



Who Controls? Information and the Structure of Legislative Decision Making

Author(s): Arthur Lupia and Mathew D. McCubbins

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ARTHUR LUPIA  
MATHEW D. MCCUBBINS  
*University of California, San Diego*

## *Who Controls? Information and the Structure of Legislative Decision Making*

Legislatures around the world first delegate some of their policy making authority to experts and then accept their delegates' proposals without question or amendment. Many scholars see this combination of events as evidence that complexity leads elected representatives to lose control of the actions of government. While we agree that complexity and delegation can render legislatures powerless, we argue that legislators around the world can, and do, overcome these potentially damaging forces. Specifically, we use a model of legislative behavior to show how both institutional characteristics and conditions that allow people to learn from others provide legislators with the faculty to protect their interests. We conclude that certain structural characteristics, such as those found in the United States Congress, allow ordinary legislators to exert considerable control over the actions of government and that other characteristics, such as those found in Britain and Japan, render most legislators relatively powerless.

In most democratic states, legislatures hold a preponderance of the formal authority to govern. Despite this authority, many scholars contend that most legislators actually exert very little power over the functions of governance. Backbenchers, for example, are thought to be political sheep, often accepting government directives without challenge or question—bleating nary a complaint as ministers and bureaucrats fleece them of their formal authority.<sup>1</sup> Other scholars are as doubtful of the power of members of the U.S. Congress, who are often portrayed as being overwhelmed by the many advantages that congressional committees and bureaucrats are thought to possess.<sup>2</sup>

In many democratic settings, it is argued that legislatures serve as little more than rubber stamps for the edicts of government ministers, bureaucrats, or policy-drafting committees. Must this be so? Is representative democracy doomed to be hijacked by small groups of policy makers in the government or on legislative committees?

Scholars who reply affirmatively to these questions typically base their responses on the premise that government ministers, bureaucrats, and committee members have policy expertise that other members of the legislature cannot acquire.<sup>3</sup> At first glance, their argument seems well grounded, for if backbenchers do not know enough to understand the consequences of expert actions, then they will be unable to prevent those with expertise from fleecing them. Indeed, when combined with the agenda control that ministers, committee members, and bureaucrats often possess, expertise can transform legislative votes into rubber stamps. However, scholars who conclude that most legislators are powerless on most issues must reject the possibility that legislators can learn the consequences of experts' actions and use what they learn to influence these actions.

If these scholars are correct about the impossibility of legislative learning, then their conclusion surely follows. But the assumption that legislators are incapable of learning is at best extreme and at worst just plain wrong. While legislators may not be expert on very many policy issues, they have access to numerous sources of expert advice. One must assume that legislators are capable of using these fire alarms to make reasoned judgments about the actions of experts.<sup>4</sup>

Following the path-breaking work of Gilligan and Krehbiel, we explore the conditions under which legislators can learn about the actions of experts.<sup>5</sup> We show that apparently docile legislators can, and often do, exert substantial power over the functions of governance. We demonstrate this by using a model we have developed to identify institutional and cognitive determinants of legislator influence.

We proceed as follows. In the next section we describe the problems associated with delegation to experts. We then identify the conditions under which delegation is, and is not, equivalent to abdication. We show that, to control delegated authority, legislators must be able to learn about the actions of the experts to whom authority was delegated. We conclude by identifying conditions that allow legislators to learn. In the subsequent section, we argue that legislative rules, procedure, and practice in the U.S., Japan, and Britain determine the extent to which conditions for learning exist and the extent to which legislators in each country can control the actions of those to whom they delegate. Our comparison of institutional structure leads us to conclude that U.S. legislators have the greatest capacity to learn about and control the actions of their agenda-setting agents. The Appendix contains the development of our model and a derivation of our results.

### Delegation, Information, and Control

The central problem of modern democracy is that, to deal with complex issues, representative assemblies rely on the opinions and actions of experts (Weber in Gerth and Mills 1946). For example, legislators who want to develop effective policies but who lack the expertise needed to draft such policies often delegate the jobs of fact finding and policy development to bureaucrats, presidents, government ministers, party leaders, and committees within their own assembly. While legislators can use delegation as an effective substitute for the acquisition of expertise, delegation can also be problematic. Experts can use their expertise to take actions whose consequences are both unknown to legislators and detrimental to legislative interests (i.e., experts can use their expertise to wrest control of the policy-making process from legislators). Thus, legislators must realize the potential benefits of delegation without abdicating their control over policy.

#### *The Agency Problem*

The legislator's problem can be characterized as one of a broad class of phenomena known as agency problems. Agency problems involve at least two players: a principal, who possesses the authority to take certain actions, and an agent, to whom the principal has delegated some authority.<sup>6</sup> In the legislative policy-making setting, the legislature as a whole (and the majority party that controls its operation) acts as a principal that delegates to an expert agent (such as the government or a congressional committee) the task of proposing alternatives to an existing policy. The principal-agent interaction in which we are interested begins after the agent makes a proposal and ends when the principal—the full legislature—either accepts the proposal or rejects it in favor of the existing policy.<sup>7</sup> For expositional simplicity, we describe the case where both the principal and the agent are completely informed about the consequences of maintaining the existing policy but only the agent is completely informed about the consequences (for both players) of the principal's decision to accept the proposal.<sup>8</sup>

From the principal's perspective, this game has four possible outcomes. Which outcome occurs depends on the status of the following two conditions:<sup>9</sup>

*First condition.* The principal knows enough about the difference between the consequences of accepting the agent's proposal and the consequences of maintaining the existing policy to determine

whether accepting or rejecting the proposal is consistent with her best interests.

*Second condition.* The policy that has the most favorable consequences for the principal is also the best policy for the agent to propose.

