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Legislating from both sides of the aisle: Information and the value of bipartisan consensus

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Abstract. This paper motivates bipartisanship through a formal model in which committee members are assumed to possess policy expertise. Its central findings are: 1) bipartisan support for legislation is more informative than partisan support; 2) bipartisanship is preferred when the uncertainty surrounding outcomes is large and partisan policy differences are small; 3) "minority party gatekeeping" is possible when minority party members refuse to endorse majority party proposals; and 4) legislators with extreme preferences need minority party support to pass legislation. An equilibrium selection criterion is also introduced and applied to the model to predict under what conditions the majority party will seek bipartisan support.

Many positive theories of legislative decision making predict that policy will pass with a bare majority, or a minimal winning coalition.[1] Since only a majority is necessary to enact legislation, there seems to be little need to distribute benefits more broadly. As an empirical observation, however, many bills in Congress receive bipartisan support. For instance, Figure 1 summarizes the 473 Congressional Quarterly key votes from the second session of the 102nd Congress (1992). In 35.73% of these votes, the winning coalition comprised a majority of both Democrats and Republicans, and 13.11% had 90% of each party in agreement. These numbers increased to 48.60% and 14.95%, respectively, when only votes on final passage are counted.

Minimum winning coalition theories generally assume complete information. On the other hand, several recent papers have been able to motivate greater than bare majorities in imperfect information settings. Baron and Ferejohn (1989) and Baron (1991) investigate a distributive bargaining game where floor procedure is governed by a random recognition rule. Legislators may rationally construct coalitions larger than a bare majority in order to increase the probability that the bill will be passed. And Lohmann and O'Halloran (1994) analyze a model in which legislators may delegate to the president the power to propose a bill. Here, the president will sometimes construct a bipartisan coalition consisting of those districts whose support is most easily obtained.

In contrast to these studies where all legislators are equally uncertain, I investigate a model in which information is asymmetric: committee members

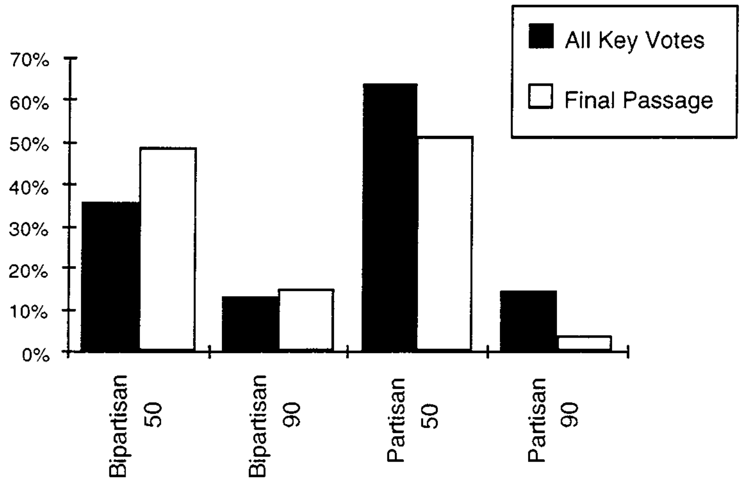

Figure 1. Bipartisanship in the 102nd Congress.

are assumed to have knowledge about the relation between policies and outcomes that floor members do not possess. Here, bipartisanship is motivated by informational concerns. When actors from both ends of the political spectrum support a policy, then the uncertainty surrounding outcomes is reduced, to the benefit of all legislators. On the other hand, bipartisan coalitions are more difficult to construct. The question that this paper addresses, then, is under what circumstances will the benefits of bipartisanship outweigh its costs?

I investigate this question through a formal model in which committee members are assumed to possess policy expertise. My central findings are as follows. First, I show that in all instances bipartisan support for legislation is treated as more informative than partisan support. Second, bipartisanship will be used more when the uncertainty surrounding policy outcomes is greatest and when partisan policy differences are small. Third, my model predicts the possibility of "minority party gatekeeping": by withholding their support from legislation, minority party members can induce the majority party to hold up bills in committee. Finally, my results point to a paradox of partisanship. Legislators viewed as partisan are usually assumed unwilling to accommodate minority party demands. But in an incomplete information setting, it is exactly those legislators with extreme preferences who most need minority party support to pass legislation. In other words, the more partisan a legislator, the more she values bipartisanship.

To derive testable predictions from my model, the notion of equilibrium selection plays a large role. This term, abstract though it may be, captures the concrete reality that there are many ways to shape legislation. Partisanship and bipartisanship can be supported as game-theoretic equilibria, but in certain cases one of these equilibria will be more attractive than the other. Furthermore, the equilibrium chosen determines what statements various political actors will make, how others will interpret these statements, and how floor members will vote on proposed legislation. In short, it is my contention that notions of equilibrium selection lie at the heart of coalition building and political rhetoric. Along these lines, this paper offers one possible equilibrium refinement to gain more precise predictions regarding which types of coalitional behavior one should expect to observe in various circumstances.

The rest of this essay is organized as follows. The next section provides an overview of previous literature on bipartisanship in Congress. Section 2 introduces a signaling model of the legislative process in which both majority and minority party committee members can send legislation to the floor. Section 3 provides two equilibria to this game: a partisan equilibrium and a bipartisan equilibrium. Section 4 provides an equilibrium selection criterion for cheap talk games and applies this criterion to the equilibria derived. Section 5 concludes.

1. Literature review

Previous accounts of bipartisanship fall generally into two categories. Some downplay its importance, asserting that bipartisanship occurs only when the majority party is handicapped for some reason and unable to pass policy on its own. Others, following Fenno (1973), cite bipartisanship as an important strategy in its own right. These accounts, however, tend to ascribe the absence or presence of bipartisanship to the temperament of the committee (or subcommittee) chair or to committee norms, without further identifying the factors that might establish these norms and make bipartisanship an attractive alternative.

A number of recent books have greatly enhanced our understanding of the role that parties play in organizing legislative procedures and outcomes. Sinclair (1983, 1989) provides evidence that party leadership structures many aspects of legislation in the House and Senate, respectively; Bach and Smith (1988) show how Democratic party leaders design complex rules to enact their party's agenda; Kiewiet and McCubbins (1991) examine the influence of the majority party on budgetary outcomes; Rhode (1991) reviews the procedural reforms of the 1970's and develops a theory of modern "conditional party government"; and most recently Cox and McCubbins (1993) provide a comprehensive theory of parties as voluntary organizations, or legislative cartels.

