

# Testing an Informational Theory of Legislation: Evidence from the US House of Representatives\*

Attila Ambrus<sup>†</sup>, László Sándor<sup>‡</sup>, and Hye Young You<sup>§</sup>

## Abstract

Using data on roll call votes from the US House of Representatives, this paper finds empirical support for informational theories of legislative decision-making. Consistent with the theoretical prediction, the bias of the committee to which a bill is assigned is strongly positively associated with the bias of its sponsor, and unbiased sponsors in expectation get assigned to roughly unbiased committees. Moreover, we find a negative relationship between the sponsor's absolute bias and the probability that the legislation is processed by closed rule. As far as we know, our paper is the first one that provides quantitative empirical support for a theory of communication versus delegation.

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<sup>†</sup>Department of Economics, Duke University, Durham, NC 27708, Email: [aa231@duke.edu](mailto:aa231@duke.edu)

<sup>‡</sup>Department of Economics, Harvard University, Cambridge, MA 02138, Email: [sandor@fas.harvard.edu](mailto:sandor@fas.harvard.edu)

<sup>§</sup>Department of Political Science, Vanderbilt University, Nashville, TN 37203, Email: [hyeyoung.you@vanderbilt.edu](mailto:hyeyoung.you@vanderbilt.edu)

# 1 Introduction

Information has long been considered to be a key factor in explaining why institutions in Congress are organized in a specialized fashion. In their early works, Polsby (1968) and Cooper (1970) argued that information acquisition is the most important goal in legislation and, therefore, specialization by committees can be an efficient organizational form to achieve informational advantage.<sup>1</sup> In a series of influential papers, Gilligan and Krehbiel (1987, 1989) offered formal models of legislative decision-making, investigating strategic information transmission within the hierarchical structure of the legislature.<sup>2</sup> A related area of theoretical literature starting with Austen-Smith and Wright (1992), analyzes the role of interest groups in providing information to the legislature through lobbying.<sup>3</sup> More generally, a large and growing literature in economics examines strategic communication with costless messages (starting with Crawford and Sobel (1982); usually referred to as “cheap talk”), delegating decision-making to an informed agent (starting with Holmstrom (1977)) and the trade-offs between delegating decision-power to a biased expert versus retaining the right to make the decision and communicate with the expert (see, for example, Aghion and Tirole (1997) and Dessein (2002)). However, as highlighted in a recent paper by Bertrand, Bombardini, and Trebbi (2014), literature has not provided substantial evidence supporting the relevance of these theoretical models, either in the legislative or other contexts.<sup>4</sup>

The findings of the information theory literature on procedural rule selection and committee selection are presented in a unified framework in a recent paper by Ambrus et al. (2013), hereafter referred to as AAKT. The central feature of the model is that an outside interest

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<sup>1</sup>See also Weingast and Moran (1983) and Calvert, McCubbins, and Weingast (1989) on the legislature delegating power to bureaucrats and other agents for informational reasons.

<sup>2</sup>See also Krishna and Morgan (2001) and Krehbiel (2001).

<sup>3</sup>An incomplete list of the literature includes Austen-Smith (1993, 1995); Austen-Smith and Wright (1994); Ball (1995); Lohmann (1995); Bennedsen and Feldmann (2002).

<sup>4</sup>There are laboratory experiments investigating cheap talk, both in the Crawford and Sobel framework (see Cai and Wang (2006) and Wang, Spezio, and Camerer (2010)), as well as outside that framework (see, for example, Gneezy (2005) and Hurkens and Kartik (2009)). Outside the lab, Alonso, Dessein, and Matouschek (2008) provide case study evidence supporting their results from a model of centralized versus decentralized coordination in an organization. Makeno (2011) presents survey evidence for the type of optimal delegation scheme characterized in the paper. For empirical studies in the legislative context, see the next section.

group, that is biased from the point of view of the legislative body, possesses private information relevant to the legislature. The floor, knowing the bias of the interest group, can select a committee to communicate with the interest group, and can also choose whether to delegate agenda-setting power to the committee (in the form of granting closed rule) or not (by selecting open rule, in which case the committee's proposal is only a cheap talk message to the floor). The main findings of the paper are that: (i) if the bias of the lobbyist is small in absolute terms, then it is optimal for the floor to choose closed rule and a committee with interests that are perfectly aligned with those of the lobbyist; (ii) if the absolute bias of the lobbyist is from an intermediate range, closed rule remains optimal, but with a committee with preferences strictly between the lobbyist and the floor; (iii) if the absolute bias of the lobbyist is large (but not extremely large to the extent of excluding any possibility of information transmission) then it becomes optimal to choose open rule and a committee adversely biased to the lobbyist.<sup>5</sup>

In this paper, we test various predictions of the above model, using information on roll call votes in the US House of Representatives, covering the period from the 107th to the 111th Congresses (January 2001 to January 2011), obtained from the website of the Library of Congress. We do not observe the lobbyist groups associated with different bills; instead, we identify the *sponsor* of the bill as the person in the legislative process originally possessing the relevant private information for the legislature, and test the predictions of the AAKT model with the sponsor taking the place of the interest group. We conduct the analysis under the assumption that the sponsor has the same preferences as the interest group and, therefore, the unobserved interaction between the interest group and the sponsor can be regarded as truthful. This is in accordance with much anecdotal evidence that sponsors of bills and organized interest groups frequently work in tandem to advance policy goals that they

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<sup>5</sup>AAKT builds on results from Gilligan and Krehbiel (1987); Krishna and Morgan (2001); Dessein (2002); Li (2007); Ivanov (2010) and Ambrus, Azevedo, and Kamada (2013). Some of these models, albeit either focusing only on selecting a procedural rule or only on selecting a mediator, give predictions analogous to the ones described for AAKT.

share (Hall and Deadorff 2006).<sup>6</sup> This approach, in particular, assumes that the floor cannot influence who becomes the sponsor of a given bill, and the latter is exogenously given as the member of legislature associated with the relevant interest group. An alternative approach would be to assume that the floor, besides choosing the committee and the procedural rule, can also select the identity of the sponsor, and analyze the resulting four-player game in which the interest group transmits information to the sponsor, who in turns transmits information to the committee, who then sends a proposal to the floor. However, as shown in Ambrus and Ivanov (2012), such a model would give the prediction that only closed rule is used in equilibrium. This clearly contradicts the empirical fact that open rule is prevalent in congressional decision-making.