When both conditions are true, the outcome of the game is the principal's ideal policy. It follows from the second condition that the agent proposes the policy which has the most favorable consequences for the principal and from the first condition that the principal knows enough to accept this proposal. Of the four possible outcomes, only this one allows the principal to enjoy the maximum advantage of relying on an agent (i.e., the principal's interaction with the agent is a perfect substitute for the principal learning everything that the agent knows and then formulating the policy herself).

When one of the two conditions is true, the outcome of the game, although it is not the principal's ideal policy, can be no worse for the principal than the existing policy. For instance, when only the first condition is true, the principal knows enough about the consequences of the agent's proposal to reject any proposal that is worse for her than the existing policy. Alternatively, when only the second condition is true, the agent proposes the principal's ideal policy, and the worst thing that can happen to the principal is that, because of her ignorance, she rejects it.

When neither of the conditions is true, delegation to an expert agent can have consequences that make the principal regret having delegated. This follows for two reasons. First, if there is a conflict of interest between the principal and agent, then the agent may make a proposal which, if accepted, would make the principal worse off. Second, the principal's ignorance may lead her to accept a proposal that she would do better to reject. The result of delegation in this case may be that the outcome can be worse for the principal than the existing policy is.

It follows that, in order to avoid the pitfalls of delegation, the principal must either pick a good agent (i.e., one who satisfies condition 2), or learn enough to protect her interests (i.e., enough to satisfy condition 1). While the principal could attempt to create the second condition through screening (i.e., attempting to choose agents whom she knows to have the same policy preferences as she does), effective screening is often difficult to conduct.<sup>10</sup> Therefore, it will often be the case that the principal can avoid the pitfalls of delegation only by becoming informed about the agent's actions.

The principal can learn about the consequences of accepting the agent's proposal in three ways: (1) she can acquire the expertise

that her agent possesses, (2) she can rely on the agent (an informed second party) to provide information about the proposal, or (3) she can rely on an informed third party to provide information about the agent's proposal. Each of these methods is problematic, however. First, the acquisition of expertise is costly. For instance, it might take years for a legislative principal to understand all the nuances of tax policy or the military's grand strategy, if such an understanding is possible at all. Because expertise is difficult to acquire, legislators are likely to remain novices on many of the issues over which they must make decisions.

Second, relying on the information of informed second and third parties is itself an agency problem. For instance, while the principal is spared the cost of acquiring expertise, her dependency also makes her susceptible to deception. An informed second or third party is likely to attempt deception when his interests conflict with those of the principal and when the informant believes that the information he provides will be influential—that is, that it will cause the principal to do something that she otherwise would not do.

Considerations such as these lead many critics of representative government to draw their bleak conclusions. We can look at legislatures and observe that, on numerous occasions, agents possess expertise that principals do not, that agents and principals have different preferences over outcomes, that effective screening is difficult to conduct, that acquiring expertise is costly, and that learning from others is problematic. Must we conclude, however, that the principals will be unable to promote and defend their interests? In the remainder of this section, we show that the answer to this question is an emphatic no. Even when all of the conditions stated in the question are true, it is still possible and, indeed, likely that the principal can learn enough to distinguish between beneficial and detrimental proposals.

### *The Conditions for Learning*

Legislators, like most people, learn by watching what others do and listening to what they say. What makes learning complicated, however, is the fact that someone who provides information always has the opportunity to deceive and may have an incentive to do so. What makes learning possible, when an information recipient has no objective way of identifying truthful statements, is her knowledge of the information provider's incentives.

To understand what legislators can learn from others, we extend the usual agency model by adding a third party who can inform the principal about the consequences of accepting the agent's proposal.

We show that a legislator's ability to learn about an information provider's incentives (where an information provider is an informed second or third party) depends on the existence and extent of four conditions for learning. Each condition is an observable characteristic of either the information provider or the environment in which the information provider and principal interact. If any of these conditions is present or if the principal can use institutional design to create them, then the principal may be able to use her interaction with an information provider to improve the consequences of delegating authority to an expert agent. By contrast, if all these conditions are absent, then the existence of informed second or third parties will not be sufficient to prevent the agent from taking actions that make the principal worse off. We conclude this section with a description of each condition and a discussion of their implications for the consequences of delegation.

The first condition for learning is the presence of observable and costly actions by an informed person.<sup>11</sup> The logic underlying this condition closely follows the adage that actions speak louder than words. Someone who takes a costly action (i.e., exerts effort) reveals something to others about how much a particular outcome is worth to him or her. Consider the following example. In the presence of a proposal cost of \$100, the principal who observes an agent's proposal can correctly infer that the difference in value to the agent between this proposal and the existing policy must be at least \$100 if the payment of the proposal cost is to be worthwhile. By observing the agent's costly action, the principal can better gauge the minimum value to the agent of the change the agent proposes. The principal can use this information to approximate, with relative accuracy, the magnitude of the policy change that the agent is proposing. Since the observation of costly effort allows the principal to better distinguish between beneficial and detrimental proposals, a circumstance which is most likely when she feels very differently about small and large changes to the existing policy, the presence of observable and costly effort empowers the principal relative to the agent.

The second condition for learning is the existence of a cost associated with making particular statements. One example of this type of cost is a penalty for lying, under which it costs the information provider more to lie than to tell the truth.<sup>12</sup> The penalty for lying may be the potential loss in a valued reputation for honesty, or other penalties, such as censure or expulsion, may be imposed by legislative leadership.

It will be worthwhile for an information provider to lie only if the expected benefit of lying outweighs the expected cost. The infor-

mation provider benefits from lying when lying increases the likelihood that the principal will take the action preferred by the information provider. Thus, a penalty for lying works only if it affects the information provider's benefit-cost calculation.

