), but the partner often makes policy concessions to the prime minister. Consequently, the prime minister's policy utility from the final (equilibrium) outcome is never lower (and is often higher) than the prime minister's utility from the status quo.

Mode of government termination: The prime minister never resigns in equilibrium. Instead, if inefficient bargaining failures occur, it is because a confidence motion by the prime minister is defeated on the floor.

Factors leading to termination: If e is very large, terminations never occur. In other cases, terminations can occur in equilibrium only when each player places a sufficiently high probability that the opponent has high costs (i.e., p_0 and q_0 are large enough). The threshold on p_0 (above which inefficient terminations can occur) increases with k_L^C, k_L^P, k_H, and e, and it decreases with k_H^C. The threshold on q_0 (above which inefficient terminations can occur) increases with e and k_L^C and decreases with k_H^C.

The intuition for the distributive consequence is the same with uncertainty as it is when complete information exists. In the remainder of this section, we describe how political uncertainty can lead to unwanted government terminations.

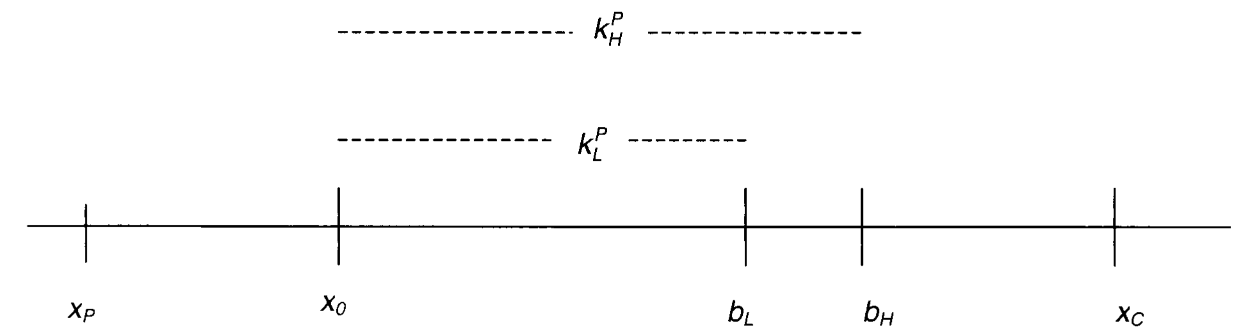
We begin with an examination of the only equilibria in which no inefficiencies are generated either by incurring termination costs or audience costs. In this pooling equilibrium, the partner, regardless of his type, makes an initial proposal that is acceptable to both types of prime minister. Thus, confidence motions are never invoked, and governments never fall. For this equilibrium to exist, however, the prime minister's initial belief that the partner has high costs (p_0) must be sufficiently low. If p_0 becomes too large (relative to the prime minister's termination and audience costs), then the "strong" prime minister (whose type has low termination costs) will prefer to reject the pooled proposal and make a risky confidence motion.[8]

In the efficient equilibria just described, government terminations and confidence motions are avoided not because the partner conveys information to the prime minister through his initial proposal, but because the partner makes a proposal that is always acceptable to the prime minister, given the prime minister's prior beliefs. Another way that inefficient government terminations are avoided is for the partner to use his initial policy proposal to reveal his type in a separating equilibrium. In this equilibrium, a partner with low termination costs makes an initial proposal that is closer to his preferred policy than is the initial proposal of a partner with high termination costs. Returning to Figure 2, for example, the initial proposal could be b_L

[7] For formal statements and proofs, see propositions 1–5 in the Appendix.

[8] Another factor in P's decision to defect to the risky proposal would be the difference between k_H^C and k_L^C, as this difference determines the policy gains available from the risky proposal.

FIGURE 3. Strategic Interactions under the Collective Procedure



if the partner has low termination costs, b_H otherwise. In this case, the prime minister cannot always accept the proposal by the partner whose type has low termination costs. If she did, the high-cost partner type would have an incentive to mimic the low-cost type (i.e., if the prime minister accepted b_L in Figure 2, then the high-cost type of partner would never want to adopt b_H). Thus, confidence procedures are invoked with positive probability in order to give the high-cost type of partner an incentive to retain the informative, separating strategy.

Although the confidence procedure is used in equilibrium, it never results in an inefficient termination because all incomplete information about the partner's termination costs is resolved in equilibrium. The only inefficiency is due to the audience cost, e, that is paid for using the confidence procedure. This inefficiency arises because, as noted above, the prime minister must use the procedure to provide the partner with the proper incentives to reveal information.

Finally, we consider cases in which political uncertainty leads to inefficient government terminations with positive probability. One pattern leading to this outcome occurs when both types of partner pool on a proposal acceptable to the high-cost prime minister but provokes the low-cost prime minister to propose a risky confidence motion. No information about costs is revealed by the coalition partner's initial proposal, and a risky confidence proposal fails if the coalition partner has a low termination cost. Thus, whenever both the prime minister and the partner have low termination costs, the government always fails in this equilibrium. For such a pooling equilibrium to exist, several conditions must be met. First, the partner's prior belief that the prime minister has high termination costs must be reasonably high, so that the partner's risk of provoking a confidence vote is not undue.[9] Second, the prime minister's prior belief that the partner has low costs must not be large enough to entice the prime minister (with low termination costs) to make the safe proposal.[10] At the same time, this belief cannot be too small, or the prime minister whose type has high costs will have an incentive to use the confidence vote as well. We can see, then, that prior beliefs of both the prime minister and the partner are relevant to determining the conditions under which inefficient bargaining failures can occur. Substantively similar equilibria are generated by semipooling equilibria in which both types of P make a confidence motion with a positive probability. We will return to issues of cabinet instability after we analyze the collective approval model.

COLLECTIVE CABINET DECISION MAKING

Intuitions about the distributive consequences of collective cabinet decision rules are nicely conveyed by first describing what occurs with complete information. Consider the partner's decision to accept or reject a confidence motion by the prime minister in the cabinet. Acceptance yields the policy utility associated with the motion. The consequences of rejection depend on the initial bill adopted by the partner and on the prime minister's termination costs. The prime minister will resign following rejection in the cabinet only if the partner's original bill yields a worse outcome than government termination (status quo policy and the costs of termination). Thus, if the original bill is preferred to termination by the prime minister, the partner will accept only a confidence motion that provides additional policy concessions beyond his original proposal. Alternatively, if this initial proposal is not one that the prime minister prefers to termination, the partner will accept any z that he prefers to termination.

In Figure 3, for example, if it is common knowledge that the prime minister has low termination costs, then the utility to her of resigning is a function of the distance to the status quo, x_0, and the termination costs, k_L^P. If the prime minister's confidence motion is rejected and the partner's initial proposal is at least as close to x_P as b_L, then the prime minister will not resign following a vote against this motion in the cabinet by the partner. In this case, the partner will only accept confidence motions that make him better off than his initial proposal (i.e., will only accept confidence motions that the prime minister never has an incentive to propose). If the initial proposal by the

[9] Alternatively, C's termination costs must be low.

[10] Alternatively, P's audience costs must be low, or $k_H^C \gg k_L^C$, so that the policy gains from the risky confidence motion are large.

partner is not as close as b_L, then the prime minister will resign if the partner rejects a confidence motion in the cabinet. In this case, the partner will accept any confidence motion that he prefers to government termination.

Therefore, the prime minister can only use a confidence motion to make herself better off if the partner's original bill gives her a lower utility than termination. The partner can ensure that the prime minister never has an opportunity to change policy using a confidence motion by proposing the policy he most prefers from the set of policies that the prime minister prefers to accept over resigning. This policy corresponds to b_L in Figure 3. In a subgame perfect equilibrium, the partner will propose this policy, and the prime minister will accept it.