In our basic specification we use the DW-NOMINATE scores of Poole and Rosenthal (Poole and Rosenthal 1985, 1991) to measure the political preferences of different actors. We identify a committee’s preferences with the committee chair’s preferences, and the floor’s preferences with the majority leader’s preferences, based on qualitative evidence on the power and influence of these officials (see Section 3 for a detailed discussion).<sup>7</sup>

We focus on testing the main qualitative predictions of the model described above. The predictions are: (i) the probability of closed rule should be a decreasing function of the absolute bias of the sponsor; (ii) small sponsor biases should be associated with small committee biases; (iii) committee bias should be positively associated with sponsor bias, for the region of moderate sponsor biases. We find distinct support for these predictions in the data. Although for most of the range of sponsor biases both open and closed rule occur, we find a distinct negative relationship between the magnitude of sponsor bias and the prevalence of closed rule, for the entire range of sponsor biases. Moreover, our nonparametric regression

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<sup>6</sup>There is abundant anecdotal evidence that lobbyists help in drafting legislation. According to *The New York Times*, Citigroup lobbyists’ recommendations on financial regulation were reflected in more than 70 lines of the House Financial Services Committee’s 85-line bill. Eric Lipson and Ben Protess, “Banks’ Lobbyists Help in Drafting Financial Bills,” *The New York Times*, May 23, 2013.

<sup>7</sup>In the Supplementary Appendix we also present results from a specification in which the floor is associated with the Speaker’s preferences. The latter is a noisier indicator of the majority party leadership’s preferences because the Speaker almost never votes after assuming office, therefore her preferences can only be based on previous roll-call votes.

estimation reveals that for sponsor biases close to zero the probability of closed rule is close to 1, while for very large sponsor biases it is close to 0. The prediction regarding sponsor bias and rule selection is unique to informational theory and none of the other legislative theories - distributive, party government, and bicameral rivalry - generate a prediction on this relationship.<sup>8</sup>

To investigate the effect of sponsor bias on the choice of committee, we cannot simply regress committee bias on sponsor bias using all bills. This is because the great majority of bills in modern Congress are associated with standing committees, whose membership typically stays roughly constant for the duration of a congressional cycle (Cooper and Young 1989; King 1997). Hence, as opposed to the stylized model in AAKT, the bias of the committee cannot be tailored to the bias of a particular sponsor.<sup>9</sup> For this reason, we focus on bills that are referred to multiple committees—indicating that they are in the overlap of jurisdiction of those committees— one of which is selected to be the primary committee with the right to propose the bill (Davidson, Oleszek, and Kephart 1988).<sup>10</sup> For these bills, the floor has a limited choice—slightly more than three on average—approximating the modeling assumptions in AAKT. First, we find that for sponsor biases that are not too large, in accordance with the theoretical predictions, the committee ultimately chosen from among potential committees is the one closest to the sponsor. Second, when using this subsample of bills, we find a significant positive relationship between the bias of the committee and the bias of the sponsor. We also find that the constant term in the linear regression is insignificant, consistent with the prediction that roughly unbiased sponsors are assigned to roughly unbiased committees.

We complement the above analysis by regressing the bias of a committee on the average

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<sup>8</sup>Party government theory has a prediction on the relationship between committee bias and the rule selection, but not on the relationship between sponsor bias and the rule selection (Groseclose and King 2006).

<sup>9</sup>In contrast, in the early days of Congress, bills typically were referred to *ad hoc* committees. Therefore, our model would be a better description of the committee process for this time period. We could not find sufficient data for conducting an empirical analysis of legislative decision-making for this time period, but we hope to do so in future research.

<sup>10</sup>The House first authorized the Speaker to refer measures to more than one committee in the Committee Reform Amendments of 1974. These multiple referrals were used quite frequently in subsequent years (Koempel and Snyder 2010).

bias of sponsors with which the committee is ultimately associated as the primary committee. For this investigation we use all bills. The idea is testing whether the typical sponsor with whom the committee is expected to interact can explain, through the AAKT model, the committee's bias. In this specification we find that the regression coefficient of the average committee bias is close to one, and the intercept is insignificant, which is consistent with the theory that committees are selected to approximate the preferences of typical interest groups with which they are expected to interact (provided that the latter are not too biased). Although this empirical regularity is consistent with the prediction from the informational theory, there may be other potential explanations that highlight the relationship between the sponsor bias and the committee bias. For example, as Kollman (1997) argues, interest groups (or sponsors) and committees in the same issue areas may have a similar preference. Despite this possibility, none of the other formal committee theories generate the prediction on the relationship between the bias of sponsor and the bias of committee and, therefore, we believe informational theory is well supported by the above collection of empirical evidence.

While we find strong empirical regularities that follow from information theoretic models of legislative decision-making, the amount of variation in the data is large. The relationship between sponsor bias and committee bias only holds in expectation, with a relatively large variance. Similarly, for most of the range of sponsor biases, both open and closed rules are assigned with significant probability.