For example, when the penalty for lying is \$10, the principal can make the following inference: either the statement is true, or the statement is false and the value to the information provider of lying is greater than \$10. To see this effect, let's say that the principal is uncertain about exactly what the agent's proposal entails. The principal believes that it could be either one of two alternatives, labeled simply as X and Y. Let us assume that the information provider knows which alternative the agent has proposed and knows that a \$10 penalty will be assessed if he or she lies. Let us further assume that the following is common knowledge: if the agent proposes X and the principal accepts the proposal, then the information provider receives a payoff of \$19; if the agent proposes Y and the principal accepts the proposal, then the information provider receives a payoff of \$24; and if the principal rejects the proposal, then the information provider receives a payoff of \$11.

In this case, if the agent proposes X and if X is worse for the principal than the existing policy, then the penalty for lying is sufficient to dissuade the information provider from telling the principal that the proposal is better for the principal than the existing policy. In contrast, if the agent proposes Y and if Y is worse for the principal than the existing policy, then the penalty for lying will not be sufficient to dissuade the information provider from making such a statement. Thus, upon observing the message "the proposal is better for you than the existing policy" in the presence of this penalty for lying, the principal can infer that the agent's proposal is, in fact, Y.

In sum, a penalty for lying informs the principal that particular (untruthful) statements will not be made under certain conditions. Thus, when a particular statement is made, the principal can correctly infer that certain circumstances are not possible. This is the essence of learning. In general, the ability to make this type of inference allows the principal to more accurately distinguish beneficial from detrimental agency proposals. The principal can then increase the likelihood that she benefits from her interaction with the agent. In addition, *ceteris paribus*, the higher the penalty for lying, the less likely it is that the principal will be misled and, as a result, the more likely it is that she will learn enough to defend her interests.

The third condition for learning is a similarity of preferences over outcomes. If outcomes that are good for one person are also good

for another and if bad outcomes for one are also bad for another, then neither person will have an incentive to lead the other to take an action that produces a bad outcome.<sup>13</sup> The dynamic effect of preference similarity can be stated as follows: the more likely it is that the information provider and the principal prefer the same outcome, the greater the likelihood that the information provider will truthfully reveal what he knows and, therefore, the greater the weight that the principal should assign to the information provider's claim being true. For example, when the principal is certain that she and the information provider share the same preferences over outcomes, the information provider's statement can be treated as though it were true. In contrast, when the principal is certain that she and the information provider have different preferences over outcomes, the information provider's statement can be treated as though it were uninformative (regardless of whether it is actually true or false).

The fourth and final condition for learning is the possibility of verification.<sup>14</sup> If an information provider believes that the truth of his statement is likely to be verified, dissembling is less likely to get the information provider the outcome he desires. As a result, the more likely verification becomes, the more likely the information provider is to provide truthful information. This dynamic is especially pronounced if the payment of the penalty for lying depends on the likelihood of verification.

Having identified the conditions for learning, we can now explain precisely how legislators can realize the potential benefits of delegation without abdicating their control over policy.<sup>15</sup> In the presence of an agent who can use his expertise and delegated authority to do more harm for the principal than good, the principal can defend her interests by learning about the consequences of accepting the agent's proposal. To do this, the principal need not become an expert herself. If either the expected penalty for lying, the costs of observable actions, the likelihood that principal and information provider preferences are similar, or the probability of verification are relatively large, then the principal can use information provided by an informed second or third party to learn about the consequences of an expert agent's proposal. If none of these conditions exist but the principal can design institutions that create them, then she will also be able to learn from others. In both cases, the principal can use what she has learned to increase the likelihood that the consequences of delegating to an agent are positive for her. In sum, our analysis implies that the principal can be made worse off by delegating to an expert agent only if all of the following conditions hold: the agent possesses expertise that the principal

not; the agent and principal have different preferences over outcomes; effective screening cannot be conducted; the cost of acquiring expertise makes it prohibitively expensive for the principal to become an expert; and the conditions for learning either do not exist or cannot be created.

### Conditions for Learning in Legislatures

#### *Costly Action, Penalties for Lying, and Similarity of Preference*

Legislative rules, procedures, and practices, though created for other purposes, often establish the conditions for learning. For instance, drafting legislative proposals, holding hearings and investigations, writing reports, striking deals, and whipping up support for legislation all require the expenditure of valuable resources (e.g., time, effort, and money). Much of the scholarship which concludes that legislatures are powerless has missed the implication of procedures and practices that entail the payment of observable opportunity costs: these institutions enable legislative learning.

For example, in many countries the acquisition of funding for a new program requires more work than does the acquisition of additional funding for existing programs (i.e., separate authorizing legislation is required to make the new program eligible for consideration in the budget process). Thus creating and funding new programs is a relatively costly action. While this requirement may have been implemented to limit the agenda control of those agents who have an incentive to create new programs, it is clear from our previous analysis that it can also provide legislators with useful information about their agent's spending priorities.

Similarly, when trust is a valuable commodity in the policy-making process, policy makers may have an incentive to be perceived as trustworthy. Penalties for lying are a means to enforce trust. Trustworthiness and, implicitly, penalties for breaking a trust, are the bases of behavioral norms that are well known to all members of the U.S. Congress (Fenno 1973). Furthermore, it is often claimed that, in the fierce competition for the attention of members of Congress, lobbyists run the risk of being shut out if ever they are caught having provided false information (Milbrath 1960; Herzberg and Unruh 1970; Hall and Wayman 1990; Wright 1990; Evans 1983). In parliamentary systems, where parties tend to have considerable control over their members' electoral prospects, penalties for lying seem likely to be even more successful.

Legislators in many countries also expend much effort in identifying others with similar preferences on whom they can rely. For example, the new governing party or coalition in every parliamentary system must immediately appoint and invest cabinet ministers. Similarly, the literature on committee assignments and leadership selection in the U.S. House attests to the importance legislators place on screening those who hold agenda power or who serve as information providers (Polsby 1968; Polsby, Gallaher, and Rundquist 1969; Fenno 1973; Shepsle 1978; Smith and Deering 1990; Krehbiel 1991; Cox and McCubbins 1993). While we do not believe that screening is a fool-proof way of establishing preference similarity, it can, if successful, help to establish another condition for learning.