The collective cabinet decision rule, then, effectively reverses the nature of proposal and veto opportunities in cabinet decision making, with rather dramatic consequences for policy outcomes. Under the unilateral procedure, the unencumbered last move advantage permits the prime minister to extract policy concessions from her coalition partner, even though she need not invoke the procedure to do so. Under the collective cabinet decision rule, coalition partners, aware that they can veto confidence motions in the cabinet, can extract policy concessions from prime ministers who pay a cost of losing their job.

Now consider the effect of political uncertainty. Like the prime minister in the unilateral model, who must choose between a risky and safe confidence strategy, the coalition partner faces a strategic dilemma under collective decision rules. We can see the logic in Figure 3. When the prime minister has low termination costs, we have described why the best policy the partner can adopt is b_L. By a similar logic, the best policy he can propose if the prime minister has high termination costs is b_H. Thus, with political uncertainty, the risky proposal in this game is obviously b_H: If the partner adopts b_H and rejects confidence motions in the cabinet, then the government will fall when the prime minister has low termination costs.

As in the unilateral model, the effect of this uncertainty depends on a number of parameters in the collective model. In the Appendix, we describe the perfect Bayesian equilibria to this game, which fall into three straightforward cases. We summarize the main substantive results as follows.[11]

Distributive consequences: The partner never makes policy concessions to the prime minister, but the prime minister often makes policy concessions to the partner. Consequently, the partner's policy utility from the final (equilibrium) outcome is never lower (and is often higher) than the partner's utility from the status quo.

Mode of government termination: A confidence motion by the prime minister is never defeated on the floor. Instead, inefficient bargaining failures occur only by resignation.

Factors leading to termination: Resignation occurs in equilibrium only when the partner has a sufficiently high prior belief that the prime minister has high termination costs (i.e., q_0 is sufficiently large). The critical values of q_0 are increasing functions of k_L^C, k_H^C, and k_L^P and are decreasing functions of k_H^P. The prime minister's beliefs about the partner's termination costs never influence equilibrium outcomes.

Again, the distributive implications can be well understood from the intuition of the complete information case, so we turn to a discussion of incomplete information. When the partner's belief that the prime minister has high termination costs is sufficiently low (i.e., q_0 is sufficiently low), there are several different equilibrium paths. Some entail use of confidence motions that are approved in the cabinet, some do not, and none results in a government termination. The final policy outcome in each is equivalent to the partner's "safe" proposal (b_L in Figure 3). These equilibria are sustained by the fact that q_0 is sufficiently low, that is, the probability that the prime minister has low termination costs is so high that the partner either must adopt the most accommodating policy or trigger a confidence motion on this policy (which he must accept).[12]

When the partner's prior belief that the prime minister has high termination costs is sufficiently high, the partner is willing to take more risks by proposing a less accommodating bill, rejecting confidence motions in the cabinet, yet knowing that such rejections will lead to government resignation only in the (relatively unlikely event) that the prime minister actually has low termination costs. There are two cases to consider. The first is when q_0 has an intermediate value. Here, its value is sufficiently high that the partner with high termination costs will not adopt the risky proposal, which leads to resignation if the prime minister has low termination costs. At the same time, q_0 has a sufficiently low value that if the partner has low termination costs, he will make a risky proposal that leads to a government termination if the prime minister has low termination costs. In this equilibrium, information about the prime minister's type is revealed in equilibrium (because only the low-cost type makes a confidence motion when a risky proposal is adopted by the partner). Yet, the cost of inducing the separation is that the partner must provoke the low-cost prime minister to resign when she is faced with a risky initial proposal. This is true because if the partner accepts a confidence motion in the cabinet by the low-cost prime minister, then the high-cost prime minister will have no incentive to maintain her separating strategy, which destroys the equilibrium.

In the final case, the partner's prior belief that the prime minister has high termination costs is relatively low. In this equilibrium, the partner (regardless of his type) has an incentive to adopt the risky initial pro-

[11] See proposition 6 in the Appendix for formal statements and proofs.

[12] Alternatively, this outcome occurs if the termination costs are high enough to deter the partner from provoking a resignation.

TABLE 1. Policy Differences between Prime Minister and Government

Cabinet Decision Rule	Mean Difference between Prime Minister and Government	
	All Governments	Coalition Governments
Unilateral	.47	.86
	(.05)	(.09)
	$N = 236$	$N = 106$
Collective	.71	1.04
	(.07)	(.08)
	$N = 126$	$N = 82$
p-value	.003	.08

Note: The cells give the mean of the absolute difference between the Left-Right location of the prime minister and the weighted Left-Right location of the government (where parties are weighted by the number of seats they hold). The N is for the number of governments. The p-value is for the null hypothesis that the unilateral mean < collective mean. Standard errors are in parentheses. The government location and prime minister location variables are measured using the Left-Right positions of political parties from expert surveys. We use the most (temporally) proximate measure available from among Castles and Mair 1984; Huber and Inglehart 1995; and Morgan 1976. The government location of coalitions is weighted by the percentage of seats controlled by each party. The governments are from Woldendorp, Keman, and Budge 1993. The countries include Australia, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, New Zealand, Norway, Sweden, and the United Kingdom. We omit all caretaker governments.

posal. The prime minister (regardless of her type) responds by making a confidence motion that is always rejected by the partner in the cabinet, but resignation occurs only if she has low termination costs.

A COMPARISON OF CABINET DECISION RULES

A comparison of the two models suggests that strategic behavior and bargaining outcomes should be quite different under confidence procedures that allow unilateral action by the prime minister compared to those that require collective cabinet approval. In this section, we discuss these differences and some empirically testable hypotheses they suggest. We also present two very simple tests.

Our analysis indicates that the nature of cabinet decision rules often has a significant effect on policy outcomes, in particular on which member of a governing coalition has the upper hand in determining final policies. When unilateral action on confidence motions is allowed, prime ministers have the opportunity to make the final proposal, and they can use this power to extract policy concessions from their partners in the governing majority. When collective cabinet approval of confidence motions is required, final proposal power belongs to the pivotal member of the governing coalition, who can use it to extract policy concessions from the prime minister.

Although testing this claim about the policy biases of different procedures is beyond the scope of this article, we can provide a simple test of an indirect implication concerning the selection of prime ministers. The test is indirect because our model obviously does not include a government formation stage. Yet, our analysis suggests that if political parties anticipate the effect of the cabinet decision-making rules during government formation, then these rules could well influence the type of prime minister selected. In particular, if prime ministers have significantly more power to influence policy outcomes under unilateral cabinet decision rules, then the costs to the governing coalition of selecting a prime minister with extreme preferences will be significantly greater in unilateral than collective systems. We might expect the preferences of prime ministers and the governing majority to be more closely aligned in systems with unilateral cabinet rules.

Table 1 shows that this is indeed the case. The table gives the average absolute distance between the Left-Right position of prime ministers and the weighted Left-Right position of the government in 14 parliamentary democracies. We analyze these averages when all governments are included (column 1) and when only coalitions are included (column 2). The argument against including all governments is that single-party majorities (1) always have a difference (between the prime minister and government) of zero and (2) form most often in countries with unilateral rules. Thus, including these governments may create a bias. The argument for including all governments is that if unilateral rules exist, then so should the incentives to form single-party majorities. Thus, excluding these countries should also lead to bias.[13] Both arguments have some merit, but the inferences we draw do not hinge significantly on our position on this issue. In both columns of Table 1, prime ministers are closer to their government in the unilateral systems than in the collective systems. The differences exist under both assumptions, although, as expected, the p-values are somewhat larger when we exclude single-party majorities. There is evidence, then, that the nature of cabinet decision rules influences the choices that parties make about prime ministers during government formation.