There are several obvious reasons why the data are not perfectly consistent with the theoretical predictions. First, as we discussed above, the theoretical model is only a rough approximation of the legislative process. Second, our measurement of political preferences of different legislators is clearly imperfect (e.g., the bias of a legislator in a particular issue might be different from her computed average bias over many issues). Given the above issues, we find it remarkable that the main qualitative predictions of our informational theory model are clearly verified by the data.

## 2 Related Literature

The empirical literature on legislative procedures, in particular from the point of view of information transmission, is fairly scarce.

Groseclose and King (2006) consider a list of qualitative stylized facts regarding legislative decision-making, and provide a detailed discussion of which of these facts are consistent with each of four theories of committees (informational efficiency, distributive benefits, majority-party cartel, and bicameral rivalry). Their main conclusion is that none of the proposed theories are consistent with all stylized facts, and suggest that the committee system in the legislature is shaped by multiple different considerations. Poole and Rosenthal (1997) find that most congressional committees in most Congresses are not preference outliers, and interpret this as evidence supporting informational theories of committees starting from Gilligan and Krehbiel (1987). Krehbiel (1991) tests how factors like the urgency, partisanship, and distributive content affect the probability of the assignment of a restrictive rule based on bills from the 98th and 99th Congresses. He finds that empirical evidence is partly consistent with informational theory and calls the exclusive distributive theory into question.

There is a large amount of empirical literature on the role of lobbying in the legislature, but only a few of these papers address issues related to information transmission. Kollman (1997) provides empirical evidence that lobbying groups in a particular area tend to be like-biased to the committees associated with the same area, which is observationally consistent with our findings. However, the interpretation offered is not information transmission; instead, the argument is that members of the legislature specializing in a given area are naturally inclined towards the same type of bias in interest groups in that area. Austen-Smith and Wright (1994) and Hojnacki and Kimball (1998) examine the extent to which lobbying groups tend to approach legislators with similar versus different predispositions on an issue. A large literature in interest group studies argues that interest groups tend to transmit information to shift a legislator's position (Truman 1955; Milbrath 1963; Hall and Wayman 1990; Hansen 1991; Austen-Smith 1995).

Finally, two recent papers, Bertrand, Bombardini, and Trebbi (2014) and Vidal, Draca, and Fons-Rosen (2012) examine the role of professional lobbyists who serve as intermediary between interest groups and congressmen.<sup>11</sup>

### 3 Institutional Background

In this section we describe the timeline of legislative procedures, provide a brief overview of the committee system and legislative rules, and discuss the role of the Speaker, majority leader, committee chairs and bill sponsors in the process.

#### 3.1 Overview of the Legislative Process in the House

Legislation in Congress may be drafted by a member and his or her staff, a committee, lobbyists, executive branch officials, but it must be introduced by a member while Congress is in session. After a draft legislation is introduced in the House, the Speaker refers it to the appropriate committee or committees.<sup>12</sup> Committees have many options concerning how to process the legislation referred to them. In practice, most proposed legislation does not survive committee consideration. If a committee intends to act on a bill, it conducts a “markup” on the legislation—a meeting at which the committee or subcommittee reviews the measure line-by-line or section-by-section and considers amendments. Once the markup is complete, the measure is reported to the floor if a majority of the committee votes to do so.

Legislation that is reported to the floor gets scheduled for floor debate by the Speaker. Minor bills have been called up most frequently by unanimous consent requests or by motions to suspend the rules. It is difficult for sponsors of major or controversial legislations to obtain unanimous or two-thirds majority support, so they turn to the Rules Committee to request a resolution known as a “rule” (Sinclair 2007). Rules decide how a bill should proceed on

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<sup>11</sup>See also Salisbury et al. (1989) for the earlier discussion on the role of lobbyists.

<sup>12</sup>Descriptions on the legislative process are heavily drawn from Sinclair (2007); Oleszek (2010); Smith, Roberts, and Wielen (2011).

the House floor (e.g., whether amendments should not be allowed). Rules are highly flexible tools for tailoring floor action to individual bills. Membership on the House Rules Committee is powerful and prestigious, and it is widely accepted that reforms implemented by House Democrats in the early 1970s firmly established the committee as an arm of the House's leadership (Oppenheimer 1977).

Once a special rule for a measure is adopted, the House resolves to convene the Committee of the Whole House on the State of the Union to conduct general debate and consider amendments. The Committee of the Whole first conducts general debate on the bill and then moves to debate and votes on amendments (Oleszek 2010).

### **3.2 The Committee System**

Standing committees are the backbones of Congressional organizations. They consider bills and issues within their legislative jurisdictions, and also are responsible for oversight of agencies, programs, and activities within their jurisdictions (Deering and Smith 1997). There are 21 standing committees in the House; the number of standing committees has remained stable in the post-war period, although the total number of committee seats has grown steadily.<sup>13</sup> The party ratios in most committees are close to chamber-wide party ratios. The exception is the Rules Committee, where the majority party has always maintained an oversized representation. Committee assignments are the responsibilities of the party leaders.

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<sup>13</sup>The standing committees are: Agriculture, Appropriations, Armed Services, Budget, Education and Workforce, Energy and Commerce, Ethics, Financial Services, Foreign Affairs, Homeland Security, House Administration, Intelligence, Judiciary, Natural Resources, Oversight and Government Reform, Rules, Science and Technology, Small Business, Transportation and Infrastructure, Veterans' Affairs, and Ways and Means. In addition to standing committees, select or special committees may be established by a separate resolution of the chamber - sometimes to conduct investigations and studies, and, on other occasions, to consider measures. There are also joint committees, which are permanent panels that include members from both legislative chambers and generally conduct studies or perform housekeeping tasks rather than consider measures (Deering and Smith 1997).