For the most part, however, these studies ignore the desirability or even the possibility of bipartisanship. Rather, the analysis tends to assume that party cohesion stems from the desire of majority party legislators to reap distributive benefits as a group that they cannot achieve individually. Cox and McCubbins (1993), for instance, emphasize majority party logrolls as the cornerstone of committee power. Sinclair (1983: 111-112) states that minority party legislators play an important role in shaping legislation only when the majority party is split on policy issues, when the presidency is controlled by the minority legislative party (divided government), or when procedural constraints, such as cloture in the Senate, force the majority party to compromise. Thus, according to these authors, the divergence of preferences between majority and minority party legislators forces minority party members to play an obstructive, rather thana constructive, role, and bipartisanship emerges only when the majority party cannot find enough votes to pass a bill unaided.

Other detailed studies of the legislative process mention bipartisanship as a common and important tactic when passing legislation. The seminal work in this tradition is Fenno's *Congressmen in Committees*, which describes the significance of the Ways and Means Committee's "coming out united behind a bill". Following in Fenno's tradition, a number of recent empirical studies (Evans, 1991; Tidmarch and Ginsberg, 1992; Unekis and Rieselbach, 1992; Gilmour, 1992; and Cohen, 1992) document the frequency of bipartisanship in congressional committees. These studies cite the partisan tendencies of important committee leaders or norms of cooperation as the key variables influencing the frequency of bipartisan consensus.

However, the link between key legislators' preferences and bipartisanship is not straightforward. Fenno (1991, 54), in his biography of Senate Budget Committee Chairman Pete Domenici, notes that although Domenici was a natural consensus-builder, there were instances in which "the strategic corollary" forced him to follow a partisan route. Gilmour (1992) recounts how an attempted bipartisan Social Security reform in 1983 broke down into partisan squabbling. And Strahan (1993) notes that the pattern of bipartisan support in the Ways and Means Committee continued after Dan Rostenkowski assumed the committee chairmanship, despite Rostenkowski's"natural partisan tendencies".

In this paper, I construct a theory of bipartisanship which emphasizes the nature of the issue under consideration. I show that under certain conditions legislators will rationally choose a bipartisan over a partisan strategy. In my approach, the important questions are: Which bills will be obstructed in committee? How much information is conveyed by committee reports? What is the nature of policy outcomes? How are these results affected by changes in the committee members' preferences? And to what degree can minority party committee members influence legislation? I address the sequestions through a formal model of the policy-making process.

2. The model

I adopt the familiar cheap talk model for committee-floor games with expertise. In my model there is one floor player and two committee players. The sequence of events is as follows. First, the committee members obtain information about the policy outcomes associated with different bills that the legislature might pass. Each then reports some information about the proposed legislation to the floor, who sets final policy under an open rule. The committee members should be thought of as two legislative parties; the main question is, when will the minority party be influential in shaping final outcomes? That is, when will policy be responsive to the minority party's suggestions?

Previous researchers have also examined the role of multiple signalers in a legislative setting. Gilligan and Krehbiel (1989) analyze a signaling game where two informed committee members make proposals to a floor player. They derive the possibility of confirmatory signaling which I use below, but their results are not robust to arbitrary committee preferences. Austen-Smith (1993) analyzes a model in which two partially informed players signal their private information sequentially to a decision maker. Gilligan and Krehbiel (1992) consider a three-person legislature, where any of the three can choose to gain expertise. They thus depart from the committee-floor setup used in previous papers (i.e., Gilligan and Krehbiel 1987) and do not explicitly model the problems of multiple signalers or equilibrium selection. This model also relates to the growing literature on strategic endorsements in political science, started by McKelvey and Ordeshook's (1985) analysis of elections where voters have access to a series of opinion polls on two candidates. Lupia (1992) examines a similar model in the context of ballot propositions. Epstein and O'Halloran (1993) consider congressional oversight of the bureaucracy when interest groups have input as to the efficacy of bureaucratic initiatives. And Cameron and Jung (1994) look at a setting where one party makes a proposal, and then another endorses it or not. In the latter model, the decision maker does not directly observe the proposal made; all she knows is the ideal points of the proposer and endorser. In equilibrium, the endorser never lies (i.e., he endorses only those proposals that he actually prefers to the status quo) and can influence the decision maker's actions through his endorsement, similar to the role of the minority party in the game I consider here.

2.1. *Game setup*

The game is played between a median floor voter, F, and two committee members, M and m, the majority and minority party members, respectively. Each actor has a most-preferred policy, called her ideal point. All players are also assumed to be risk averse, so all else being equal they prefer to minimize the uncertainty in the policy formation process. This assumption is crucial to the following analysis, as it implies that legislators may be willing to accept outcomes further away from their ideal points if they are compensated by reduced uncertainty in final outcomes.

In the policy-making environment, all issues are assume to have some uncertainty associated with them. Committees, however, have acquired issue-specific expertise, so they are relatively more informed as to which bills will produce which outcomes. Policies and final outcomes lie in the one-dimensional choice space $\mathbf{X} = \mathbf{R}^1$, and all players have quadratic preferences over this space. Without loss of generality we assume that the floor player has as her ideal point $x_f = 0$. Committee members have ideal points x_M and x_m for the majority and minority parties, respectively.[2] Assume that $x_m < 0 < x_M$ and that that $|x_m| > x_M$, so that the committee member from the majority party has preferences closer to the floor median than the minority party.[3] We can then write for any $x \in \mathbf{X}$:

$$
\begin{aligned}
u_f(x) &= -(x - x_f)^2 = -x^2 & (1) \\
u_i(x) &= -(x - x_i)^2, i = M, m. & (2)
\end{aligned}
$$

The choice of x, however, is not completely controlled by the legislature. The legislature produces a policy $p \in \mathbf{R}^1$, but final outcomes x are separated from policies through the addition of a random variable $\omega \in \Omega$, where it is common knowledge that Ω is distributed uniformly in the interval $[0, 1]$. This uncertainty may come from several sources: from general noisiness in policy implementation, from uncertainty over the executive's preferences when enacting policy, or from the sheer technical complexity of the policy area. Let $\overline{\omega}$ be the mean of ω and $\hat{\omega}$ its variance. Assume also that there is a status quo policy p_0 which is the policy adopted if no further actions are taken.[4] Then final outcomes are related to the policy selected (possibly p_0) by $x = p + \omega$. Given the utility structure above, we can write the induced preferences on the policy space by

$$
\begin{aligned}
u_f(p; \omega) &= -(p + \omega - x_f)^2 = -(p + \omega)^2 & (3) \\
u_i(p; \omega) &= -(p + \omega - x_i)^2, i = M, m; & (4)
\end{aligned}
$$

which for a given value ω^* of ω are maximized, respectively, at $p = -\omega^*$ and $p = -\omega^* + x_i$.