A second implication of our analysis concerns the effect of political uncertainty on bargaining among coalition partners. One consequence of uncertainty is at times to mitigate the ability of the dominant bargaining player (the prime minister under unilateral rules, the partner under collective rules) to extract policy concessions from the other side. One reason this occurs is because uncertainty encourages "safe" bargaining strategies, so that the dominant player does not fully extract the available policy concessions in order to avoid government failures. In general, under collective rules, as the coalition partner's belief that the prime minister is the strong type increases (i.e., q_0 decreases), so does the ability of the partner to extract concessions from the prime minister. Under unilateral rules, as each player's belief that the other is strong increases (i.e., q_0 and p_0 decrease), so does the ability of the prime minister to extract concessions.

Another reason uncertainty mitigates the dominant bargaining player's power is less desirable—uncer-

[13] Indeed, this is borne out by a simple probit model that shows the formation of a single-party majority government is much more likely in countries with unilateral rules.

tainty under some conditions leads to bargaining failure (and thus to the extraction of no concessions). Comparing the likelihood of bargaining failure under the two procedures is not always straightforward, however. Under collective decision rules, termination is always the result of a resignation by the low-cost prime minister following a gamble by the coalition partner that she has high costs. The prime minister's uncertainty about the partner never affects the final outcome, or the possibility of inefficient terminations. This is in sharp contrast to the unilateral confidence procedure: Uncertainty by the partner about the prime minister's termination costs can lead him to propose policies that provoke confidence votes, and uncertainty by the prime minister about the partner's termination costs guarantees that some confidence votes will fail.

Despite the fact that two-sided uncertainty matters in the unilateral case, it is not true in general that the unilateral confidence procedure produces more government instability. The outcome depends on the prior beliefs of the prime minister and the coalition partner. Generally speaking, when the partner's belief that the prime minister is weak is high relative to the prime minister's belief that the partner is weak (i.e., p_0 is high relative to q_0), the unilateral confidence motion produces more instability. Under these conditions, the prime minister is more willing to risk termination by extracting concessions under the unilateral rule than is the partner under the collective rule. When the opposite is true (p_0 is low relative to q_0), the collective rule produces more inefficient terminations. When these prior beliefs are approximately equal, either the systems are identical or the comparison depends in a complicated way on other parameters.

Our analysis does suggest, however, an additional implication of political uncertainty that is testable. In particular, if political uncertainty is operating as our model suggests, then the mode of government termination should depend on the nature of cabinet decision rules. In the unilateral case, inefficient terminations should occur on the floor following the defeat of a specific policy; in the collective case, governments should resign before taking the fight to the floor. As noted above, however, this difference should only exist when the pivotal members of the governing coalition are all in the government. During minority governments, this will not be the case. If the prime minister under collective rules can achieve cabinet approval for a particular policy but then loses on the floor for lack of necessary support from a party outside the government, then the collective case operates identically to the unilateral one.

Therefore, we offer a conditional hypothesis about the effect of cabinet decision rules and political uncertainty on the mode of termination. If uncertainty has the effect our model suggests, then compared to minority governments or systems with unilateral cabinet rules, a government with majority status and collective rules should be more likely to terminate by resigning than by failing on the floor. We test this with a simple probit regression. An observation is a government termination caused by policy conflict among members of the majority, and the dependent variable *Resign* takes the value 1 if the government resigns without taking the fight to the floor, 0 if the government takes the fight to the floor and loses.[14] We include one independent variable, a dummy with the value 1 if there are collective cabinet decision rules and majority government, 0 otherwise. The results of the logit model are as predicted by the model (standard errors in parentheses):

$$\text{Resign} = .15\ (.13) + .58\ (.26)\ \text{Collective Rules} \times \text{Majority Government}.$$

We find, then, rather direct (albeit preliminary) evidence that the strategic dynamics created by private information in our model indeed affect the nature of bargaining processes differently in parliamentary systems with collective rules as compared to those with unilateral rules.

CONCLUSION

Abstract game theoretic models in political science frequently suggest that the outcomes of bargaining processes in democratic systems should be significantly influenced by the precise character of proposal and veto opportunities, on the one hand, and by informational asymmetries that exist among participants, on the other. In parliamentary systems, although the cabinet is widely recognized as the central arena for strategic bargaining, scholars have examined neither variation in cabinet decision rules nor the effect of private information on bargaining processes in the cabinet. Our analysis attempts to fill this gap by arguing for the central importance of distinguishing between collective cabinet decision institutions and institutions that permit unilateral action by the prime minister on confidence motions.

Our models suggest that this institutional distinction profoundly affects the distribution of bargaining power within the government. Under collective rules, pivotal parties within the prime minister's majority have the advantage of being able to make the final policy proposal; under unilateral rules, the prime minister has this advantage. The distribution of proposal power, we argue, affects not only the nature of policy outcomes but also the types of political considerations that parties face when choosing a prime minister. These institutions also influence the ability of parties to exploit political uncertainty. They affect, for example, the capacity of the privileged actor within a coalition to extract policy concessions, the propensity for inefficient bargaining failures to occur, and the circumstances surrounding such failures.

[14] We used Keesings Contemporary Archive to code government terminations (from the Woldendorp data) according to whether (1) they occurred because of policy conflict, and (2) they ended with resignations before floor debate as opposed to defeats on the floor. We excluded governments that ended for reasons other than policy conflict. For the remaining cases, our dependent variable takes the value 1 if resignation occurred, 0 otherwise. There are 130 observations, 81 of which take the value 1 (for resignation).

The institutional distinction central to this analysis, then, can play a valuable role in the broader comparative research agenda that seeks to understand important institutional differences within parliamentary democracies (e.g., Lijphart 1999; Powell 2000). It also serves to underscore shortcomings in previous comparative research that focuses on broad institutional categories, such as parliamentarism, presidentialism, federalism, and bicameralism. As our model and evidence illustrate, there are significant limitations to such an aggregated approach. Even somewhat subtle distinctions in cabinet decision-making rules can lead to substantial differences across parliamentary systems in both performance and policy outputs. Without understanding these differences within parliamentary democracy, we cannot hope to understand its fundamental differences with alternative systems.

APPENDIX

We begin by formally defining the strategies and beliefs of the two players.[15]

- $b_t(p_0) \in \boldsymbol{R}$ is the coalition partner's initial policy proposal.
- $a_t(b, p_1)$ is the prime minister's response to the partner's bill, b. P can either accept b (a_t = *accept*) or propose some new policy, $z_t(b, p_1) \in \boldsymbol{R}$.
- $v_t(z, q_1) \in \{0, 1\}$ is C's voting strategy on the floor following P's use of the confidence vote motion (CVM) under unilateral cabinet decision rules, where $v_t = 1$ denotes acceptance of the CVM, and $v_t = 0$ denotes rejection.
- $y_t(b, z, q_1)$ is C's voting strategy in the cabinet following P's proposed CVM under collective cabinet decision rules, where $y_t = 1$ denotes acceptance, and $y_t = 0$ denotes rejection.
- $r_t(b) \in \{0, 1\}$ is P's resignation strategy following the rejection of a CVM in the cabinet under collective rules, where $r_t = 1$ denotes resignation, and $r_t = 0$ denotes acceptance of C's initial policy, b_t.
- p_1 is P's updated beliefs that C has high termination costs.
- q_1 is C's updated beliefs that P has high termination costs.

Next, we define the sets of policy that C and P would prefer to adopt in lieu of terminating the government. For type $t \in \{H, L\}$ and player $i \in \{P, C\}$, this set is given by $A_t^i = \{x | u_i(x) \geq u_i(x_0) - k_t^i\}$. In order to focus on cases in which private information has strategic relevance, we make two assumptions about A_L^C and A_L^P.

Assumption 1. $x_P \notin A_L^C$.

Assumption 2. $x_C \notin A_L^P$.