### 3.3 Legislative Rules

Starting in 1979, the House majority leadership and the Rules Committee began to employ special rules more frequently to restrict floor amendments. Special rules are resolutions from the Rules Committee that, by supplementing or supplanting rules of the House, may structure the amending process in the Committee of the Whole. The change in the content of special rules in the 1980s was dramatic. According to Bach and Smith (1988), from the 94th (1975-76) through 97th (1981-82) Congresses, the percentage of special rules that restricted amendments in some way increased from 15.7 to 28.8 percent. In the 99th Congress (1985-86), 44.6 percent of all special rules limited amendments. These trends continued through the 1990s and 2000s. In our data set from the 2000s, the majority of the bills that reached the vote on passage status were considered via restrictive rules. For the list of special rules used in the Congresses during the time period of our investigation, see Section 5.

### 3.4 Key Actors in the Legislative Procedure

#### *The Speaker*

Among various actors in the Congress, the Speaker's preference is perceived as the most important factor in shaping legislative outcomes (Cooper and Brady 2009). The Speaker can schedule her pick of the bills that have been reported from committees. "The power of the Speaker of the House is the power of scheduling," observed by Thomas P. "Tip" O'Neill Jr. (D-MA), who served as Speaker for more consecutive years (1977-1987) than any other Speaker.<sup>14</sup> Through use of the Rules Committee and other privileged committees that considered to be controlled by the Speaker, she can give priority to a bill she wants considered or block a bill she opposes (Cox and McCubbins 1993, 2005; Cooper and Brady 2009).

#### *Majority Party Leader*

The role of the majority party leader, also known as the floor leader, is important because

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<sup>14</sup>*Congressional Record*, November 15, 1983, H9856.

she is in charge of scheduling legislation for floor consideration; planning the daily, weekly, and annual legislative agendas; and other functions.<sup>15</sup> In some cases, majority leaders have been more influential than the Speaker.<sup>16</sup> The majority leader is in very close tie with the Speaker and the Rules Committee to control the legislative procedures on the floor. Also, the majority leader serves as the Speaker-designated majority-party representative on both the Budget Committee and the House Intelligence Committee (Sinclair 2007). As opposed to the Speaker, who usually does not participate in debates and does not vote on the floor, the majority leader remains an active voting member of the House. For this reason, in our main specification we measure the floor's preferences based on the voting behavior of the majority leader in roll-call votes.

### *Committee Chairs*

There has been a great deal of discussions on the forms of committee power in Congress (Shepsle and Weingast 1987; Krehbiel, Shesple, and Weingast 1987). The two principal forms of committee power are negative and positive. Negative committee power is the ability to defend the status quo in the face of those who favor change. In the context of the committee-floor relationship, negative power rests on a committee's ability to restrict the choices available to the floor, and delay proposals reaching the floor. Positive committee power primarily stems from having extra resources and staff who can gather policy information. It is well known that the chair of the committee determines whether the committee considers a bill. A chair who opposes a bill can refuse to schedule or delay scheduling hearings on the bill. On the other hand, a chair who favors a bill can give it top priority by allocating committee resources or facilitating hearings and markups (Oleszek 2010). Consequently, the support of the full committee chair is crucial to bill sponsors (Deering and Smith (1997)).

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<sup>15</sup>Office of the Clerk, US House of Representatives.

<sup>16</sup>A notable case from our sample period is that Republican majority leader Tom DeLay was considered to be more prominent than Speaker Dennis Hastert.

## *Bill Sponsors*

A Representative who introduces a bill or other measure in the House is called its sponsor. Under House Rule XII, Clause 7, several members together may submit a bill, but the first-named member is considered to be the chief or primary sponsor; the others are considered to be cosponsors. It should not be assumed that a bill's sponsor actually drafted it. The bill may have been drafted by a staff member, by an interest group, or by others. However, the primary sponsor is expected to oversee the writing of its legislation in general. On occasion, a representative may introduce a bill as a courtesy, such as legislation proposed by the president or senior administration officials (Sullivan 2007).

## **4 An Information Theoretical Model of Legislation**

Here we briefly summarize the model in AAKT, changing the terminology from lobbyist to sponsor. We consider a multi-stage game of legislative decision-making with three players: a sponsor, a committee, and the floor. The outcome of the game is a policy action  $x \in \mathbb{R}$ . The players' preferences over policy actions depend on an ex ante unknown state of the world  $\theta$ , distributed uniformly on the  $[0, 1]$  interval. The payoffs of the floor, the committee, and the sponsor are given by  $-(x - \theta)^2$ ,  $-(x - \theta - b_C)^2$ , and  $-(x - \theta - b_S)^2$ , where  $b_C$  and  $b_S$  are referred to as the biases of the committee and the sponsor. The game starts with an ex ante stage (stage 0), in which the floor selects  $b_C$  and the procedural rule, which can be either open or closed.

In stage 1, the sponsor observes the realization of  $\theta$ , and sends a cheap talk message  $m \in \mathbb{R}$  to the committee, corresponding to a draft proposal and possibly additional private communication to the committee. In stage 2 the committee sends a proposal  $p \in \mathbb{R}$  to the floor. Finally, in stage 3 the floor chooses a policy action  $x \in \mathbb{R}$ . The set of possible choices of the floor in stage 3 depends on the procedural rule chosen in stage 0. In the case of open rule, the floor in stage 3 can select any policy action in  $\mathbb{R}$ . However, in case of closed rule the floor

can only choose between  $p$ , the policy action corresponding to the proposal, and  $s \in \mathbb{R}$ , an exogenously given status quo policy commonly known from the beginning of the game. For simplicity it is assumed that the status quo is so undesirable that on the equilibrium path  $p$  is always preferred to it by the floor.