### *Verification and the Structure of Legislative Institutions*

The first three conditions for learning bear upon the characteristics of the information provider—whether he has paid costs to act, is subject to penalties for lying, or is known to have preferences similar to those of the legislator. The fourth condition, the probability of verification, pertains to the context of an information provider's actions. A prerequisite for verification is that there be a second information source who is knowledgeable and has an incentive to reveal what he knows. To qualify as a verifier, this second information provider must be subject to action costs or penalties for lying or must be known to have preferences over outcomes that are in direct conflict with the preferences of the first information provider.<sup>16</sup> In either case, the presence of a verifier creates competition in information provision, since the first information provider is aware that the effectiveness of any statement he makes could be affected by the verifier's statement. Thus, in legislatures where the likelihood that there will be informed adversaries is high, so is the probability of verification.

The benefits of competition between information providers have long been recognized by political philosophers and institutional designers alike (e.g., Machiavelli, Montesquieu, Madison in *The Federalist*). Beyond what legislators can do in structuring the legislative process, the constitutional structure of government, including the rules governing elections, determine the number and quality of information sources. Institutional design is the key to the existence of competition between information providers. Consequently, legislators in some countries will be blessed with more competition, and therefore a higher likelihood of verifiable information about their agents' actions, than will their counterparts in other countries.

Institutional features that increase the likelihood of divided control increase the likelihood that ambition will be pitted against ambition. Since adversarial interests are a sufficient condition for informed persons to play the role of verifier with respect to their adversaries, it follows that an increase in the extent of divided control increases the probability that an expert's recommendations will be verified and, hence, increases the likelihood that legislators can learn about the consequences of their agents' actions. In the remainder of this section, we combine simple observations about the extent of divided control in the governing structures of Britain, Japan, and the United States with what we have learned about the design and implications of verifiability to determine the extent to which British, Japanese, and U.S. legislators can learn about the consequences of their agents' actions.

*The United States.* In a system that is both bicameral and presidential, such as that in the U.S., there are many competing and informed agenda setters. The leadership and committees of both chambers, as well as the president, will attempt to control the legislative agenda, especially in the absence of unified party control of both legislative houses and the presidency. This competition naturally creates adversarial sources of information for legislators.<sup>17</sup> Even under conditions of unified party control, differences in the rules under which legislators and the president are elected may lead them to be adversarial on some issues.<sup>18</sup>

Agenda control in the U.S. is divided further by procedure and practice within each chamber of Congress. The party leadership and its committees, such as the Appropriations or Budget Committees, have the knowledge and incentive to serve as verifiers on the statements made by competing authorizing committees (Weingast and Marshall 1988; Kiewiet and McCubbins 1991; Cox and McCubbins 1993). This intracameral division of agenda control allows even more opportunities for legislators to learn about and affect the consequences of legislative proposals.<sup>19</sup>

*Japan.* In Japan, there is no separately elected president who might serve as a verifier. Furthermore, while the Diet is bicameral, the Upper House is powerless on the budget and the choice of the cabinet—probably the two most important things that any legislature does—so it cannot act as a verifier to the same extent as the U.S. Senate can. Finally, from 1945 to 1993, one party, the Liberal Democrats, controlled the government without the support of coalition partners. From a strict structural perspective, there seems to be a greater divi-

sion of control in the U.S. than there is in Japan. As in the U.S., however, there are other sources of division.

The LDP's procedure and practices divide agenda control. For example, Diet members with experience in one policy area or another identified as *zoku giin*, or policy tribe members; together with like-minded colleagues they lobby the executive bureaucracy on behalf of their pet policy causes (Inoguchi and Iwai 1987; Murakawa 1989). Furthermore, the LDP established its own system of committees, the Policy Affairs Research Council (*Seimu Chosakai*). Committees within this system review government policy proposals before they are submitted to the floor and thus can provide backbenchers with information to parry the official reports of the cabinet and the corresponding Diet committees.<sup>20</sup> Coordinating councils (*shingikai*) also put interest group representatives at the policy-making table with bureaucrats and scholars. Any of these groups was thereby privy to information that might otherwise be hidden from backbenchers. In each instance, the members of these *zoku*, committees, and councils, often representing competing sectors of society, all might serve to verify the statements of others in the policy-making process.

*Britain.* The British Parliament is similar to the Japanese Diet, with two notable exceptions. First, the bicameralism is even more asymmetric (Lijphart 1984). The Lower House is sovereign for all policy areas. Second, there are no intraparty equivalents within either major party to the policy tribes, PARC committees, or coordinating councils in Japan. Even the legislative committees are impermanent structures, subject to the whimsy of the leadership. Thus, in terms of the number of potential verifiers, it would seem that U.S. legislators are the best off among our three examples, while British backbenchers are the worst off. Japanese backbenchers are only slightly better off than their British counterparts.<sup>21</sup>

Of course, backbenchers need more than just the ability to learn; they must also be able to exercise a veto when they learn that an agent is acting against their interests. Additionally, they may wish to enhance their ability to learn from fire alarms beyond the endowment granted them by the constitution, the electoral system, and legislative procedure and practice. The ease with which they can do either of these things depends on the extent of their autonomy from the demands of their intralegislatives agents (party leadership or agenda-controlling committees). If leadership controls nominations or is delegated the authority to move candidates up or down on the party list for the next election, then the ability of backbenchers to punish leaders for bad policy may be impaired. If punishment requires collective action

by backbenchers whose fates are—at the individual level—controlled by those whom they propose to punish, then a prisoner's dilemma is set up whereby no individual backbencher has an incentive to take the lead in challenging leadership. The implication, then, is that greater leadership control over the electoral fates of backbenchers weakens the conditions for backbencher learning.