If assumption 1 is violated, then P does not care about C's termination costs in the unilateral game because she can always use a CVM to obtain her most preferred policy. Similarly, if assumption 2 is violated, in the collective case, C can adopt his ideal point and reject any confidence motion by P in the cabinet, yielding an outcome equal to C's ideal point.

We now define specific policies that play an important role in the analysis below:

$$x_t^P = \arg\max_{x \in A_t^P} u_C(x) \text{ and } x_t^C = \arg\max_{x \in A_t^C} u_P(x).$$

Thus, x_t^P (alternatively, x_t^C) represents the best policy for C (P) from the set of policies that P (C) prefers to government termination. Using these definitions and assumptions 1 and 2, it follows that $x_P \leq x_H^C < x_L^C$ and $x_L^P < x_H^P \leq x_C$.

The Unilateral Case

As noted in the text, in the unilateral model with complete information, P can always invoke a confidence motion on $z = x_t^C$. The problem P faces with incomplete information is that she does not know k_t^C, C's termination costs. If P invokes a confidence procedure on x_H^C and C has low costs, then the government falls. Thus, P of type t's expected utility from $z = x_H^C$ is $p_1 u_P(x_H^C) + (1 - p_1)[u_P(x_0) - k_t^P] - e$, and her utility from $z = x_L^C$ is $u_P(x_L^C) - e$. The CVM that P most prefers depends on updated beliefs, p_1, so that these updated beliefs also influence the optimal b that C proposes. If P knows C's type, then the best proposal C can make that deters P from use of a CVM is $\tilde{x}_t^C = \arg\max_{\{x | u_P(x) \geq u_P(x_t^C) - e\}} u_C(x)$, where $\tilde{x}_H^C \leq \tilde{x}_L^C$, given that $k_H^C > k_L^C$. If P is uncertain about C's type, then C's best proposal depends on p_1. Define $m_t = \arg\max u_C(x)$ such that $u_P(x) \geq \max\{u_P(x_L^C), p_1 u_P(x_H^C) + (1 - p_1)[u_P(x_0) - k_t^P]\} - e$.

Thus, m_t is the policy that if accepted by P of type t gives P the same utility that she would receive from adopting her optimal CVM. If C adopts any $b > m_t$, then P of type t will reject this policy and use a confidence motion to propose a worse one for C. Thus, m_t is C's best proposal that forestalls a CVM by P of type t.

Before proving several propositions, it is useful to make some observations about m_t and $\tilde{x}_t^C$. First, note that $\tilde{x}_H^C \leq m_L \leq m_H \leq \tilde{x}_L^C$. Second, if

$$p_1 u_P(x_H^C) + (1 - p_1)[u_P(x_0) - k_t^P] - e < u_P(x_L^C) - e$$

$$\text{or } p_1 \leq \frac{u_P(x_L^C) - u_P(x_0) + k_t^P}{u_P(x_H^C) - u_P(x_0) + k_t^P}, \qquad \text{then } m_t = \tilde{x}_L^C.$$

Finally, $x_L^C > x_P$ implies that $x_P \notin A_L^C$ and thus that $u_C(x_L^C) = u_C(x_0) - k_L^C$.

We now establish lemma 1, which suggests a lower bound on P's equilibrium utility and the fact that P will not resign in equilibrium.

Lemma 1. *If $k_L^P > e$ and $k_L^C > 0$, P resigns with probability zero under the unilateral confidence vote procedure. Furthermore, P's expected utility must exceed $u_P(x_L^C) - e$ in equilibrium.*

Proof: Either type of P can always assure herself of at least $u_P(x_L^C) - e$ through the use of a CVM, since both C types will accept x_L^C. Thus, P will resign only if $u_P(x_0) - k_L^P > u_P(x_L^C) - e$, which can never be satisfied because $u_P(x_L^C) \geq u_P(x_0)$, since $k_L^C > 0$ and $k_L > e$. *Q.E.D.*

Lemma 2 is a technical result that proves useful in several of the propositions below.

Lemma 2. *$u_C(m_t) \geq u_C(x_L^C)$ whenever*

$$\frac{u_P(x_L^C) - u_P(x_0) + k_t^P + e}{u_P(x_H^C) - u_P(x_0) + k_t^P} \geq p_0 .$$

Proof: Note that $u_C(x_L^C) = \max u_C(x)$ such that $u_P(x) \geq u_P(x_L^C)$, and $u_C(m_t) = \max u_C(x)$ such that $u_P(x) \geq \max\{u_P(x_L^C), p_1 u_P(x_H^C) + (1 - p_1)[u_P(x_0) - k_t^P]\} - e$. By principles of constrained maximization, $u_C(m_t) \geq u_C(x_L^C)$ if and only if

[15] Strategically irrelevant arguments are suppressed.

$$u_P(x_L^C) \geq p_1 u_P(x_H^C) + (1 - p_1)[u_P(x_0) - k_t^P] - e \text{ or}$$

$$\frac{u_P(x_L^C) - u_P(x_0) + k_t^P + e}{u_P(x_H^C) - u_P(x_0) + k_t^P} \geq p_0 . \qquad \textit{Q.E.D.}$$

The equilibrium strategies and beliefs in the unilateral confidence motion game depend on a set of conditions that involve initial beliefs, termination and audience costs, and the location of the status quo. Depending on these parameter values, pooling, separating, and semipooling equilibria can exist.

PROPOSITION 1. *Let* $m \in (\max \{x_L^C, \tilde{x}_H^C\}, m_L]$. *If*

$$\frac{u_P(x_L^C) - u_P(x_0) + k_L^P + e}{u_P(x_H^C) - u_P(x_0) + k_L^P} \geq p_0 ,$$

then the following strategies and beliefs constitute a perfect Bayesian equilibrium to the unilateral CVM game:

$$b_t^* = m,$$

$$a_t^* = \begin{cases} \text{accept if } b = m \text{ or } b \leq \tilde{x}_H^C \\ \text{propose } z = x_H^C \text{ otherwise} \end{cases},$$

$$v_t^* = \begin{cases} 1 & \text{if } z \geq x_t^C \\ 0 & \text{otherwise} \end{cases}, \text{ and}$$

$$p_1^* = \begin{cases} p_0 & \text{if } b = m \\ 1 & \text{otherwise} \end{cases}.$$

Proof: C's floor voting strategies are straightforward, as he accepts a CVM if and only if its policy utility exceeds that of the status quo plus the termination costs. Thus, we begin by ensuring that C will not defect from proposing $m \in (\max \{x_L^C, \tilde{x}_H^C\}, m_L]$. By definition, $u_C(m_L) \geq u_C(\tilde{x}_H^C)$, and lemma 2 implies $u_C(m_L) \geq u_C(x_L^C)$ whenever

$$\frac{u_P(x_L^C) - u_P(x_0) + k_L^P + e}{u_P(x_H^C) - u_P(x_0) + k_L^P} \geq p_0 .$$

Thus, the interval $(\max \{x_L^C, \tilde{x}_H^C\}, m_L]$ is nonempty. Both C types receive $u_C(m)$ in equilibrium because this proposal is accepted independent of P's type. Because C prefers m to any other policy that is always accepted, it only remains to consider defections that induce a CVM. Given assumption 1, P's equilibrium confidence motion, and C's voting strategies, defections that trigger a CVM yield $u_C(x_t^C)$ for each type. Such a defection must lower C's utility, since $u_C(m) \geq u_C(x_L^C) > u_C(x_H^C)$.

We now turn to P's best response. Recall that m_t is the policy which, if accepted by P of type t, gives this type of prime minister the same utility she would obtain from adopting her optimal CVM when $p_1^* = p_0$. Given $k_L^P < k_H^P$, we know that $m_L < m_H$. Thus, since $u_P(m) \geq u_P(m_L) > u_P(m_H)$, both types of P prefer accepting C's bill to proposing either x_L^C or x_H^C under the CVM. Following out-of-equilibrium proposals by C, the beliefs $p_1^* = 1$ make a CVM of x_H^C a best response.