All of the preceding preferences and choice sets are common knowledge, as is the sequence of play which follows. First, the value of ω is revealed to the committee members, making it their private information. Expertise is thus exogenous in this model, as compared with Gilligan and Krehbiel (1987; 1992), where the decision to specialize is an endogenous choice by committee members. The majority party committee member then chooses the value of a gatekeeping variable $\psi \in \Psi \equiv \{0, 1\}$, where $\psi = 1$ means that the measure is killed in committee. In that case, the game ends immediately, the policy chosen is the status quo p_0 and the outcome is $x_0 = p_0 + \omega$.[5] If the gatekeeping option is not exercised, then each committee member sends a message $b_i \in \mathbf{B} \equiv [0, 1]$ to the floor player. This message may be in the form of a bill, a report, or merely a speech. The median floor member, after receiving the committee messages, then selects policy p. Finally, each player receives his payoff in terms of the utility function given in equations 3 and 4, with no side-payments possible. The game tree is illustrated in Figure 2.

We now consider the same game in normal form, which defines each player's strategies and beliefs. A strategy $\mathbf{s}$ for the majority party committee member M is a pair $\{\psi, b_M\}$, where $\psi : \Omega \rightarrow \Psi$ and $b : \Omega \rightarrow \mathbf{B}$. The choice of ψ determines whether or not M decides to keep the gates closed and enforce the status quo (in which case $\psi = 1$) or, if $\psi = 0$, which message to send to the floor, all as a function of his private information ω.[6] A strategy for the minority player, m, is less complicated; it consists only of a message choice b_m.

A strategy $\mathbf{s}_f$ for F is an action $p : \Psi \times \mathbf{B}^2 \rightarrow \mathbf{R}^1$, which specifies the policy enacted by the floor after having observed the committee's actions. Again, since F only makes a move if $\psi(\omega) = 0$, we can write without loss of generality $p = p(\mathbf{b})$, a function only of the messages sent. A belief for F is a probability density function $\mu : \Psi \times \mathbf{B}^2 \rightarrow \Delta(\Omega)$, where for any set Θ, $\Delta(\Theta)$ is the set of probability distributions over Θ. The floor player's beliefs about the value of ω before receiving information from the committee are given by her priors on Ω, which are uniform on the unit interval. Thus μ represents F's updated beliefs about the possible values of ω after having observed the set of committee gatekeeping decisions and messages. Of course, if the floor player updates her beliefs after observing a gatekeeping decision, she cannot act on her newly-acquired knowledge.[7] We write $\mu = \mu(\omega|\mathbf{b})$ as the posterior probability density on ω after having observed messages $\mathbf{b}$. The equilibrium concept employed is perfect Bayesian equilibrium, which forms a subset of Nash equilibria in which all actions taken are consistent with some set of beliefs about out-of-equilibrium behavior. In the present context, this

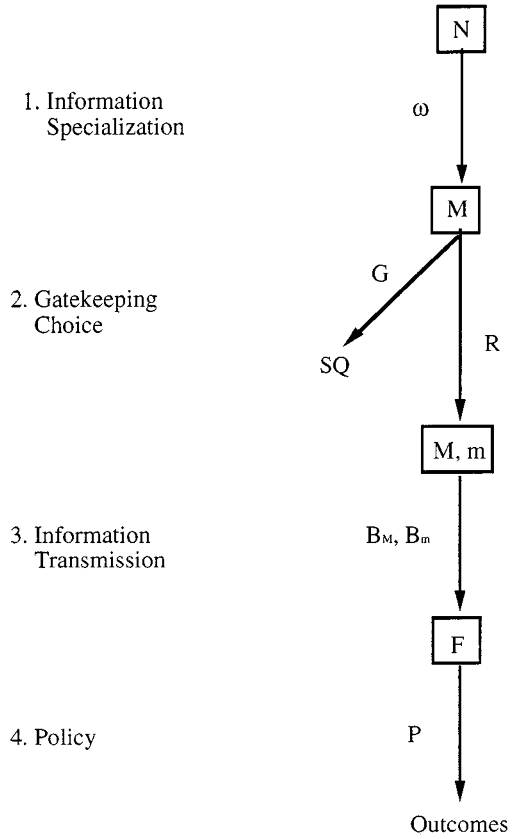

Figure 2. Game tree.

requirement means that F maximizes her expected utility given her interpretation of the messages sent by the committee members, that this calculation is consistent with beliefs updated from her priors on ω according to Bayes' rule, and that the committee members' actions maximize their utility given F's anticipated response.

Definition 1 An equilibrium is a set of strategies $\mathbf{s}_i$, $p^*(\cdot)$ and beliefs, $\mu^*(\cdot)$, such that

1. For all $\omega \in \Omega$ and $i \in \{M, m\}$, $\mathbf{s}_i \in \text{argmax}_{\mathbf{s}_i}\ u_i(p^*(\mathbf{s}_{-i}, \mathbf{s}_i), \omega)$;
2. For all $\mathbf{b} \in \mathbf{B}^2$, $p^*(\mathbf{b}) \in \text{argmax}_p\ \int_\omega u_f(p; \omega)\mu^*(\omega|\mathbf{b})\mathrm{d}\omega$;
3. For all $\mathbf{b} \in \mathbf{B}^2$ such that $\int_{\omega^*_{\mathbf{b}}} \mathrm{d}\omega \neq 0$, μ^* satisfies

$$\mu^*(\omega|\mathbf{b}) = \frac{1}{\int_{\omega^*_{\mathbf{b}}} \mathrm{d}\omega},$$

where $\omega^*_{\mathbf{b}} = \{\omega | \mathbf{b} \in \mathbf{b}^*(\omega)\}$.

Part 1 of Definition 1 states that each committee member plays a strategy that is in the set of best strategies given all other players' actions, which isa requirement of all Nash equilibria. Part 2 says that the floor median player maximizes her utility given the messages from the committee and her updated beliefs $\mu^*(\omega|\mathbf{b}^*)$ of the actual value of ω, assuming that all committee members are playing an equilibrium strategy $\mathbf{b}^*$. Part 3 gives an updating rule; it states that F must update her beliefs via Bayes' Rule from her priors. Given a message profile $\mathbf{b}$, $\omega^*_{\mathbf{b}}$ is the set of possible values of ω for which $\mathbf{b}$ is an equilibrium set of messages. That is, if ω could give rise to $\mathbf{b}$ as an equilibrium set of messages, then $\omega \in \omega^*_{\mathbf{b}}$. Then the condition on $\mathbf{b}$ that $\int_{\omega^*_{\mathbf{b}}} \mathrm{d}\omega > 0$ prevents the set $\omega^*_{\mathbf{b}}$ from being empty, so this part of the definition applies to only those message profiles that are sent in equilibrium.[8] Finally, the updated density function for beliefs μ^* is just 1 divided by the size of the ω's in $\omega^*_{\mathbf{b}}$, which is the updating procedure defined by Bayes' Rule and the original uniform priors over ω in the $[0, 1]$ interval. This, then, is the game to be analyzed. First, the majority party can obstruct legislation in committees. If legislation is reported out, both majority and minority party members send messages to the floor about the proposed bill. After receiving these messages, the floor player has a chance to update her priors and then make a policy decision.