The main result in AAKT states that the optimal choices of the floor, for sponsor biases that are not too large to preclude any information transmission, are given by:

- For  $b_S \leq \underline{b} = 1/6$ , using closed rule and a committee with interests fully aligned with the sponsor:  $b_C^* = b_S$ .
- For  $\underline{b} < b_S < \bar{b} = \frac{2+\sqrt{3/2}}{10}$ , using closed rule and a committee with interests strictly between the sponsor and the floor:  $b_C^* \in (0, b_S)$ .
- For  $\bar{b} < b_S < 1/2$ , using open rule and a committee with interests opposite to the sponsor's:  $b_C^* = -(1 - 2b_S)/3 < 0$ .

For a detailed intuition for these results, see Section 3 in Ambrus et al. (2013). In short, the floor faces a trade-off between information efficiency that can be improved by granting closed rule and appointing a committee with interests aligned with the sponsor, and bias, which can be decreased by choosing open rule or appointing a less-biased committee than the sponsor. For small sponsor-value-biases, informational considerations dominate, leading to closed rule and a committee fully aligned with the sponsor. For large biases open rule becomes optimal, and a committee that is biased in opposition to the sponsor, because in this configuration of preferences, there exists mixed equilibria of the game in which more information is transmitted than if the floor communicated with the sponsor directly.

AAKT also considers a version of the above model in which in stage 0 the floor can only choose the procedural rule, as the bias of the committee is exogenously given. This is motivated by the fact that in modern congress, bills are usually referred to standing committees, the compositions of which typically do not change during a congress. The results in this version of the model are similar to the results regarding the procedural rule in the basic model: closed

rule is optimal if the bias of the sponsor is not too large, and the committee’s bias is in the same direction and not too large in absolute value relative to the sponsor’s.

## 5 Data Description

The data set used in this paper covers various information on roll-call votes in the US House of Representatives. The period the data covers ranges from the 107th Congress, which started in January, 2001, to the 111th Congress that ended in January, 2011. We restricted attention to these relatively recent Congresses because there are distinct trends in legislative practices over time, such as a steady increase in the probability of closed rules, which make legislation from Congresses in the past difficult to compare.

The webpage the *Library of Congress*, dedicated to legislative information, provides excellent online documentation for each roll-call vote. It provides the roll-call number, the date, the issue number, question, result, sponsor of the bill, the committee from which the bill was proposed, and a short description of each bill.<sup>17</sup> For the 107th, 108th, and 109th Congresses, the Republican party was in the majority in the House; the Democratic Party was in the majority under 110th and 111th Congresses. The data set includes information for each legislation, ideology scores for major actors, and special rules.<sup>18</sup> “Special rules” is one of the key variables in our analysis and it requires additional explanation. In the House, the majority party leadership schedules legislation for floor debate. Most major legislation is brought to the House floor by a special rule that allows the measure to be taken up out of order. The Rules Committee reports such rules. The rule sets the terms for a measure’s floor consideration. Different Congresses use different categories of special rules. Therefore, seven coding categories were employed to comprehensively cover the special rules that are used for the 107th through 111th Congresses. These are: a) Open Rules, b) Modified Open Rules 1 (a time cap on consideration of the amendments), c) Modified Open Rules 2 (required

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<sup>17</sup><http://www.loc.gov/index.html>

<sup>18</sup>For the detailed description of each variable, see the Supplementary Online Appendix.

amendment pre-printing in the *Congressional Record*), d) Modified Open Rules 3 (both time cap on consideration of amendments and required reprinting in the *Congressional Record*), e) Structured Rules, f) Structured Rules or Modified Closed Rules, and g) Closed Rules.<sup>19</sup>

## 6 Empirical Analysis

### 6.1 Hypotheses

In this section, we test the qualitative predictions of the model presented in Section 4. In the basic specification, we use DW-NOMINATE scores to measure biases.<sup>20</sup> As a robustness check, in the Supplementary Appendix, we present the same analysis as below using ADA scores.<sup>21</sup>

In the main specification we identify the floor’s position with the majority leader’s DW-NOMINATE score, and compute the bias of a member as the DW-NOMINATE score difference between the member and the majority leader. The majority leader is second-in-command after the Speaker. However, since the Speaker does not participate in floor debates and voting, and the majority leader was more influential under the Republican majority during the time period our data covers, we consider the majority leader’s DW-NOMINATE score to be a more accurate measure of the majority party leadership’s political position. In the Supplementary Appendix we present results based on an alternative specification in which

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<sup>19</sup>For the exact definitions of each of these rules for each Congress during the investigated time period, see the Supplementary Appendix.

<sup>20</sup>We acknowledge that the DW-NOMINATE score is not a perfect measure for capturing bias in the theoretical model because it is possible that a member of Congress may have a different preference for different issues under consideration. It is also known that bias is multifaceted and ideology is only one of the factors that explains bias (Bendor, Glazer, and Hammond 2001). However, it is well known that bias (difference in preferences among actors) is correlated with ideology and ideology is a strong and stable predictor of roll call voting (Poole and Rosenthal 1997). Given these traits and no comprehensive alternative, we think the DW-NOMINATE score is the best proxy for bias in our empirical test.

<sup>21</sup>ADA score is the ranking that ADA (Americans for Democratic Action) assigns to each congressman. ADA members identify key policy issues, and the ADA tracks how members of Congress vote on these issues. The annual ADA Voting Record gives each member a rating from 0, meaning complete disagreement with ADA policies, to 100, meaning complete agreement with ADA policies. A score of zero is considered conservative and a score 100 is considered liberal.

the floor’s preference is given by the Speaker’s DW-NOMINATE score.