Backbenchers in the U.S. are less dependent on their party leaders than are their counterparts in Britain and Japan. U.S. parties do not control electoral endorsements; instead, candidates run in primary elections. Moreover, the personal-vote component to getting elected is high in the U.S. (Fenno 1978; Cain, Ferejohn, and Fiorina 1987; Cox and McCubbins 1993; Cox and Rosenbluth 1993). In the U.K., candidates must receive their party's endorsement and are not able to cultivate a personal vote through differential credit claiming or position taking (Mayhew 1974; Cain, Ferejohn, and Fiorina 1987). Party discipline is tightly enforced both in parliament and on the hustings.

In terms of autonomy, Japanese backbenchers again fall between their counterparts in the U.S. and the U.K. Parties do control endorsements, as in Britain, but it is possible to be elected as an independent (albeit not as an independent incumbent). It is quite clear that personal votes play a huge part in candidates' electoral campaign efforts for the Japanese Lower House (Hrebendar 1986; Curtis 1988; McCubbins and Rosenbluth forthcoming; Cox and Rosenbluth 1993). Intraparty competition in each electoral district forces candidates to differentiate themselves with something other than policy—and in Japan, that something is money, pork, and personal favors. However, party discipline is ironclad in Japan; backbenchers may not vote against their leadership. Also, the money that pays for elections comes to a large extent from party leaders—hardly a recipe for backbencher autonomy.

In sum, U.S. backbenchers are blessed with a vast array of potential verifiers from whom they can learn, and they have the most autonomy to do something about what they learn. British backbenchers are less fortunate by both measures. The structure of government is not conducive to learning, and British backbenchers would be hard pressed to act against their leaders even if they were to learn that these agents' actions had damaging consequences. Japanese backbenchers are an intermediate case. With the advent of coalition government in Japan this year, the number of informed, adversarial information sources can be expected to increase. Therefore Japanese

backbencher should be able to learn more about the actions of their intralegislative agents.

### Conclusion

Many scholars contend that backbenchers in parliament and members of Congress are little more than political sheep, blindly and unquestioningly acquiescing to the proposals of those who set the legislative agenda. While we agree that the observed infrequency with which legislators amend the proposals presented to them makes them appear to be relatively powerless, we do not agree that delegation and information asymmetries inevitably result in abdication. Appearances can be deceiving.

We have argued that, when legislators delegate some of their policy-making authority to expert agents, they can and do create institutions within which they can learn about the consequences of their agents' actions. When agents believe that legislators can learn about the consequences of their actions, agents who desire change will be induced to take actions that are beneficial for legislators. Legislators who can induce such behavior need not necessarily amend an agent's proposal to achieve the types of policy outcomes they desire. An explicit recognition of the impact of institutional design on how legislators learn allows us to view apparent legislative acquiescence in a clearer light. Legislators who, from afar, appear as docile as sheep may in fact be the shepherds who guide the activities in the policy-making paddock.

*Arthur Lupia is Assistant Professor of Political Science, University of California–San Diego, La Jolla, California 92093. Mathew D. McCubbins is Professor of Political Science, University of California–San Diego, La Jolla, California 92093.*

### APPENDIX

In this abbreviated appendix, we first describe the premises upon which the model is based and then present our conclusions. A more detailed appendix, which includes extensive proofs, appears in Lupia and McCubbins 1995 and is available from the authors upon request.

#### Basic Premises

Two players, called the principal and the fire alarm, play a single-shot game. Unless otherwise stated, all aspects of this game are common knowledge. The purpose of

the game is to choose one of two exogenously determined points,  $o$  and  $sq$ , on the line segment  $[0, 1]$ . This choice determines a payoff in utils for each player, and each player's objective is to maximize his or her own utility. The principal's utility function is  $-|X - P|$  and the fire alarm's utility function is  $-|X - F|$ , where  $P$  is the principal's ideal point,  $F$  is the fire alarm's ideal point, and  $X \in [o, sq]$ . For expositional simplicity, we discuss the case where  $P < sq$ . Our results are without a loss of generality to the case  $P > sq$ , which is equivalent, and the case  $P = sq$ , which is trivial.

The single exception to the common knowledge assumption is that the locations of  $o$  and  $F$  may be known only to the fire alarm. We assume that the locations of  $o$  and  $F$  are the results of single draws from the distributions  $O$  and  $\Gamma$ , respectively.  $O$  has density  $O'$ ,  $\Gamma$  has density  $\Gamma'$ , and each has support on known but undenoted subsets of  $[0, 1]$ . In effect, we assume that  $O$  and  $\Gamma$  are common knowledge and that only the fire alarm observes the result of the draw from each distribution. If either distribution has mass at more than one point, then the fire alarm has private information. For expositional simplicity, we examine the case where  $O'(sq) = 0$ . It may also be known that  $o$ 's proposer (an agent who is assumed to have taken actions before the play of this game) had the same-shaped utility function as the principal and fire alarm and paid  $c_a \geq 0$  for the privilege of proposing  $o$ .

The fire alarm makes the game's first move by sending one of two messages,  $M_F \in \{B, W\}$ .  $B$  (better than  $sq$  for the principal) means that  $o \in (sq - 2 \times (sq - P), sq)$ .  $W$  (worse than  $sq$  for the principal) means that  $o \in [0, sq - 2 \times (sq - P)] \cup (sq, 1]$ . The fire alarm is not restricted to the transmission of a truthful message but may have to pay an additional penalty for lying,  $t$ , if it chooses to dissemble. Whether a dissembling fire alarm has to pay the penalty for lying depends on the actions of a third player called the verifier. The verifier is a player whose actions are determined exogenous to the play of this game. After the fire alarm has signaled, the verifier reveals the true location of  $o$  to the principal with probability  $v$  and reveals no new information (signals the distribution  $O$ ) with probability  $1 - v$  ( $M_V \in \{O, o\}$ ). If the fire alarm has dissembled and the verifier reveals the true location of  $o$ , the fire alarm pays the penalty for lying; otherwise it does not. After receiving messages from the fire alarm and the verifier, the principal can choose to pay  $c_m$  to learn the location of  $o$  ( $MON \in \{Y, N\}$ ). The principal then makes the game's final move by choosing either  $o$  or  $sq$  ( $APP \in \{Y, N\}$ ).