3. Equilibria

This section provides two different equilibria to the game described above, corresponding naturally to partisan and bipartisan decision making. In the former, all policy statements by the committee are discounted to some extent, and policy making is characterized by uncertainty. In the latter, many bills get held up in committee and never make it to the floor. However, those bills that do make it to the floor receive bipartisan support and are enacted by the legislature with complete certainty as to their consequences.

3.1. *Partisan signals*

Were there only one committee member, this game would be identical to that analyzed in Epstein (1993). In the equilibrium presented there, some values of ω induce the committee player to use his gatekeeping powers. If he decides not to obstruct legislation, then his message to the floor is never precise; in game theory parlance, all signaling is noisy. The floor player then sets policy so as to obtain her ideal point in expectation, but there is some residual uncertainty in outcomes which reduces her utility due to risk aversion. This equilibrium can be replicated almost identically for the two-signaler case analyzed here. All that needs to be added is a minority party player, whose message is always ignored by the floor player. In the colorful terminology of cheap talk games, the minority party member is said to babble. Note that the expectation of babbling is a self-fulfilling prophesy; if the minority party committee member is not expected to convey any useful information then he has no incentive to do so. He may instead say whatever his constituents most want to hear, what his own party leaders tell him to say, or simply say nothing at all.[9] It makes no difference; in any case, the minority party committee member m will not be influential in shaping legislation. The partisan equilibrium is stated informally here; a more complete statement and proof are provided in the appendix.

Proposition 1 There is a *partisan equilibrium* in which:

1. In the committee, the majority party player (M) obstructs legislation in some cases;
2. All messages sent to the floor are imprecise, or noisy;
3. Expected outcomes for reported legislation are at the floor player's ideal point, while expected outcomes for obstructed bills are shifted towards the majority party committee member's ideal point;
4. More information is conveyed as M's ideal point becomes closer to the floor's; and
5. The minority party committee member babbles.

Figure 3 illustrates this equilibrium for sample values of x_M, x_m, and p_0. The range of possible values of ω is broken into five sub-regions: from a_0 to a_1, from a_1 to a_2, etc. If committee member M observes an ω in the range $[a_2, a_3]$, he will exercise his option to keep the gates closed. Otherwise, he truthfully reports in which region ω falls. This type of equilibrium is called semi-pooling, as M pools several different values of ω into a single report.

Note that the floor player is never *misled* as to the actual value of ω; in equilibrium the floor's interpretations of committee statements must exactly reflect their meanings. But the committee can only credibly convey a certain amount of information, and all messages are vague to some extent. For instance, if ω lies in the range $[a_3, a_4]$, then in equilibrium the committee player truthfully tells the floor " ω is somewhere between a_3 and a_4" (or words to that effect), but he cannot credibly convey any more precise information. In other words, the floor player will *rationally discount* the committee's pronouncements. She will "consider the source" of the information and only believe that the truth lies somewhere in the neighborhood of what is reported. This, of course, leads to uncertainty in policy making, which reduces the ex ante utilities of both the floor and the committee players. Note that the result

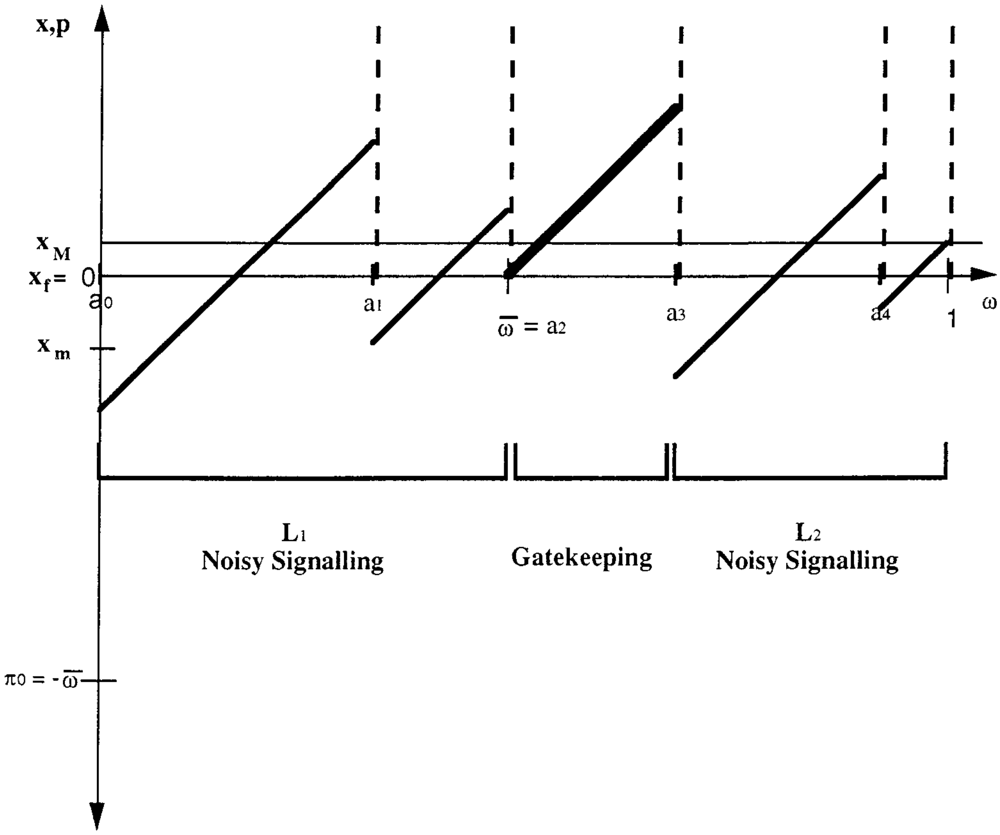

Figure 3. Partisan equilibrium for sample values of x_M and the status quo.

described above rests on some divergence of preferences, even within the majority party. Were legislators from the same party to have identical preferences, then all strategic problems would disappear and information could be perfectly conveyed to the floor.[10] It may be that in parliamentary systems, where the electoral fortunes of party members tend to rise and fall together, that such information transmission problems are minimal. Even in the American two-party system there have been periods, such as the first decade of this century, in which the preferences of the majority party were remarkably homogeneous. In this instance, committee-floor conflict was minimal and the only source of uncertainty lay in whether or not the majority party coalition would continue to comprise over half the legislature.[11] Thus in the partisan equilibrium, policy making is always plagued by uncertainty. Although we have not mentioned the minority party in the preceding discussion, we can begin to discern the motivation for including minority party members in decision making. Majority party committee members alone cannot obtain the credibility necessary to convey complete information to the floor. But if they were joined in supporting a bill by minority party members, who are known to have preferences on the opposite end of the political spectrum, then perhaps more information could be transmitted. That is, minority party endorsements may be valuable precisely because they come from players with conflicting interests. This is the basis of confirmatory signaling, which is considered next.