Beliefs on the equilibrium path $p_1^* = p_0$ are determined by Bayes's rule. *Q.E.D.*

Comment: To establish the comparative statics on the critical value

$$\frac{u_P(x_L^C) - u_P(x_0) + k_L^P + e}{u_P(x_H^C) - u_P(x_0) + k_L^P},$$

note that $u_P(x_t^C)$ is increasing in k_t^C. Therefore, the critical value is increasing in k_L^C, k_L^P, and e and is decreasing in k_H^C.

PROPOSITION 2. *Let* $m \in (\max \{m_L, x_L^C\}, m_H]$. *If*

$$q_0 \geq \frac{u_C(\tilde{x}_H^C) - u_C(x_H^C)}{u_C(m) - u_C(x_H^C)} \text{ and}$$

$$\frac{u_P(x_L^C) - u_P(x_0) + k_H^P + e}{u_P(x_H^C) - u_P(x_0) + k_H^P} \geq p_0 \geq \frac{u_P(x_L^C) - u_P(x_0) + k_L^P}{u_P(x_H^C) - u_P(x_0) + k_L^P},$$

then the following strategies and beliefs constitute a perfect Bayesian equilibrium to the unilateral CVM game:

$$b_t^* = m,$$

$$a_H^* = \begin{cases} \text{accept if } b = m \text{ or } b \leq \tilde{x}_H^C \\ \text{propose } z = x_H^C \text{ otherwise} \end{cases},$$

$$a_L^* = \begin{cases} \text{accept if } b \leq \tilde{x}_H^C \\ \text{propose } z = x_H^C \text{ otherwise} \end{cases},$$

$$v_t^* = \begin{cases} 1 & \text{if } z \geq x_t^C \\ 0 & \text{otherwise} \end{cases}, \text{ and}$$

$$p_1^* = \begin{cases} p_0 & \text{if } b = m \\ 1 & \text{otherwise} \end{cases}.$$

Proof: Again, C's voting strategies are straightforward. Consider C's choices in the proposal-making stage. Lemma 2 implies $u_C(m_H) \geq u_C(x_L^C)$ if

$$\frac{u_P(x_L^C) - u_P(x_0) + k_H^P + e}{u_P(x_H^C) - u_P(x_0) + k_H^P} \geq p_0 .$$

Thus, the interval $(\max \{m_L, x_L^C\}, m_H]$ is nonempty.

Given that a low-cost P always uses a CVM to propose $z = x_H^C$ in equilibrium, the equilibrium utilities of C of types L and H are $q_0 u_C(m) + (1 - q_0) u_C(x_L^C)$ (by assumption 1) and $q_0 u_C(m) + (1 - q_0) u_C(x_H^C)$, respectively. There are two defections that we must rule out: C must neither wish to induce a CVM by the high type of P nor propose $b \leq \tilde{x}_H^C$, which is always accepted. Consider an induced CVM such as $b \neq m > \tilde{x}_H^C$. Given P's best response of proposing $z = x_H^C$ and the voting strategies of C, this generates a payoff of $u_C(x_t^C)$ for each type. Neither type can benefit from invoking a CVM as long as $q_0 u_C(m) + (1 - q_0) u_C(x_t^C) \geq u_C(x_t^C)$ or $u_C(m) \geq u_C(x_t^C)$, which is true since $m \in (\max \{m_L, x_L^C\}, m_H]$.

Next, consider whether C will defect by proposing $b \leq \tilde{x}_H^C$. For both types, this defection generates $u_C(b) \leq u_C(\tilde{x}_H^C)$ because P always accepts this bill. Yet, none of the proposals are profitable for type t so long as

$$q_0 u_C(m) + (1 - q_0) u_C(x_t^C) \geq u_C(\tilde{x}_H^C) \text{ or}$$

$$q_0 \geq \frac{u_C(\tilde{x}_H^C) - u_C(x_t^C)}{u_C(m) - u_C(x_t^C)},$$

which is guaranteed by the assumption that

$$q_0 \geq \frac{u_C(\tilde{x}_H^C) - u_C(x_H^C)}{u_C(m) - u_C(x_H^C)}$$

(which is possible only if $m > \tilde{x}_H^C$).

Now consider P's strategies. Given $p_1^* = 1$ following an out-of-equilibrium proposal by C, x_H^C must be a best response, and we can concentrate on her response to m. Because $m \leq m_H$, P with high costs prefers m to making either possible $z = x_t^C$. Because $m_L < m$, P with low costs prefers a confidence motion to m, and she prefers proposing x_H^C over x_L^C if

$$p_0 u_C(x_H^C) + (1 - p_0)[u_C(x_0) - k_L^P] \geq u_C(x_L^C) \ ,$$

which implies that

$$p_0 \geq \frac{u_P(x_L^C) - u_P(x_0) + k_L^P}{u_P(x_H^C) - u_P(x_0) + k_L^P} \ ,$$

which is assumed by the proposition.

Beliefs on the equilibrium path $p_1^* = p_0$ are determined by Bayes's rule. *Q.E.D.*

Comment: Similar to the above, the upper critical value of p_0 increases in k_L^C, k_H^P, and e, and it decreases in k_H^C. The lower critical value increases in k_L^C and k_L^P and decreases in k_H^C. The properties of the critical value of q_0 can be established from noting that $u_C(x_t^C)$ is increasing in k_t^P, and $u_C(\tilde{x}_t^C)$ is increasing in e and decreasing in k_t^C. Thus, for a given m, the critical value increases in e and decreases in k_H^P and k_H^C.

PROPOSITION 3. *If $u_C(\tilde{x}_H^C) > u_C(x_L^C)$, and $u_P(\tilde{x}_L^C) = u_P(x_L^C) - e$, then the following strategies and beliefs constitute a perfect Bayesian equilibrium to the unilateral CVM game*:

$$b_t^* = \tilde{x}_t^C,$$

$$a_t^* = \begin{cases} \text{accept if } b \leq \tilde{x}_H^C \\ \text{accept with prob } \eta \text{ if } b = \tilde{x}_L^C \\ \text{propose } z = x_L^C \text{ with prob } 1 - \eta \text{ if } b = \tilde{x}_L^C \\ \text{propose } z = x_H^C \text{ otherwise} \end{cases},$$

$$v_t^* = \begin{cases} 1 & \text{if } z \geq x_t^C \\ 0 & \text{otherwise} \end{cases}, \text{ and}$$

$$p_1^* = \begin{cases} 0 & \text{if } b = \tilde{x}_L^C \\ 1 & \text{otherwise} \end{cases},$$

$$\text{where } \eta = \frac{u_C(\tilde{x}_H^C) - u_C(x_L^C)}{u_C(\tilde{x}_L^C) - u_C(x_L^C)} .$$

Proof: P learns C's type from C's proposal, and $u_P(\tilde{x}_L^C) = u_P(x_L^C) - e$ implies $u_P(\tilde{x}_H^C) = u_P(x_H^C) - e$. So P is indifferent between accepting $\tilde{x}_t^C$ and using a confidence procedure to adopt x_t^C. Thus, a_t^* is a best response on the equilibrium path. For any bill off the equilibrium path, $p_1^* = 1$ implies that adopting $z_t = x_H^C$ for any such $b > \tilde{x}_H^C$ is a best response, as is accepting any $b \leq \tilde{x}_H^C$.