We identify a committee’s position with the committee chair’s position. We identify the sponsor of a bill as the individual who originally possesses the information necessary for the legislation (the sender in the game introduced in the previous section).

We identify special rules a)-d) (see the end of Section 5) as open rules, and special rules e)-g) as closed rules because the definitions of latter rules impose significantly more restrictions on the debate and the possibility of amendments than the rest of the rules. Also, there are only a small number of amendments for bills processed under rules e)-g), while there tends to be large number for bills processed under rules a)-d).

From all the roll call votes that were called on the House floor, we focus on votes “on passage,” that is final votes on whether to pass a piece of legislation. For the main analysis, we only consider legislation that was assigned a special rule and a House committee (on legislation not receiving special rules, see the additional analysis in subsection 6.4). This leaves us with 541 observations for most of the analysis.

The three main qualitative hypotheses that we test are the following:

H1: The likelihood of closed rule is decreasing in the sponsor’s bias.

H2: The expected committee bias is close to zero when the sponsor’s bias is close to zero.

H3: The committee bias is positively associated with the sponsor’s bias, in the region of moderate sponsor biases.

To formally address H3, we need to specify the region of sponsor biases that we consider moderate. Because sponsor biases larger than 0.5 in absolute value are clearly outliers in our data, we consider the interval  $[-0.5, 0.5]$  as an upper bound on the region of moderate biases.

We also test a stronger form of H3, that for the region of small sponsor biases the expected committee bias goes hand-in-hand with the sponsor bias.

H3\*: For sponsor biases small in absolute value, a unit increase in the sponsor bias is associated with a unit increase in the expected committee bias.

## 6.2 Main Results

### 6.2.1 Choice of Rule as a Function of Sponsor Bias

To investigate how the sponsor’s bias predicts the chosen procedural rule, we first present point estimates from a nonparametric local logistic regression model with the absolute value of the sponsor’s bias explaining the probability of closed rule (see Figure 1). The bandwidth for the regression was fixed at 0.18. The graph is qualitatively similar for bandwidths narrower than this value.

Though both kinds of rules occur under most of the ranges of sponsor biases in the data, the regression line suggests a discernibly decreasing relationship. In the range of data where most of our observations originate, that is for sponsor biases not higher than 0.45 in absolute value, the predicted likelihood of closed rule decreases from more than 90% to 60%. For even larger sponsor biases the downward trend continues and the predicted probability of closed rule goes to zero, but the estimated regression line in this region should be interpreted with caution, because of the small number of observations. In general the 95% simultaneous confidence bounds (not shown) are very wide for the whole range of sponsor biases, and for this reason the results from this specification are only suggestive.

Table 1 reports the marginal effect of an increase in the sponsor’s absolute bias on the probability of closed rule, from linear and probit regressions. As columns 1 and 3 show, without controls for committee and fixed effects, we find a significant and large negative relationship in both types of regressions. Columns 2 and 4 show that the effect becomes insignificant when introducing committee and congressional controls (with the point estimate remaining negative). However, this does not contradict H1. Instead, it suggests that there are not many committees within the same Congress that receive both a large number of closed and open procedural rules for their proposals. This can happen for example, because within a Congress, a given committee receives referrals that originate from similar sponsors. For this reason, we consider the regressions without committee and congressional controls to be the

correct tests of H1, but also report the regressions with controls for completeness.

Figure 2 takes a closer look at what drives the above result. Among special rules that have a nontrivial number of observations in our data, we see that in the range of sponsor biases from which the bulk of the observations originate, the likelihood of the rule remains roughly constant in the sponsor bias for all rules but (a) (pure open) and (g) (pure closed). There is a distinct upward trend in the likelihood of rule (a), and a distinct downward trend in the likelihood of rule (g).

Overall, we conclude that even though there is a considerable amount of variation in the data, and both closed and open rules are assigned with positive probability for the whole range of sponsor biases, H1 is largely supported.

### **6.2.2 Choice of Committee Bias as a Function of Sponsor Bias**

For the next set of regressions we restrict our sample to bills that originally are referred to multiple committees, as these are the bills for which the floor has some flexibility in selecting the primary committee responsible for the bill.

First, we investigate which committee is selected to be the primary one for multiple referral bills. The theoretical prediction is that when the bias of the sponsor is not too large, the selected committee should be the one closest to the sponsor's preferences. Since for all of the bills with multiple referrals in our sample, the sponsor bias was in the moderate  $[-0.5, 0.5]$  range, we conduct this investigation both for all bills with multiple referrals, and for the subsample of multiple referral bills for which the sponsor's bias was from the more restrictive  $[-0.25, 0.25]$  range. As Table ?? shows, in both cases the probability that the committee closest to the sponsor's preferences becomes the primary one is close to  $3/4$ . Moreover, even in cases when the primary committee is not the closest one to the sponsor, the DW-NOMINATE score difference between the ultimately chosen committee and the closest one is very small: 0.035 and 0.036 for the two samples. This means that for all practical purposes we can assume, in accordance with the theoretical predictions, that the committee closest to the sponsor gets

selected as the primary one.

Next, we again consider a local linear regression, with the same fixed bandwidth as before (0.18), to examine the effect of the sponsor bias on the choice of committee bias, for the multiple referrals subsample. Figure 3 displays the point estimates alongside the 95% confidence bands. Although again there is some variation, there is a clear positive relationship for the whole range of sponsor biases in the subsample. Moreover, the regression line passes close to the origin (the latter is in the 95% confidence band), indicating that sponsors with biases close to zero on average get associated with committees with bias zero.