3.2. *Bipartisan signals*

We now examine a second equilibrium to the game described in Section 2. When two committee members with conflicting preferences agree on which policy should be adopted, their statements are mutually reinforcing. This is termed " confirmatory signaling, " and it lends a degree of credibility to the committee's recommendation that could not be achieved without the minority party's endorsement. Hence bipartisanship offers the possibility of a separating equilibrium, which was impossible before. Confirmatory signaling is made possible by three features of the game: perfectly informed committees, identically informed committees, and a continuous message space. Taking these in turn, since M and m are perfectly informed as to the value of ω, if they communicate their private information to the floor player, she will be able to infer the optimal value of p that obtains her ideal point with certainty. Since the committee members are identically informed, they know that they can report the same value of ω in their messages if they wish. And since the message space is continuous, they will randomly report the same value of ω with probability zero. Putting these pieces together, confirmatory signaling occurs when both committee players report identical values of ω, which F interprets to be its true value and subsequently implements the policy which yields her ideal point. Confirmatory signaling is an example of a separating equilibrium. The policies which result from separation are free from the uncertainty that results from pooling equilibria, to the benefit of all players. However, like the tango, it takes two to send a confirmatory signal, and so the region in which these signals can exist must exhibit the property that both committee members prefer the floor's ideal point (the result under confirmatory signaling) to the alternative. What is the alternative? In equilibrium, if bipartisan support cannot be obtained then the majority party member M will exercise his option to obstruct the bill in committee, thus enforcing the status quo. So bipartisanship can be sustained for bills that are unanimously preferred to the status quo; all others are held up in committee. Equivalently, *all legislation reported out by the committee will command bipartisan support and will be passed by the floor unaltered.* Of course, the appearance of such inter-party harmony can be deceiving; for every bill that reaches the floor

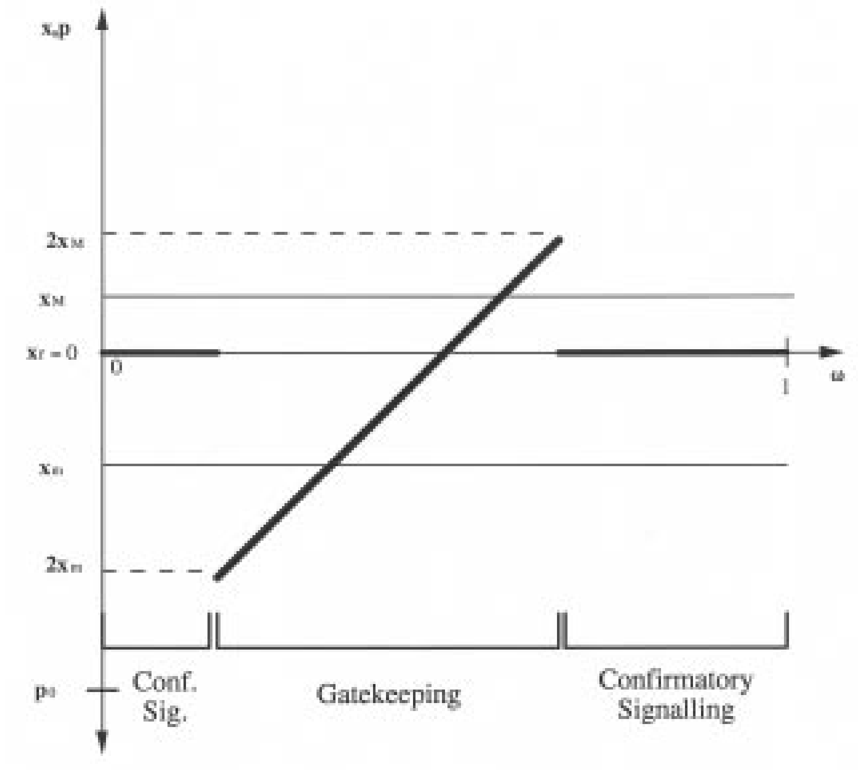

Figure 4. Bipartisan equilibrium for sample values of x_M, x_m and the status quo.

with united support there may be many more which die in committee. These results are summarized in:

Proposition 2 There is a *bipartisan equilibrium* in which:

1. All bills that cannot receive bipartisan support are obstructed in committee;
2. All messages sent to the floor are precise and credible;
3. Expected outcomes for reported legislation are at the floor player's ideal point, while expected outcomes for obstructed bills are shifted towards the minority party committee member's ideal point;
4. More bills are reported out of committee as the committee members' ideal points become closer to the floor's; and
5. The minority party player can influence outcomes through his ability to endorse the majority party's statements.

This proposition is illustrated for sample values of x_M and x_m in Figure 4. The flat regions on either side represent confirmatory signaling, while the diagonal line of outcomes in the middle denotes the gatekeeping region. Since confirmatory signaling will yield the floor player's ideal point, defined to be zero, gatekeeping occurs whenever one or the other committee member prefers the status quo outcome $\omega + p_0$ to 0. As the figure shows, this implies that M will obstruct when observing values of ω which produce outcomes in between $2x_m$ and $2x_M$. The closer the committee members are to the floor, the smaller the gatekeeping region becomes, until in the limit all three ideal points coincide and perfect information sharing results.

4. Equilibrium selection

The last section presented two qualitatively different equilibria to the basic two-signaler game. In the partisan equilibrium only the majority party was informative, the floor player rationally discounted all committee statements, and outcomes always contained some degree of uncertainty. In the bipartisan equilibrium the minority party could influence outcomes by endorsing the majority party's position, thereby eliminating all uncertainty in final outcomes. In this case, whenever bipartisan consensus was unavailable, legislation was held up in committee. Thus we were able to derive some of the essential elements of partisan and bipartisan politics from the principles of cheap talk games and show that minority parties can affect policy through their power to endorse. As discussed above, each equilibrium has its advantages and disadvantages; the question before us now is to determine which equilibrium we should expect to observe in a given set of circumstances. This is a problem of equilibrium selection, as both the partisan and bipartisan equilibrium are theoretically possible for any configuration of committee ideal points and any status quo. Equilibrium selection is not a subject for explicit agreement or bargaining among actors; rather, it embodies shared understandings as to the meaning of various statements and actions. In short, equilibrium selection contains much of what usually falls under the rubric of legislative culture.[12] Note that the choice of equilibrium will affect every action taken in the game. It influences the procedural choice of the majority party committee member as to whether or not to obstruct legislation; the choice of both committee members as to which message to send; the manner in which the floor player updates her beliefs after receiving the messages; and the final policy that is passed, along with policy outcomes. Of course, this is just another way of saying that partisan and bipartisan politics operate very differently. But it also emphasizes the point that political actions and rhetoric do not necessarily speak for themselves; they must be interpreted within the relevant political context.