For C, any proposal $b \neq \tilde{x}_t^C$ will result in $u_C(x_t^C)$, which cannot be a best response because $u_C(\tilde{x}_H^C) \geq u_C(x_H^C)$, and η is defined so that $\eta u_C(\tilde{x}_L^C) + (1 - \eta) u_C(x_L^C) \geq u_C(x_L^C)$. So that H will not mimic L it must be true that $u_C(\tilde{x}_H^C) \geq \eta u_C(\tilde{x}_L^C) + (1 - \eta) u_C(x_L^C)$, and for L to not mimic H it must be true that $u_C(\tilde{x}_H^C) \leq \eta u_C(\tilde{x}_L^C) + (1 - \eta) u_C(x_L^C)$. The only value of η that solves both of these inequalities is

$$\eta = \frac{u_C(\tilde{x}_H^C) - u_C(x_L^C)}{u_C(\tilde{x}_L^C) - u_C(x_L^C)} .$$

So that η is a feasible probability, we require that $u_C(\tilde{x}_H^C) > u_C(x_L^C)$. The necessary condition $u_P(\tilde{x}_L^C) = u_P(x_L^C) - e$ rules out any other separating equilibria. *Q.E.D.*

Comment: This equilibrium, in which no terminations occur, exists only if e is sufficiently large (so that $u_C(\tilde{x}_H^C) > u_C(x_L^C)$). Whenever this condition is satisfied, so are the conditions necessary for the existence of the equilibrium described in proposition 1.

PROPOSITION 4. *If*

$$p_0 \geq \frac{u_P(x_L^C) - u_P(x_0) + k_H^P + e}{u_P(x_H^C) - u_P(x_0) + k_H^P} \text{ and}$$

$$q_0 \geq \frac{u_C(\tilde{x}_H^C) - u_C(x_H^C)}{u_C(x_L^C) - u_C(x_H^C)} ,$$

then the following strategies and beliefs constitute a perfect Bayesian equilibrium to the unilateral CVM game:

$$b_L^* = x_L^C ,$$

$$b_H^* = \begin{cases} x_L^C \text{ with prob } \lambda \\ \tilde{x}_H^C \text{ otherwise} \end{cases},$$

$$a_L^* = \begin{cases} \text{accept } b \leq \tilde{x}_H^C \\ \text{propose } z = x_H^C \text{ otherwise} \end{cases},$$

$$a_H^* = \begin{cases} \text{accept } b \leq \tilde{x}_H^C \\ \text{accept } b = x_L^C \text{ with prob } \omega, \\ \text{propose } z = x_H^C \text{ otherwise} \end{cases}$$

$$v_t^* = \begin{cases} 1 & \text{if } z \geq x_t^C \\ 0 & \text{otherwise} \end{cases}, \text{ and}$$

$$p_1^* = \begin{cases} \dfrac{p_0 \lambda}{p_0 \lambda + 1 - p_0} & \text{if } b = x_L^C \\ 1 & \text{otherwise} \end{cases},$$

$$\text{where } \lambda = \frac{(1 - p_0)}{p_0} \cdot \frac{u_P(x_L^C) - u_P(x_0) + k_H^P + e}{u_P(x_H^C) - u_P(x_L^C) - e}$$

$$\text{and} \quad \omega = \frac{1}{q_0} \cdot \frac{u_C(\tilde{x}_H^C) - u_C(x_H^C)}{u_C(x_L^C) - u_C(x_H^C)} .$$

Proof: We first consider P's optimal response to b. If $b = \tilde{x}_H^C$, then P is sure that C is a high-cost type. Both types of P are willing to accept $\tilde{x}_H^C$, since doing so avoids audience costs and generates as high a utility as the best acceptable CVM, given the beliefs $p_1^* = 1$, $z = x_H^C$.

If $b = x_L^C$, then Bayes's rule implies

$$p_1 = \frac{p_0 \lambda}{p_0 \lambda + 1 - p_0} .$$

Obviously, P prefers accepting $u_P(x_L^C)$ to adopting $z = x_L^C$. Because the only CVMs P might adopt in equilibrium are x_L^C or x_H^C (because any other confidence motion involves policy concessions that do not lower the probability of rejection), P must choose between accepting $b = x_L^C$ and proposing $z = x_H^C$. Proposing $z = x_H^C$ has an expected payoff of

$$\frac{p_0 \lambda [u_P(x_H^C) - e] + (1 - p_0)[u_P(x_0) - k_t^P - e]}{p_0 \lambda + 1 - p_0} .$$

P prefers this CVM if

$$\lambda \geq \frac{1 - p_0}{p_0} \cdot \frac{u_P(x_L^C) - u_P(x_0) + k_t^P + e}{u_P(x_H^C) - u_P(x_L^C) - e} .$$

Given the definition of λ, P with low costs strictly prefers to make the CVM, whereas the high-cost type is exactly indifferent between accepting $b = x_L^C$ and adopting $z = x_H^C$. It is therefore a best response to accept $b = x_L^C$ with probability ω.

We now turn to C's strategies. For low-cost C, the utility of $b = x_L^C$ is $u_C(x_L^C)$. Although $b = x_L^C$ is sometimes rejected, rejection leads to a CVM that C of type L rejects. Because $x_L^C > \tilde{x}_H^C$, low-cost C prefers $b = x_L^C$ to any other bill that is accepted by P. Any other b that triggers a CVM results in termination, so C of type L weakly prefers $b = x_L^C$.

For C of type H, proposing $\tilde{x}_H^C$ generates $u_C(\tilde{x}_H^C)$ since P always accepts. This is obviously preferred to any acceptable $b < \tilde{x}_H^C$. Proposing any other $b > \tilde{x}_H^C$ other than x_L^C triggers a CVM, yielding $u_C(x_H^C) < u_C(\tilde{x}_H^C)$. Finally, if $b = x_L^C$, this policy is rejected by the low-cost P and by the high-cost P with probability $1 - \omega$. Therefore, the payoff to this bill is $\omega q_0 u_C(x_L^C) + (1 - \omega q_0) u_C(x_H^C)$ so that, if

$$\omega = \frac{1}{q_0} \cdot \frac{u_C(\tilde{x}_H^C) - u_C(x_H^C)}{u_C(x_L^C) - u_C(x_H^C)},$$

the high-cost C is indifferent between proposing $b = x_L^C$ and proposing $b = \tilde{x}_H^C$. The high-cost C can therefore play the mixed strategy specified in the proposition. The conditions

$$p_0 \geq \frac{u_P(x_L^C) - u_P(x_0) + k_H^P + e}{u_P(x_H^C) - u_P(x_0) + k_H^P} \text{ and}$$

$$q_0 \geq \frac{u_C(\tilde{x}_H^C) - u_C(x_H^C)}{u_C(x_L^C) - u_C(x_H^C)}$$

are required so that $\lambda \leq 1$ and $\omega \leq 1$. *Q.E.D.*
Comment: The properties of the critical value of p_0 are established above. The critical value of q_0 is similar, but it also increases in k_L^C.

Proposition 5. *If*

$$p_0 \geq \frac{u_P(x_L^C) - u_P(x_0) + k_L^P + e}{u_P(x_H^C) - u_P(x_0) + k_L^P} \textit{ and}$$

$$q_0 \leq \frac{u_C(\tilde{x}_H^C) - u_C(x_H^C)}{u_C(x_L^C) - u_C(x_H^C)},$$

then the following strategies and beliefs constitute perfect Bayesian equilibrium to the unilateral CVM game:

$$b_L^* = x_L^C,$$

$$b_H^* = \begin{cases} x_L^C \text{ with prob } \lambda' \\ \tilde{x}_H^C \text{ otherwise} \end{cases},$$

$$a_L^* = \begin{cases} \text{accept } b \leq \tilde{x}_H^C \\ \text{accept } b = x_L^C \text{ with prob } \omega' \\ \text{propose } z = x_H^C \text{ otherwise} \end{cases},$$

$$a_H^* = \begin{cases} \text{accept } b \leq \tilde{x}_H^C \text{ and } b = x_L^C \\ \text{propose } z = x_H^C \text{ otherwise} \end{cases},$$

$$v_t^* = \begin{cases} 1 & \text{if } z \geq x_t^C \\ 0 & \text{otherwise} \end{cases}, \text{ and}$$

$$p_1^* = \begin{cases} \dfrac{p_0\lambda'}{p_0\lambda' + 1 - p_0} & \text{if } b = x_L^C, \\ 1 & \text{otherwise} \end{cases}$$

$$\text{where } \lambda' = \frac{(1 - p_0)}{p_0} \cdot \frac{u_P(x_L^C) - u_P(x_0) + k_L^P + e}{u_P(x_H^C) - u_P(x_L^C) - e}$$

$$\text{and } \omega' = \frac{u_C(\tilde{x}_H^C) - [q_0 u_C(x_L^C) + (1 - q_0) u_C(x_H^C)]}{u_C(x_L^C) - [q_0 u_C(x_L^C) + (1 - q_0) u_C(x_H^C)]}.$$

Comment: The logic of the proof and the properties of critical values are the same as proposition 4.