The equilibrium concept we use is a variant of the sequential equilibrium concept of Kreps and Wilson (1982). A sequential equilibrium consists of strategies that players believe to be the best responses to the chosen strategies of others, prior beliefs that are consistent, and an updating procedure that is based on Bayes' Rule. Consistency implies that players' beliefs assign positive probability to the true state of the world.

The variation we introduce is that we assume that the principal utilizes an exogenously determined algorithm to decide whether or not to condition her beliefs on her knowledge of the fire alarm's strategy. This assumption simplifies the formal statement of the model and the exposition that follows. The algorithm suggests that a principal with limited cognitive resources will opt to consider the fire alarm's statement if she expects, without explicitly considering all possible outcomes of the game, that doing so will increase the probability that she makes the same decision she would have made had she known the location of  $o$ . An algorithm with these characteristics is proposed in this Appendix. The remainder of our analysis focuses on the case where the algorithm directs the principal to use (or stated another way, we assume that the principal uses) information about the fire alarm and the fire alarm's strategy to update her prior beliefs about the location of  $o$ . The validity of our results relies on the validity of this concept, since we do not examine the consequences of play that strays from the equilibrium path. In the

description of this model's equilibria, we also employ the following tie-breaking rules: if the expected benefit of an action (i.e. proposing, dissembling, and monitoring) is not strictly positive, then this action is not taken; and if *sq* and *o* provide the principal with the same expected utility, then the principal chooses *sq*.

**A Simplifying Algorithm**

In signaling games, the probability that the message receiver reacts to a message in a particular way is dependent on the actions of the message sender, which themselves are dependent on the probability that the message receiver reacts to a message in a particular way. This type of problem often requires modelers to make special assumptions in order to obtain useful results—for example, the consistency requirements implicit in the definition of the sequential equilibrium (Kreps and Wilson 1982) and in several refinements of the concept (see Banks 1991 for a review). Our response to this problem is to invoke an algorithm that we believe is a good representation of how people deal with this type of situation. The algorithm suggests that a principal with limited cognitive resources will opt to consider the fire alarm's statement if she expects, without explicitly considering all possible outcomes of the game, that doing so will increase the probability that she makes the same decision she would have made had she known the location of *o*. This algorithm's invocation allows for the relatively simple formal statement of the model.

The algorithm's first inputs are *s<sub>B</sub>* and *s<sub>w</sub>*. Let *s<sub>B</sub>* be the probability that *o* is better than *sq* for both the principal and the fire alarm and let *s<sub>w</sub>* be the probability that *o* is worse than *sq* for both the principal and the fire alarm. The algorithm's next input is the principal's prior beliefs about the extent to which the fire alarm could benefit from making an untruthful statement. Let *q<sub>lie</sub>*(*sq*, *o*, *F*, *t*, *v*) = 1 if  $|(sq - F) - |o - F|| > t \times v$ , and 0 otherwise. *q<sub>lie</sub>* tells whether a fire alarm with ideal point *f* who observes *o* could find it profitable to make an untruthful statement. All else constant, the likelihood that *q<sub>lie</sub>* = 1 is increasing in  $|(sq - F) - |o - F||$ , which is the maximum potential benefit from lying, and is decreasing in the magnitude of the expected penalty for lying.

If the principal knew *F* and *o* she would know the value of *q<sub>lie</sub>*. However, her information about *F* and *o* are limited to her knowledge of the distributions  $\Gamma$  and  $O$ . Let *Q<sub>lie</sub>*(*sq*,  $O$ ,  $\Gamma$ , *t*, *v*) ∈ [0, 1] be the principal's prior belief about the probability that the fire alarm could find it profitable to make an untruthful statement, where

$$Q_{lie}(sq, O, \Gamma, t, v) = \int \int q_{lie}(sq, o, F, t, v) dO' d\Gamma'$$

Let *h*(*s<sub>B</sub>*, *s<sub>w</sub>*, *Q<sub>lie</sub>*) be an exogenously determined correspondence that is everywhere nondecreasing in *s<sub>B</sub>* and *s<sub>w</sub>* and everywhere nonincreasing in *Q<sub>lie</sub>*. Let *h* denote the principal's (common knowledge) expectation about the relationship between the content of the statement and the actual location of *o*. Let *h* be an exogenously determined constant. We say that a principal of type *p* chooses to condition her inferences on the fire alarm's actions if and only if

$$h(s_B, s_w, Q_{lie}) > \underline{h}.$$

We have chosen to examine the case where this threshold is surpassed. Alternatively, the rule of thumb might dictate that the principal either discount or ignore information about the fire alarm. Fortunately, the case where the principal chooses to ignore this information is equivalent to the case where the fire alarm's entry costs are

prohibitively high. So in effect we examine that case as well. The case where the principal discounts information in a systematic manner can be equivalent to an analysis of the present model exchanging current fire alarm prior beliefs about the fire alarm's ideal point with relatively diffuse priors or by decreasing the value of  $t$ . Since the rule of thumb is solely a function of the common knowledge, we assume that the principal's inference technique is also common knowledge.

### Conclusions

In this section, we detail the minimum inference that can be drawn given that the algorithm directs the principal to consider information about the fire alarm. Let  $\tau$  be the smallest distance from the point  $sq$  for which the fire alarm could find the payment of the expected penalty for lying ( $t \times v$ ) to be worthwhile. Since  $sq$ ,  $t$ ,  $v$ , and the shape of the fire alarm's utility function are common knowledge, so is  $\tau$ .

*Lemma 1.* In the presence of penalty for lying  $t$  and verifier  $v$ , truth telling is a dominant partial strategy for the fire alarm when  $o \in \varepsilon [sq - \tau, sq + \tau]$ .