The corresponding linear regressions reported in Table 4 confirm that there is a strongly significant positive relationship between committee bias and sponsor bias. As column 2 shows, this result is robust to introducing committee- and Congress-fixed effects. Column 3 shows that the point estimate is even higher when we restrict the sample to sponsor biases  $[-0.25, 0.25]$ .<sup>22</sup> However, it stays significantly less than one even in this region. Therefore, results from this specification support H3, but not H3\*. The intercept is statistically insignificant and very small in magnitude in the specifications without committee- and Congress-fixed effects, and significantly negative when the latter controls are included. For the same reasons detailed in the previous subsection, we regard the specification with no controls to be the correct one. With this caveat, the results support H2.

As an alternative approach to investigate the relationship between sponsor bias and committee bias, we also look at how a committee's bias is associated with the average sponsor bias for bills referred to the given committee, during a particular Congress (the duration of which the composition of the committee is largely constant). For this investigation we use all bills. Table 4 reports results from this specification. The effect of mean sponsor bias is significantly positive, and larger (closer to one) than in the previous set of regressions. Column 2 reports a specification in which we restrict attention to committee-Congress pairs with more than two observations. This is done to partially correct for the fact that this type of

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<sup>22</sup>The results are similar when we restrict the sample to sponsor biases  $[-0.2, 0.2]$  or  $[-0.15, 0.15]$ .

regression treats every committee-Congress pair as one observation, independently from how many bills are associated with it (nor weighting with the number of bills). This specification reveals an almost exactly unit slope in the linear relationship between committee bias and average sponsor bias for referrals to the committee. Hence the above specifications strongly support H3, and the one corresponding to the second column supports H3\*. Moreover, the intercept is small and insignificant in both columns 1 and 2, hence these specifications provide support for H2.

Overall, we find distinct support in the data for both H2 and H3, and more limited support for H3\*.

### **6.3 Alternative Specifications: A Summary**

The Supplementary Appendix reports results from two alternative specifications, conducted as robustness checks. Here we briefly summarize the findings.

The first specification associates the floor's preferences with the Speaker's - as apposed to the majority party leader' - DW-NOMINATE score. The relationship between committee bias and sponsor bias is very similar to the main specification. In particular, there is a significant positive linear relationship, robust to including Congress- and committee-fixed effects, with a larger point estimate when restricting the sample to small sponsor biases. The intercept is very small and insignificant for all of these specifications, providing support for H2. Similarly, when regressing committee bias on the average sponsor bias for bills referred to the committee during a given Congress, we find a significant positive relationship, and a virtually zero intercept. When we restrict the data set to committee-Congress pairs with more than two observations, the estimate of the regression coefficient is 0.95 and not significantly different from 1. In contrast, the relationship between the probability of closed rule and the absolute value of the sponsor bias becomes insignificant, although negative in all specifications.

The second alternative specification associates the floor's preferences with the ADA score of the majority leader, as apposed to the DW-NOMINATE score. The results are very similar

to those from the first alternative specification. There is a significant positive relationship between committee and sponsor bias, and it is more highlighted for small biases. The intercepts are small and insignificant in all specifications. Similar conclusions hold for the specifications regressing committee bias on the average sponsor bias for bills referred to the committee during a given Congress. However, the relationship between the probability of closed rule and sponsor bias becomes approximately zero in this specification.

Over all, the results from the main specification with respect to the relationship between committee and sponsor bias are robust to these alternative ways of measuring the floor's preferences, but the results with respect to the relationship between procedural rules and sponsor bias are not. The latter might be attributed to these measures being more noisier indicators of the majority party leadership's preferences than the one used in the main specification.

## **6.4 Additional Investigation: Legislation Receiving No Special Rules**

As discussed in Section 3, a fraction of bills do not receive special rules: Instead, they are called up by unanimous consent request or by motions to suspend the rules. In particular, our data contains 52 roll call votes that fall into this category. The legislative procedure in these cases is similar to strict closed rule, in that debate is severely limited and no amendments are allowed. The difference is that, as opposed to closed rule for which a simple majority is sufficient to pass the legislation, either unanimous support or two-thirds majority support is required.

Given that these bills are supported by a large fraction of members of the House of Representatives, the biases of the sponsor and the committee should be less important for the floor. This suggests that the absolute biases of the sponsors for these bills could be higher than the absolute biases of the sponsors of bills considered under (strict) closed rule. Similarly, we expect the absolute difference between the preferences of the sponsor and the committee for these bills to be larger than for bills considered under closed rule.

We conclude our empirical investigation by formally testing these two predictions. We find evidence in line with both: The absolute sponsor bias of the 152 bills with strict closed rules was 0.157, while it was 0.22 for votes with no rules. That the latter is larger than the former is marginally significant at the 5% level ( $t=-1.69$ ). Second, the absolute sponsor-committee difference is 0.093 for explicit closed rules and 0.165 for votes without rules, the latter again statistically significantly larger at the 5% level ( $t=-1.81$ ).

## 7 Conclusion

Using roll-call data from the House of Representatives, we found support for the main qualitative predictions of an information theory model of legislative decision-making in which information is strategically passed from the sponsor of a legislation to a committee, and then from the committee to the floor. In particular, the expected bias of the committee is strongly positively associated with the bias of the sponsor, and the likelihood of closed rule is decreasing in the sponsor's absolute bias. At the same time, a considerable amount of variation in the data suggests that other forces are also at play in committee appointments and procedural rule selection.

There are future directions of research that require collecting more data. One is to directly investigate the interaction between sponsors and interest groups. It would also be interesting to conduct a closer examination of the type of legislation in which informational considerations play a more prominent role. Finally, analyzing committee selection in the early days of Congress, before the prevalence of standing committees, would facilitate a more direct test of the theoretically predicted relationship between sponsor bias and committee bias than the tests conducted in the current paper, which are based on recent data.