The Collective Case

We begin by analyzing P's optimal resignation strategy following a CVM that fails in the cabinet. Because P's only options are to accept the partner's bill or resign, her optimal strategy must be

$$r_t^*(b) = \begin{cases} 1 \ \forall\, b \in A_t^P \\ 0 \ \forall\, b \notin A_t^P. \end{cases}$$

These strategies follow from the definition of A_t^P, which define the sets of policies that the low- and high-cost P's would (respectively) prefer to accept rather than resign.

Therefore, if P has costs k_t^P, $x_t^P = \arg\max_{x \in A_t^P} u_C(x)$ is the best bill C can enact without the resignation of P. Note that $x_L^P \leq x_H^P \leq x_C$. Recall that by assumption 2 we focus on cases in which $x_L^P < x_C$ so that $x_L^P \neq x_H^P$.

Before characterizing equilibrium behavior, we prove two general properties that must be found in any equilibrium for the collective cabinet case.

Lemma 3. *In equilibrium, the expected utility to C (of either type) can be no less than* $u_C(x_L^P)$.

Proof: Because both types of P are willing to accept x_L^P, C can do no worse than propose it and block all confidence proposals. *Q.E.D.*
Comment: This lemma demonstrates that the collective decision rule produces expected outcomes more favorable to C than does the unilateral case. In the unilateral case, P is guaranteed at least utility $u_P(x_L^C) - e$, so the best achievable expected utility for C is $u_C(\tilde{x}_L^C)$. It is easy to show that the worst expected policy in the collective case, $u_C(x_L^P)$, is preferred by C to the best policy in the unilateral case so long as $e < k_L^P$.

Lemma 4. *Under collective cabinet decision making, resignation is the only equilibrium mode of government termination because confidence motions cannot be defeated on the floor.*

Proof: If C approves a confidence motion in the cabinet that it expects to vote against on the floor, its utility of $u_C(x_0) - k_t$ is strictly less than the utility guaranteed by lemma 3.

We characterize the equilibria under collective cabinet decision-making rules in proposition 6. There are three important cases to consider, defined by C's initial beliefs about the termination costs of P. To simplify the statement of the proposition, we define $\hat{y}$ as the realization of $y_t^*(b, z)$, C's decision to allow a confidence vote on z. *Q.E.D.*

Proposition 6.

Case 1: If

$$q_0 \leq \frac{u_C(x_L^P) - u_C(x_0) + k_L^C}{u_C(x_H^P) - u_C(x_0) + k_L^C},$$

then the following strategies and beliefs constitute a perfect Bayesian equilibrium:

$$b_t^* \in [x_L^P, x_H^P],$$

$$a_t^* = \begin{cases} \text{accept if } b \leq x_L^P \\ \text{propose } z = x_L^P \text{ if } x_L^P < b \leq x_H^P, \\ \text{propose } z = x_H^C \text{ if } x_H^P < b \end{cases}$$

$$y_t^* = \begin{cases} 1 \text{ if } z = x_L^P \text{ or } z \geq b \\ 1 \text{ if } b > x_H^P \text{ and } z \geq x_t^C, \\ 0 \text{ otherwise} \end{cases}$$

$$r_t^* = \begin{cases} 1 \text{ if } \hat{y}z + (1 - \hat{y})b \leq x_t^P \\ 0 \text{ otherwise} \end{cases}, \text{ and}$$

$$v_t^* = \begin{cases} 1 \text{ if } \hat{y}z + (1 - \hat{y})b \geq x_t^C \\ 0 \text{ otherwise} \end{cases}.$$

Beliefs are determined by Bayes's rule on the equilibrium path $p_1^* = 1$ *following out-of-equilibrium actions by C, and* $q_1^* = 1$ *following deviations by P.*

Proof: C with costs k_t^C makes a proposal from the interval $[x_L^P, x_H^P]$. Thus, there are both separating and pooling equilibria, but they all have the same equilibrium payoffs.

C's voting decision on the floor is trivial, so we begin with checking the optimality of y_t^*. Note that C's optimal strategy in the cabinet depends on b, since it determines the probability P will resign following a rejected confidence motion. Thus, we begin by checking y_t^* following equilibrium proposals b_t^*. Clearly, C with costs k_t^C does better by approving $z > b_t^*$, since it results in a better policy than if the CVM were rejected and b_t^* stood. Yet, each type of C will reject any CVM such that $b_t^* > z > x_L^P$, since this produces a worse policy and no greater likelihood of avoiding a resignation, because the low-cost P would still resign even if the motion were successful. C will also reject $z < x_L^P$, since his belief in this case is $q_1^* = 1$; C thus believes that P will accept b_t^* rather than resign. Finally, we need to show that C will accept $z = x_L^P < b_t^*$. Both P types make the same proposal, so the updated beliefs are $q_1^* = q_0$. Because the low-cost P will resign if the proposal is rejected, the utility of rejection is $q_0 u_C(b_t^*) + (1 - q_0)[u_C(x_0) - k_t^C]$, whereas the utility of acceptance is $u_C(x_L^P)$. Thus, C will accept so long as

$$q_0 \leq \frac{u_C(x_L^P) - u_C(x_0) + k_t^C}{u_C(b_t^*) - u_C(x_0) + k_t^C},$$

which is guaranteed by

$$q_0 \leq \frac{u_C(x_L^P) - u_C(x_0) + k_L^C}{u_C(x_H^P) - u_C(x_0) + k_L^C}.$$

This condition of q_0 is not only sufficient but also necessary to guarantee that low-cost C will not defect to proposing $b = x_H^P$ and rejecting all $z < x_H^P$.

Now consider y_t^* on paths of play following $b \neq b_t^*$. If $b < x_L^P$, then neither type of P will resign following a rejected CVM, and any motion will be rejected unless $z \geq b$. The best response to z following $b \neq b_t^* \in [x_L^P, x_H^P]$ is identical to that on the equilibrium path. Finally, if $b > x_H^P$, rejecting z leads to a resignation with certainty. Thus, C with cost k_t^C is willing to accept so long as $z \geq x_t^C$.

Turning to P's choice of CVM, it is easy to see that $z \geq b$ makes P worse off, since C will always accept this policy concession. If $b > x_H^P$, then $p_1^* = 1$ and $z = x_H^C$ is optimal. For $b \in (x_L^P, x_H^P]$, any $z \neq x_L^P$ will be rejected, yielding $u_P(x_t^P)$. Thus, P of type L weakly prefers $z = x_L^P$, which the high-cost P strictly prefers. By an analogous argument, accepting $b = x_L^P$ is optimal for both types of P. Finally, if $b < x_L^P$, any $z < b$ will be rejected in the cabinet, yielding an outcome of b. Thus, either type of P can do no better than accept b.