4.1. *Selection criteria*

Equilibrium selection criteria are familiar in economics, especially in the context of costly signaling games. They usually involve a hierarchy of refinements, such as Nash perfection, the intuitive criterion (Cho and Kreps, 1987), and universal divinity (Banks and Sobel, 1987), in which equilibria are sequentially eliminated from consideration until (hopefully) only one remains. The refinements cited above, however, are all built on reasoning about which types of actors would be "most likely" to take certain out-of-equilibrium actions given their various costs of doing so.[13] This reasoning is not applicable to cheap talk games, as no type of informed played incurs greater cost in sending a given message than any other type. Currently, the most commonly used equilibrium refinement for cheap talk games is the Pareto criterion, which states that if from an ex ante perspective all players unanimously prefer one equilibrium to another, then we should expect that equilibrium to be played. This simple heuristic allows Crawford and Sobel (1982) to choose the most informative equilibrium from among the various ones available in their original model. Similarly, Proposition 1 above uses the Pareto criterion to predict that the maximum number of signaling ranges possible will be observed, and Austen-Smith (1993) uses the Pareto criterion to select a unique equilibrium in a two-signaler setting.[14] However, the Pareto criterion will generally be ineffective in games with many players, since at least one actor is likely to disapprove of any particular equilibrium proposed by others. Although a profusion of equilibrium refinements is undoubtedly the quickest way to reduce interest in a field, I nonetheless propose a rather mild refinement of the Pareto criterion for cheap talk games, called the *Informative Pareto Criterion*. In short, the essence of this concept is that communication depends only on an understanding among those actors who give and receive information in equilibrium. The preferences of those actors who are uninformative, that is, who babble, need not enter the others' calculations. In political terms, the refinement means that only the preferences of the major "players" who are influential in shaping legislation matter in selecting an equilibrium. This refinement reduces to the Pareto criterion when a Pareto-dominant equilibrium exists, but it is stronger in the sense that it may identify a unique equilibrium when no Pareto-dominant solution exists. Formally, let the set of n signaling players and one receiver (denoted player 0) be $\mathbf{A} \equiv \{A_i\}$, $i = 0, \ldots, N$. For any set $\mathbf{b}$ of messages sent, let $p(\mathbf{b})$ be the equilibrium policy outcome.[15] Now let $\mathbf{I}_E \subset \mathbf{A}$ be the subset of players whose messages are informative in some equilibrium E (this must include A_0, the receiver, too). That is, a signaler i is *not* in $\mathbf{I}_E$ if $p(\mathbf{b}_{-i}, b_i)$ is the same no matter what message b_i player i sends, for any given set of messages $\mathbf{b}_{-i}$ the other signalers send. For all signalers in $\mathbf{I}_E$, then, there exists some profile $\mathbf{b}_{-i}$ for which at least two distinct messages from sender i will induce different responses from the receiver.

Definition 2 Given a set of equilibria $\{E_1, E_2, \ldots, E_m\}$, an equilibrium E^* is in the *Informative Pareto Set* if for all $i \in \mathbf{I}_{E^*}$, $u_i(E^*) \geq u_i(E_j),\ j = 1 \ldots m$.

4.2. *Utility comparisons*

How does this equilibrium selection criterion relate to the game at hand? Since there are two different equilibria and three players, there are eight possibilities for players' preferences over the equilibria. These possibilities are reproduced in Table 1. In the table, an entry of "P" under the floor player indicates that she prefers the partisan equilibrium played with the committee member whose ideal point is closest to her own. An entry of "P" under either committee player indicates that he prefers the partisan equilibrium in which he is informative.[16] Finally, "B" under any player represents a preference for the bipartisan equilibrium. The last two columns show the predictions that the two equilibrium selection criteria provide, if any. As seen in the table, the Pareto criterion is sufficient to make predictions in only two of the eight cases, the ones in which all parties prefer the same equilibrium. The Informative Pareto criterion makes predictions in four cases out of the eight. The two extra cases added are when the floor player and the closest committee member prefer the partisan equilibrium, while the other committee member prefers the bipartisan equilibrium. In this case, the extreme committee member desires to be included in the policy making process through confirmatory signaling, but the floor actor and the other committee member are better off ignoring his input. The Informative Pareto criterion predicts that in this instance, the committee members with preferences furthest from the floor's will babble in equilibrium, so his preferred equilibrium is of no consequence. This is just another way of saying that bipartisanship cannot be *imposed* by the minority party; it must be *solicited* by the majority party. We now determine how preferences over the various equilibria change in our two-signaler game with varying committee ideal points. As the equations describing the equilibria to the partisan and bipartisan games cannot be solved in closed form, the necessary calculations were performed numerically and the results compiled, using the computer program Mathematica.[17] The key graph is shown in Figure 5. The axess how committee ideal points x_M and x_m, with the majority party on the horizontal axis and the minority party on the vertical. The origin is the floor's ideal point, so as committee preferences move up and to the right, the committee members become preference outliers.

The light area beginning in the bottom left corner represents configurations in which all three actors prefer the bipartisan equilibrium. This area corres-

Table 1. Possible equilibrium preferences for floor, majority party, and minority party actors

Preferences			Criteria	
Floor	Majority	Minority	Pareto	Informative Pareto
P	P	P	P	P
P	P	B	None	P
P	B	P	None	P
B	P	P	None	None
P	B	B	None	None
B	P	B	None	None
B	B	P	None	None
B	B	B	B	B