*Proposition 1.* The density of  $O$  at  $o$  (or a closed interval of small and positive length with endpoints that are equidistant from  $o$ ) in the principal's posterior beliefs minus the density of  $O$  at that point (or interval) in the principal's prior beliefs is nondecreasing in  $t$ .

*Proposition 2.* The density of  $O$  at  $o$  (or a closed interval of small and positive length with endpoints that are equidistant from  $o$ ) in the principal's posterior beliefs minus the density of  $O$  at that point (or interval) in the principal's prior beliefs is strictly increasing in  $v$ .

*Proposition 3.* If the principal observes that an offer was made in the presence of proposal cost  $c_o$ , then she can infer that  $o \notin [sq - \varepsilon, sq + \varepsilon]$ .

*Lemma 2.* When it is common knowledge that  $-|o - F| > -|sq - F|$ ,  $-|o - P| > -|sq - P|$ , then the fire alarm should send  $B$  and the principal should treat the message as though it were true. Similarly, when it is common knowledge that  $-|o - F| \leq -|sq - F|$  and  $-|o - P| \leq -|sq - P|$ , then the fire alarm should send  $W$  and the principal should treat the message as though it were true. When it is common knowledge that  $(t \times v) = 0$  and either  $-|o - F| \leq -|sq - F|$  and  $-|o - P| > -|sq - P|$  or  $-|o - F| > -|sq - F|$  and  $-|o - P| \leq -|sq - P|$ , then the principal should disregard the content of the fire alarm's message.

*Proposition 4.* If the algorithm directs the principal to consider information about proposal costs, the penalty for lying, preference similarity, and verifiability and if the principal uses the Bayesian updating schemes defined above, then,  $o$  is the equilibrium outcome of the game if and only if one of the following:

1. The verifier reveals that  $o$  is better for the principal.

The verifier does not reveal the true location of  $o$  and the principal believes that one of the following three mutually exclusive cases is true:

2.  $o$  could be better for the principal than  $sq$ , the fire alarm could find it profitable to dissemble (the width of the range of alternatives that the principal prefers to  $sq$  is greater than  $\tau$ , which itself is at least as great as  $\varepsilon$ ), and one of statements a-e, given below, is true.
3.  $o$  could be better for the principal than  $sq$ , the expected penalty for lying is sufficiently high that it is common knowledge that the fire alarm could not find it worthwhile to dissemble when  $o$  is better for the principal than  $sq$  ( $\tau$

is greater than the width of the range of alternatives that the principal prefers to  $sq$  which, itself, is larger than  $\epsilon$ ) and one of statements a-d is true.

4.  $o$  could be better for the principal than  $sq$ , and the expected penalty for lying is sufficiently small that it is common knowledge that it will not restrict fire alarm behavior (the width of the range of alternatives that the principal prefers to  $sq$  is larger than  $\epsilon$ , which is itself greater than  $\tau$ ) and one of statements a-d is true.
  - a.  $o$  is better than  $sq$  for both players, the fire alarm is sufficiently credible (i.e., some parameters are large enough to cause prior and posterior beliefs to diverge by such a degree that the principal's strategy depends on the content of the fire alarm's message) that he can persuade the principal to either monitor or choose  $o$  without monitoring, and, if the principal monitors, she will learn that  $o$  is better for her than  $sq$ .
  - b.  $o$  is worse than  $sq$  for the principal and is better than  $sq$  for the fire alarm, the fire alarm is sufficiently credible that he can persuade the principal to choose  $o$  without monitoring even though  $o$  is actually worse for her (ex post) than is  $sq$ .
  - c. the fire alarm is not sufficiently credible to affect the principal's behavior and, regardless of the fire alarm's action, the principal will accept  $o$  without monitoring.
  - d.  $o$  is better than  $sq$  for the principal, the fire alarm is not sufficiently credible to affect the principal's behavior, and, regardless of the fire alarm's action, the principal will monitor and learn that  $o$  is better.
  - e.  $o$  is better than  $sq$  for the principal,  $o$  is not necessarily better than  $sq$  for the fire alarm, the expected penalty for lying faced by the fire alarm is larger than the maximum possible benefit from lying, the fire alarm is sufficiently credible that he can persuade the principal to either monitor or choose  $o$  without monitoring, and, if the principal monitors, she will learn that  $o$  is better for her than  $sq$ .

*Corollary 1.* If prior beliefs are consistent, then the likelihood that the principal chooses the element of  $\{o, sq\}$  which it would have chosen had it known the location of  $o$  is nondecreasing in the probability that the principal and fire alarm prefer the same alternative.

## NOTES

We thank William Heller, Jonathan Katz, and Michael Thies for research assistance. We thank Gary Cox, Elizabeth Gerber, and Barry Weingast for their comments.

1. Examples abound. See, for example, Blondel 1968; Meny 1990; Laver and Schofield 1990. For Britain, see Bagehot 1936; Rose 1964; Crick 1970; Gordon 1971; Mezey 1979, 39; Davies 1985, 82. For Canada, see Jackson and Atkinson 1980; Savoie 1990, 27. For Japan, see Ward 1967; Johnson 1975; Campbell 1977; Pempel 1986.

2. Prominent examples of this perspective include Freeman 1955; Lowi 1979; Smith 1988; Wattenberg 1990.

3. We examine the case where the expert's coercive powers over the legislature are not absolute—that is, where legislators do have the ability to reject expert proposals.

4. See McCubbins and Schwartz 1984 for the original discussion of legislator learning from fire alarm oversight.

5. While we value the work of Gilligan and Krehbiel, we are interested in a different type of question from theirs (Gilligan and Krehbiel 1989; Krehbiel 1991). In our view, Gilligan and Krehbiel's major contribution has been showing the interactive effect of committee assignments, amendment procedures, and uncertainty on a committee member's incentive to acquire expertise and on the legislature's ability to make more reasoned decisions. We focus on identifying characteristics of policy-making environments that allow those who can influence policy outcomes to learn from those who are relative experts about the consequences of particular policy choices. Our goal is to show how institutional design and uncertainty (conceived relatively richly) interact to determine the extent to which experts or legislators control the actions of government.