It only remains to consider C's optimal bill. Given the preceding strategies and beliefs, for any $b > x_H^P$, each C receives $u_C(x_t^C)$, and for any $b < x_L^P$, C receives $u_C(b)$. Because all $b \in [x_L^P, x_H^P]$ always yield $u_C(x_L^P)$, C of either type prefers $b \in [x_L^P, x_H^P]$ to any other bill and may choose any of these bills in equilibrium. *Q.E.D.*

Case 2: If

$$\frac{u_C(x_L^P) - u_C(x_0) + k_L^C}{u_C(x_H^P) - u_C(x_0) + k_L^C} \leq q_0 \leq \frac{u_C(x_L^P) - u_C(x_0) + k_H^C}{u_C(x_H^P) - u_C(x_0) + k_H^C},$$

the following strategies and beliefs constitute a perfect Bayesian equilibrium:

$$b_L^* = x_H^P,$$

$$b_H^* = x_L^P,$$

$$a_L^* = \begin{cases} \text{accept if } b \leq x_L^P \\ \text{propose } z = x_H^C \text{ otherwise} \end{cases},$$

$$a_H^* = \begin{cases} \text{accept if } b \leq x_H^P \\ \text{propose } z = x_H^C \text{ otherwise} \end{cases},$$

$$y_t^* = \begin{cases} 1 & \text{if } z \geq b \\ 1 & \text{if } b > x_H^P \text{ and } z \geq x_t^C \\ 0 & \text{otherwise} \end{cases}, \text{ and}$$

$$r_t^* = \begin{cases} 1 & \text{if } \hat{y}z + (1 - \hat{y})b \leq x_t^P \\ 0 & \text{otherwise} \end{cases}.$$

Beliefs are determined by Bayes's rule on the equilibrium path $p_1^* = 1$ following out-of-equilibrium actions by C, and $q_1^* = 1$ following deviations by P.

Proof: Because C plays a separating strategy, high-cost C has his bill, x_L^P, accepted, whereas following $b_L^* = x_H^P$, low-cost P responds with a CVM that is rejected in the cabinet, leading to resignation by the low-cost P.

We begin by checking the optimality of y_t^* following equilibrium proposals by C. As above, C of either type does better by approving any $z \geq b$. Consider C with high costs, who proposes $b_H^* = x_L^P$. Because P will not resign given this proposal regardless of her costs, the C with high costs will reject any $z < b_H^* = x_L^P$. If $z = x_H^C$ is proposed following an equilibrium proposal by high-cost C, then it is off the equilibrium path, $q_1^* = 1$, and the high-cost C will likewise reject it. Now consider low-cost C, who proposes $b_L^* = x_H^P$. If $x_H^P > z > x_L^P$, it must be rejected because $b_L^* = x_H^P$ results in a better policy, and P is no more likely to resign under z than under b_L^*. Consider $z \leq x_L^P$. To see that these proposals must be rejected by the low-cost C, note that there are two cases: $x_L^P \geq z \neq x_H^C$ and $z = x_H^C$. If $z \neq x_H^C$, $q_1^*(z) = 1$, rejecting z leads to $u_C(b_L^*)$, whereas accepting z leads to a utility of $u_C(z)$. Thus, C will reject. If $z = x_H^C$, low-cost C must obviously reject because, even if P resigns, this yields a higher utility than adopting z.

Now consider y_t^* on paths following out-of-equilibrium proposals by C. Consider $b > x_H^P$. Rejecting any z leads to a certain resignation, so C with costs k_t^C will be willing to accept if $z \geq x_t^C$. Now consider $b < x_L^P$. In this case, neither type of P will resign following a rejected CVM, and thus any such motion will be rejected unless $z \geq b$. Finally, consider $b \in (x_L^P, x_H^P)$. If $z(b) = x_H^C$, then for any beliefs, both C types obviously prefer to reject z. If $z \neq x_H^C$, then $q_1^* = 1$ and rejection is optimal because the expected outcome will be b.

We now turn to P's CVM strategy. As above, $z > b$ makes P worse off. Given y^*, upon observing b_t^*, P can make no confidence motion that will be accepted. Thus, if $b_t^* = x_L^P$, any strategy P adopts will yield $u_P(x_L^P)$ (because neither type will resign following a rejected confidence motion). If $b_t^* = x_H^P$, then P with high costs will not resign following a rejected CVM, which makes the utility of accepting b_t^* the same as the utility of proposing any z. Similarly, if $b_t^* = x_H^P$ and P has low costs, a rejected CVM will lead to resignation. Because the utility of resigning is greater than the utility of x_H^P, the low-cost P must reject this bill and propose any alternative that will be rejected by C (including $z = x_H^C$). Finally, following out-of-equilibrium proposal $b > x_H^P$, P believes that C is the high-cost type and will accept $z = x_H^C$ to avoid a resignation.

It only remains to consider the optimality of b_t^*. As in case 1, it is never optimal for C to adopt $z < x_L^P$ or $z > x_H^P$. For any $b \in (x_L^P, x_H^P]$, C's expected utility is $q_0 u_C(b) + (1 - q_0)[u_C(x_0) - k_t^C]$, which is maximized by $b = x_H^P$. From $b = x_L^P$, C receives $u_C(x_L^P)$. Therefore, since

$$\frac{u_C(x_L^P) - u_C(x_0) + k_L^C}{u_C(x_H^P) - u_C(x_0) + k_L^C} \le q_0 \le \frac{u_C(x_L^P) - u_C(x_0) + k_H^C}{u_C(x_H^P) - u_C(x_0) + k_H^C},$$

$b_H^* = x_L^P$ and $b_L^* = x_H^P$ are optimal. The upper bound on q ensures that high-cost C prefers x_L^P to x_H^P, and the lower bound ensures that low-cost C prefers x_H^P to x_L^P. *Q.E.D.*

Case 3: If

$$\frac{u_C(x_L^P) - u_C(x_0) + k_H^C}{u_C(x_H^P) - u_C(x_0) + k_H^C} \le q_0,$$

the following strategies and beliefs constitute a perfect Bayesian equilibrium:

$$b_t^* = x_H^P,$$

$$a_L^* = \begin{cases} \textit{accept if } b \le x_L^P \\ \textit{propose } z = x_H^C \textit{ otherwise} \end{cases},$$

$$a_H^* = \begin{cases} \textit{accept if } b \le x_H^P \\ \textit{propose } z = x_H^C \textit{ otherwise} \end{cases},$$

$$y_t^* = \begin{cases} 1 & \textit{if } z \ge b \\ 1 & \textit{if } b > x_H^P \textit{ and } z \ge x_t^C \\ 0 & \textit{otherwise} \end{cases}, \textit{ and}$$

$$r_s^* = \begin{cases} 1 & \textit{if } \hat{y}z + (1 - \hat{y})b \le x_s^P \\ 0 & \textit{otherwise} \end{cases}.$$

Beliefs are determined by Bayes's rule on the equilibrium path $p_1^* = 1$ following out-of-equilibrium actions by C, and $q_1^* = 1$ following deviations by P.

Proof: The proof is identical to case 2, except that

$$\frac{u_C(x_L^P) - u_C(x_0) + k_H^C}{u_C(x_H^P) - u_C(x_0) + k_H^C} \le q_0$$

makes $b_H^* = x_H^P$ optimal. *Q.E.D.*

Comment: To establish the properties of the two critical values

$$\frac{u_C(x_L^P) - u_C(x_0) + k_L^C}{u_C(x_H^P) - u_C(x_0) + k_L^C} \text{ and } \frac{u_C(x_L^P) - u_C(x_0) + k_H^C}{u_C(x_H^P) - u_C(x_0) + k_H^C},$$

note that $u_C(x_t^P)$ is increasing in k_t^P. Thus, the first critical value is increasing in k_L^P and k_L^C, decreasing in k_H^P. The second has the same properties except that it increases in k_H^C rather than k_L^C.

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