Note: P = Partisan equilibrium; B = Bipartisan equilibrium

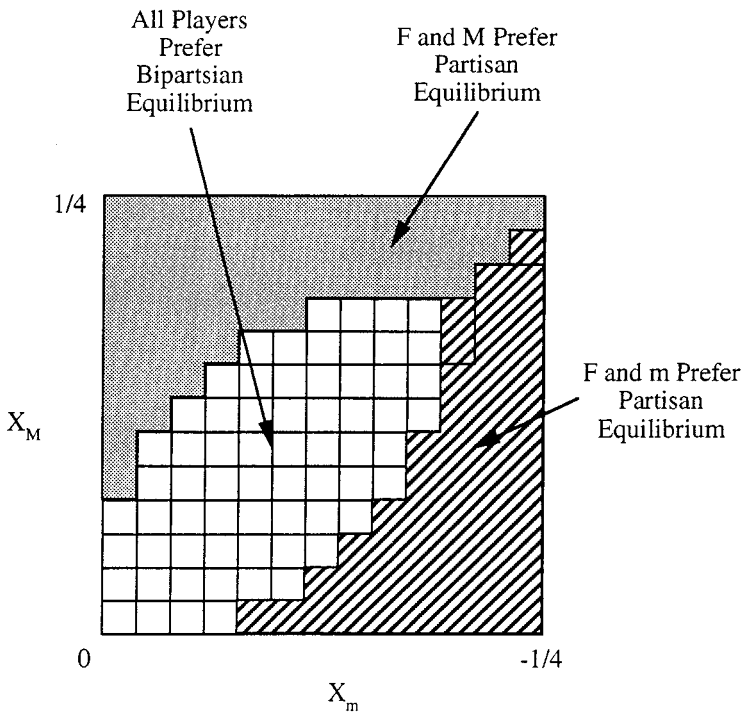

Figure 5. Preferences of various actors over equilibria.

ponds to the bottom line in Table 1, where both the Pareto and Informative Pareto criteria predict bipartisanship. In the upper left corner (and along the top of the graph), the floor and majority party prefer the partisan equilibrium, while the minority party actor prefers bipartisanship. This corresponds to the second line in Table 1, where the Informative Pareto criterion predicts partisanship, while the Pareto criterion makes no prediction.[18] Thus, if we accept the Informative Pareto criterion we can make predictions about outcomes for all values of x_M and x_m.[19] There are two lessons to be learned from the figure. First, *partisanship is most attractive when committee preferences are polarized.* If the minority party is relatively extreme in its preferences, or if both parties are unrepresentative of the floor, then partisan construction of legislation should be expected. To put it another way, one precondition for bipartisanship is that the minority party on the committee has preferences not too different from the majority party. Otherwise, the chances of obtaining bipartisan support are too small to offset the large number of bills that would be held up in committee. The second point hinges on the interpretation of committee ideal points. What does it mean for a committee to be an outlier in this model? Differences in ideal points are measured relative to the magnitude of ω, so preferences are relevant only when compared to the degree of uncertainty in the political environment.[20] Thus the correct interpretation of the bipartisan region in the figure is that *when uncertainty in outcomes is large, bipartisanship becomes more attractive.* When politicians want to avoid making policy mistakes, or when they are most risk averse, bipartisan endorsements can reduce the variance in outcomes. In fact, such agreement is a precondition for the bill to be reported out of committee. Thus the emphasis on bipartisanship in congressional "control" committees such as Ways and Means and Appropriations can be rationalized from an informational perspective. And the Republicans' disdain for bipartisanship in the 104th Congress might be ascribed to their risk accepting outlook, along with a healthy dose of political naivete. This section applied the Informative Pareto criterion to derive hypotheses regarding partisanship and bipartisanship in Congress. Although I do not want to defend my own equilibrium refinement too strongly here, I do wish to make a pitch for the general importance of equilibrium selection. As both economists and political scientists begin to consider the importance of social norms, [21] notions of equilibrium selection provide an appealing way to integrate individual motivations (the rationality of equilibrium actions) with social understandings (which of many possible equilibria will occur). The essence of equilibrium selection is that as external conditions change, certain regularized ways of doing things, also called norms, become more attractive than others. For instance, the transformation of the Senate from "get along-go along" to a legislative free-for-all, carefully studied in Sinclair (1989), might be best described in terms of efficiently managing the Senate's business under differing electoral environments. Since the equilibrium selection problem is generic to games with multiple equilibria, and cheap talk games in particular, these considerations may provide important insights into the evolution of legislative behavior.

5. Conclusion

This paper analyzed both partisan and bipartisan equilibria to the basic committee-floor game. Interestingly, these equilibria corresponded closely to traditional notions of partisanship and bipartisanship: partisan statements are taken to be "noisy" and are rationally discounted, while bipartisan pronouncements, though more difficult to obtain, are considered to be highly informative. An equilibrium refinement for cheap talk games, the Informative Pareto Criterion, was also introduced. This criterion allowed predictions to be made for all configurations of ideal points. Bipartisanship was determined to be most attractive when committee preferences were less skewed, when legislators are more risk averse, and when the degree of uncertainty surrounding policy outcomes is higher. A number of interesting points follow from the preceding analysis. First, the central notion of bipartisanship is seen to be more than simply a form of committee behavior; it also includes floor members' expectations. When the bipartisan equilibrium is selected, legislators expect that any bill coming out of committee will receive unified support. Were a bill to be unexpectedly released with only majority party support, floor members would treat it with great skepticism. Given these expectations, any bill that cannot muster such support will be help up in committee. This is a form of minority party gatekeeping through the withholding of a confirmatory signal that forms a counterpart to the usual notion of majority party gatekeeping. Second, this essay raises a possible paradox of partisanship. Usually, the term "partisan" is used interchangeably to describe a legislator who has extreme preferences or one who prefers to construct legislation without the support of members from the opposite party. The discussion above suggests that in an incomplete information setting it is exactly those majority members with extreme preferences who *most* need support from the minority party in the form of confirmatory signals to pass their preferred legislation. Finally, this paper sheds some light on the role of political parties in a democratic society. Most attention has been paid to conflict between parties and the struggle for power. Certainly, such concerns form the basis of much legislative organization and procedure. But policies enacted in a strictly partisan manner may serve only narrow interests, and thereby leave the public and their representatives with some uncertainty as to their overall effects. Policies enacted with broad political support, however, carry the assurance that a larger segment of the electorate will benefit. Minority parties thus remain influential not because they can enact their own partisan agenda or obstruct the majority party, but because they can lend their approval to policies that transcend the usual political and social divisions.