Implications of our differing, but complementary, agendas are manifest in the differences between the models we have produced. For example, in Gilligan and Krehbiel 1989, their closest relative to our model on the substantive dimension, there are either one or two agents whose proposals are determined endogenously. If there is one proposer, there is also an information sender. In our model, the proposer's actions are determined exogenously and the actions of a single information sender are determined endogenously. In both models, the legislature is assumed to be a unitary actor who responds to agent actions.

In their model, the location of the agents' ideal points are common knowledge and are restricted to be equidistant from a point of origin on a single dimension. In our model, the agent's ideal point is private information to the agent and can lie anywhere in a finite space. In both models, the legislature's ideal point is common knowledge. In their model, the legislature's uncertainty about the consequences of agent actions is represented as a uniform distribution. In our model, a legislature's uncertainty about the consequences of agent actions can be represented by any distribution over an interval of finite length.

In their model, the primary variables of interest are amendment rules and the known distance between the sender's and legislature's ideal points. In our model, the primary variables of interest are players' beliefs about the context in which communication takes place, such as beliefs about a player's costs of speech or action, the likelihood that a statement's veracity will later be verified, and the extent to which players know each other's ideal points. Finally, in their model, the sender chooses a statement from an infinite vocabulary. In our model, the sender chooses a statement from a binary vocabulary. However, in our model, the contextual variations allow each statement to take on a wide range of meanings.

6. In effect, we model a legislature as a unitary actor. To do this we assume that legislators' preferences, legislators' abilities, and the legislature's structural characteristics have already interacted to produce a single-peaked legislative utility function.

To determine the consequences of delegation, we must define what sort of agenda control is granted in the act of delegation. Does the agent make recommendations to the principal, who then decides on a course of action, or does the agent present the principal with a *fait accompli*? As the committee of the whole in Congress and the lower house in parliamentary settings generally retain the right to overturn the decisions of many of their agents, we believe that the agenda control delegated is more often the power to make recommendations. Thus, we model delegation as a sequential game that begins when an agent offers a take-it-or-leave-it policy proposal to the principal and that ends when the principal either accepts it (perhaps by doing nothing) or rejects it in favor of the status quo policy.

7. Of course, the agent can always decline to exercise this authority. For instance, an agent might choose not to make a proposal when a choice entails opportunity costs and when the agent expects the proposal to be rejected.

8. Alternatively, our model and results depend only on the assumption that the agent knows everything that the principal knows but that the principal does not necessarily know everything the agent knows. We use the complete information assumption in the text only to simplify the exposition.

9. Also see proposition 4 in the Appendix.

10. See Spence 1974 for insight about the causes and consequences of difficulties in screening.

11. See proposition 3 in the Appendix.

12. See propositions 1 and 4 and corollary 1 in the Appendix. In the model, we assume that the size of the penalty for lying is common knowledge. We also assume that the probability that the penalty is assessed when an information provider has lied is common knowledge. These assumptions are equivalent to assuming that the principal and agent have common beliefs about the expected size of the penalty for lying.

13. This third condition is similar in spirit to that originally derived in Crawford and Sobel 1982 and introduced to political science in the context of committee-floor relationships by Gilligan and Krehbiel (1987, 1989). The projection of their finding to our model is described in lemma 2 (see the Appendix). Also see proposition 4 and corollary 1. A detailed comparison between our model and the Crawford and Sobel model is provided in Lupia and McCubbins 1994.

14. See propositions 2 and 4 and corollary 1 in the Appendix.

15. See proposition 4 and corollary 1 in the Appendix.

16. Examples of the effect of competition on the provision of information include Milgrom and Roberts 1986 and Cameron and Jung 1992.

17. Divided government, in turn, is partly a function of the relative timing of presidential and legislative elections (Alesina and Rosenthal 1989; Jacobson 1990; Fiorina 1992; Shugart and Carey 1992).

18. In unicameral parliamentary legislatures, the more parties there are in a governing coalition, the greater the number of parties involved in setting the agenda. Coalition government is more likely the greater the effective number of parties in the legislature (Taagepera and Shugart 1989). The effective number of parties in turn is a function of the electoral rules. It is well known, for example, that proportional representation with large districts produces a large number of parties. There is an enormous literature on the effects of electoral rules for the number of and conflict between legislative parties (see Taagepera and Shugart 1989; Rae 1967; Duverger 1954; Sartori 1976; Lijphart 1984). Each party in the government is presumably informed, and each is competing with all others, for each is engaged in electoral competition with the others. Thus there are presumably more potential verifiers from whom backbenchers may be able to learn.

19. Nonlegislative actors also play a role. The structure and process of executive agency decision making, as required by the Administrative Procedure Act, creates numerous opportunities for lobbyists and other interested third parties to access the system and to send signals to backbenchers (McCubbins, Noll, and Weingast 1987). Beginning with the constitutional requirement to maintain a written record of all proceedings and carrying through the Government in the Sunshine Act, which mandates that committee hearings be public, numerous formal requirements open the legislative process to scrutiny by outside groups.

20. It is often pointed out that bureaucrats, as a matter of course, consult with

relevant PARC committees before submitting draft legislation (Sato and Matsuzaki 1986; Ramseyer and Rosenbluth 1993; Kato forthcoming 1994). Naturally, the leadership reviews the outputs of these committees in order that it can signal the back bench if any of these area-specific agenda setters is trying to diverge from backbencher preferences.

21. The advent of coalition government in Japan in 1993 implies competition within the cabinet, as the parties in the coalition seek advantage, and therefore might increase prospects for verification.

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