6. Appendix

6.1. *Partisan equilibrium*

Proposition 1 A partisan equilibrium to the game is characterized by:

$$\psi^*(\omega) = \begin{cases} 1 & \text{if } \omega \in [L_1, 1 - L_2], \\ 0 & \text{otherwise;} \end{cases}$$

$$b_M^*(\omega) \in [a_i, a_{i+1}], \text{ if } \omega \in [a_i, a_{i+1}];$$

$$b_m^*(\omega) \in [0, 1];$$

given a message $b_M \in [a_i, a_{i+1}]$, $i \neq N_1$ (i.e., outside the gatekeeping region),

$$p^*(b_M) = -(a_i + a_{i+1})/2 \text{if} b_M \in [a_i, a_{i+1}];$$

$$\mu^*(\omega|b_M) = \begin{cases} 1/(a_{i+1} - a_i) & \text{for } \omega \in [a_i, a_{i+1}], \\ 0 & \text{otherwise;} \end{cases}$$

given a message $b_M \in [a_{N_1}, a_{N_1+1}]$ (the gatekeeping region),

$$p^*(b_M) \ = -(a_{N_1-1} + a_{N_1})/2;$$

$$\mu^*(\omega|b_M) \ = \begin{cases} 1/(a_{N_1-1} - a_{N_1}) & \text{for } \omega \in [a_{N_1-1}, a_{N_1}], \\ 0 & \text{otherwise.} \end{cases}$$

Proof: The preferences of the Floor and Majority Part Committee players in this game are special cases of those in the original Crawford/Sobel paper. Crawford and Sobel prove that, as long as there is no ω for which $u_f(p, \omega)$ and $u_c(p, \omega)$ are maximized by the same p, there are a finite number of noisy signaling ranges in equilibrium. Further, there is a unique equilibrium in which the maximum number of signaling ranges occur. As long as the committee player does not play a weakly dominated strategy when he has gatekeeping power, he will set $\psi = 1$ upon observing $\omega = \omega_C^* \equiv x_M - p_0$. This implies two signaling regions, each of which must conform to the Crawford-Sobel model for noisy signaling. In deriving the number of signaling ranges above and below the gatekeeping region, it is convenient to note that each noisy signaling region must be $4x_M$ larger than the region immediately to its right (see Gibbons, 1992, for a full discussion). Thus if there are n signaling regions of total length L, and the smallest one has size a, then

$$\begin{aligned} L &= a + (a + 4x_M) + (a + 8x_M) + \ldots + (a + (n-1)x_M) \\ &= n\,a + 2n(n-1)x_M. \end{aligned} \tag{5}$$

For signaling above the gatekeeping region, at the boundary with the gatekeeping region, the committee is just indifferent between signaling and gatekeeping. This means:

$$\begin{aligned} \frac{a + (n-1)4x_M}{2} + x_M &= (d - 1/2) + (1 - na - 2n(n-1)x_M) - x_M; \\ (n + 1/2)a + 2n^2 x_M &= d + 1/2. \end{aligned} \tag{6}$$

Coupled with the requirement that $a > 0$,
this implies that N_2 is the greatest integer such that

$$x_M \geq \frac{1 + 2d}{4N_2^2}. \tag{7}$$

Finally, substituting from equation 6 into equation 5, we get

$$L_2 = \frac{N_2 - 2N_2(N_2 + 1)x_M + 2N_2 d}{2N_2 + 1}. \tag{8}$$

For signaling below the gatekeeping region, the indifference condition at the gatekeeping boundary translates to:

$$\begin{aligned} a/2 - x_M &= x_M - (d - 1/2 + na + 2n(n-1)x_M); \\ (n + 1/2)a + d - 1/2 &= 2x_M + 2nx_M - 2n^2 x_M. \end{aligned} \tag{9}$$

The smallest signaling region, the one on the boundary, must be at least $2x_M$ in length, so that at the boundary the outcome is greater than x_M.Then equation 9 gives N_1 as the greatest integer such that

$$x_M \leq \frac{1 - 2d}{4N_1^2 - 2}. \tag{10}$$

Substituting equation 9 into equation 5 gives

$$L_1 = \frac{N_1 + 2N_1(N_1 + 1)x_M - 2N_1 d}{2N_1 + 1}. \tag{11}$$

6.2. *Bipartisan equilibrium*

Proposition 2 With committee gatekeeping, there is an equilibrium to the game characterized by:

$$\psi^*(\omega) = \begin{cases} 1 & \text{if } \omega \in [-p_0 - 2|x_m|,\ -p_0 + 2x_M], \\ 0 & \text{otherwise;} \end{cases}$$

$$b_i^*(\omega) = \begin{cases} \omega & \text{if } \omega < [\overline{\omega} - 2|x_m| \text{or } \omega > \overline{\omega} + 2x_M], \\ [0,1] & \text{otherwise, i=m, M;} \end{cases}$$

$$p^*(b_m, b_M) = \begin{cases} -b_M & \text{if } b_M = b_m, \\ p_0 & \text{otherwise;} \end{cases}$$

given messages b_m, b_M,

$$\mu^*(\omega|b_m, b_M) = \begin{cases} \omega = b_m & \text{if } b_m = b_M, \\ \omega = -p_0 & \text{otherwise;} \end{cases}$$

Proof: Note first that the minority party committee member prefers the status quo to the floor's ideal point whenever

$$|p_0 + \omega - x_m| \leq |0 - x_m|$$
$$-p_0 - 2|x_m| \leq \omega \leq 0;$$

so he will be willing to send a confirmatory signal when ω falls outside this range. Similarly, the majority party committee member prefers the status quo to the floor's ideal point whenever

$$|p_0 + \omega - x_M| \leq |0 - x_M|$$
$$0 \leq \omega \leq -p_0 + 2x_M;$$

so he will be willing to send a confirmatory signal when ω falls outside this range. Collectively, both committee players will be willing to send a confirmatory signal whenever $\omega \leq -p_0 - 2|x_m|$ or $\omega \geq -p_0 + 2x_M$. Conversely, confirmatory signaling will not be supported when $\omega \in [-p_0 - 2|x_m|, \ -p_0 + 2x_M]$. For convenience, let this range be denoted G. We now solve the game from the last stage forward. First, if $b_m = b_M$, the floor player will be perfectly informed about ω and set policy accordingly. Next, note that sequential equilibria place no restrictions on out-of-equilibrium beliefs, so the floor's belief that $\omega = -p_0$ given conflicting messages is rational. Thus the floor player will set $p = p_0$after observing non-confirmatory signals $b_m \neq b_M$. In the signaling stage, both committee players prefer the floor's ideal point to the status quo whenever $\omega \notin G$. Thus they will rationally set $b_i(\omega) = \omega$ in these cases, as the alternative is a non-confirmatory signal that will lead the floor player to implement the status quo. On the other hand, whenever $\omega \in G$ it is never the case that both players prefer confirmatory signaling. Were the majority party to keep the gates open in this case, each player could upset a possible confirmatory signal by simply selecting a random signal, which will match the other signal with probability 0. The policy implemented is then the status quo, which at least one player prefers to the floor's ideal point. Finally, for any $\omega \in G$, player M is indifferent between opening and closing the gates, as the status quo will result in either case. Thus it is rational for him to keep the gates closed. For all other values of ω, he strictly prefers to open the gates, as this results in the floor's ideal point. Hence all strategies played are rational. QED