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Table 1: Regression Analysis

	(1)	(2)	(3)	(4)
Absolute value of sponsor bias	-0.539** (0.190)	-0.139 (0.122)	-1.729*** (0.467)	-0.135 (0.759)
Congress FE		X		X
Committee FE		X		X
Observations	531	531	531	380
$R^2$	0.037	0.395		

Marginal effects from linear and probit regressions of closed rule use on sponsor bias relative to the majority leader (DW-NOMINATE score). Huber-White standard errors, clustered at the Congress-committee level are reported in parentheses. Column (2) controls for committees and Congress fixed effects. Columns (3) and (4) show probit models, with or without controls.

Table 2: The Frequency of Final Committee being the Closest One to the Sponsor

Final committee is	Full sample	Sponsor bias < 0.25
not the closest	47	37
the closest	128	90
Total	175	127

Table 3: Regression Analysis

	(1)	(2)	(3)
Sponsor bias	0.602*** (0.0858)	0.315** (0.0971)	0.660*** (0.0804)
Constant	-0.0332 (0.0183)	-0.244* (0.0977)	-0.0298 (0.0181)
Congress FE		X	
Committee FE		X	
Observations	163	163	122
$R^2$	0.384	0.683	0.307

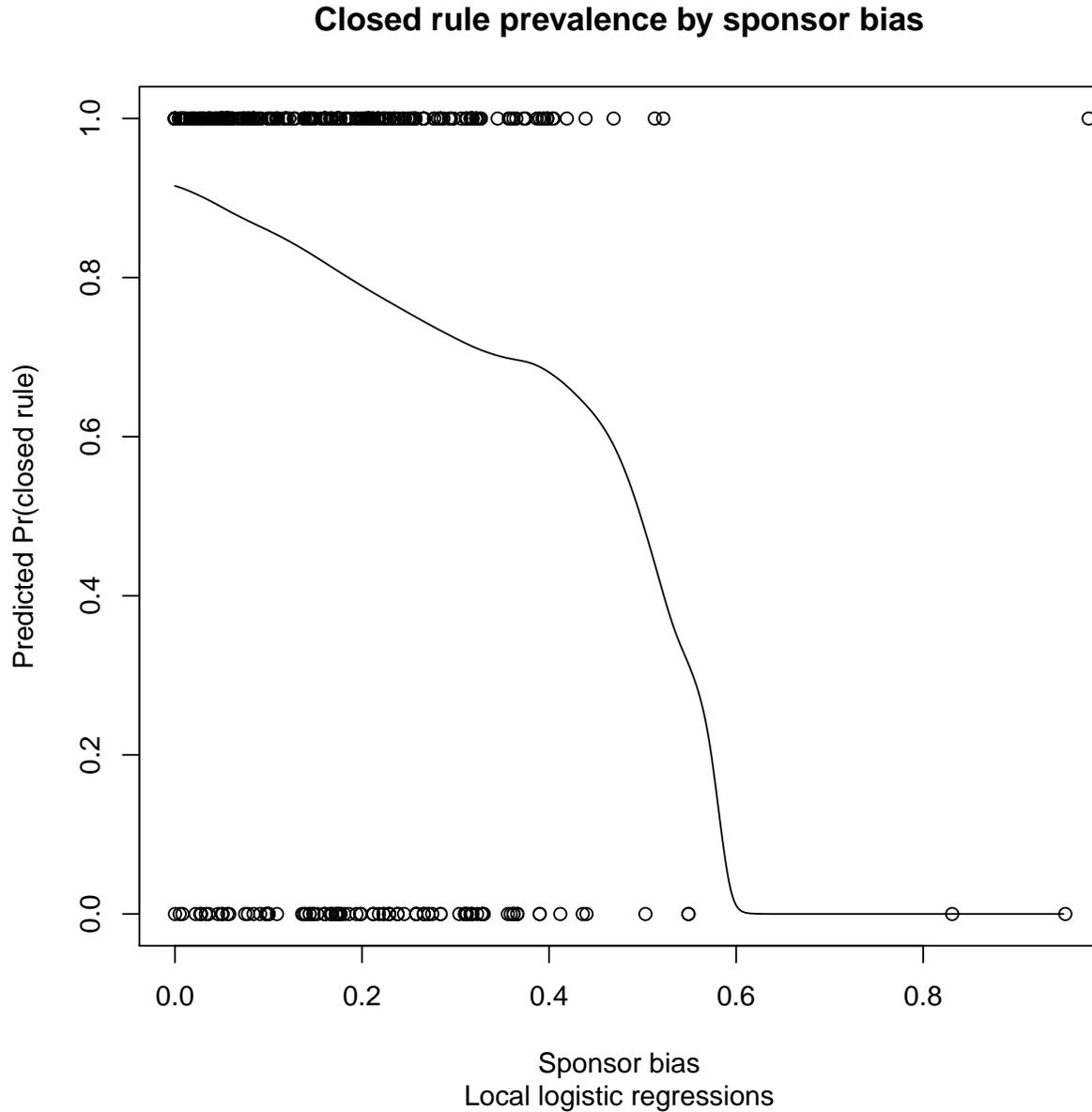
Linear regressions of the committee bias measured as the absolute distance of committee median from the majority leader, for bills with multiple referrals. Huber-White standard errors, clustered at the Congress-committee level are reported in parentheses. Column (2) controls for committees and Congress fixed effects. Column (3) repeats column (1) for rolls with small sponsor bias (< 0.25).

Table 4: Committee Level Analysis

	(1)	(2)
Average sponsor bias	0.691*** (0.157)	0.980*** (0.0640)
Constant	-0.0414 (0.0226)	0.00250 (0.0161)
Congress FE		X
Committee FE		X
Observations	85	51
$R^2$	0.437	0.752

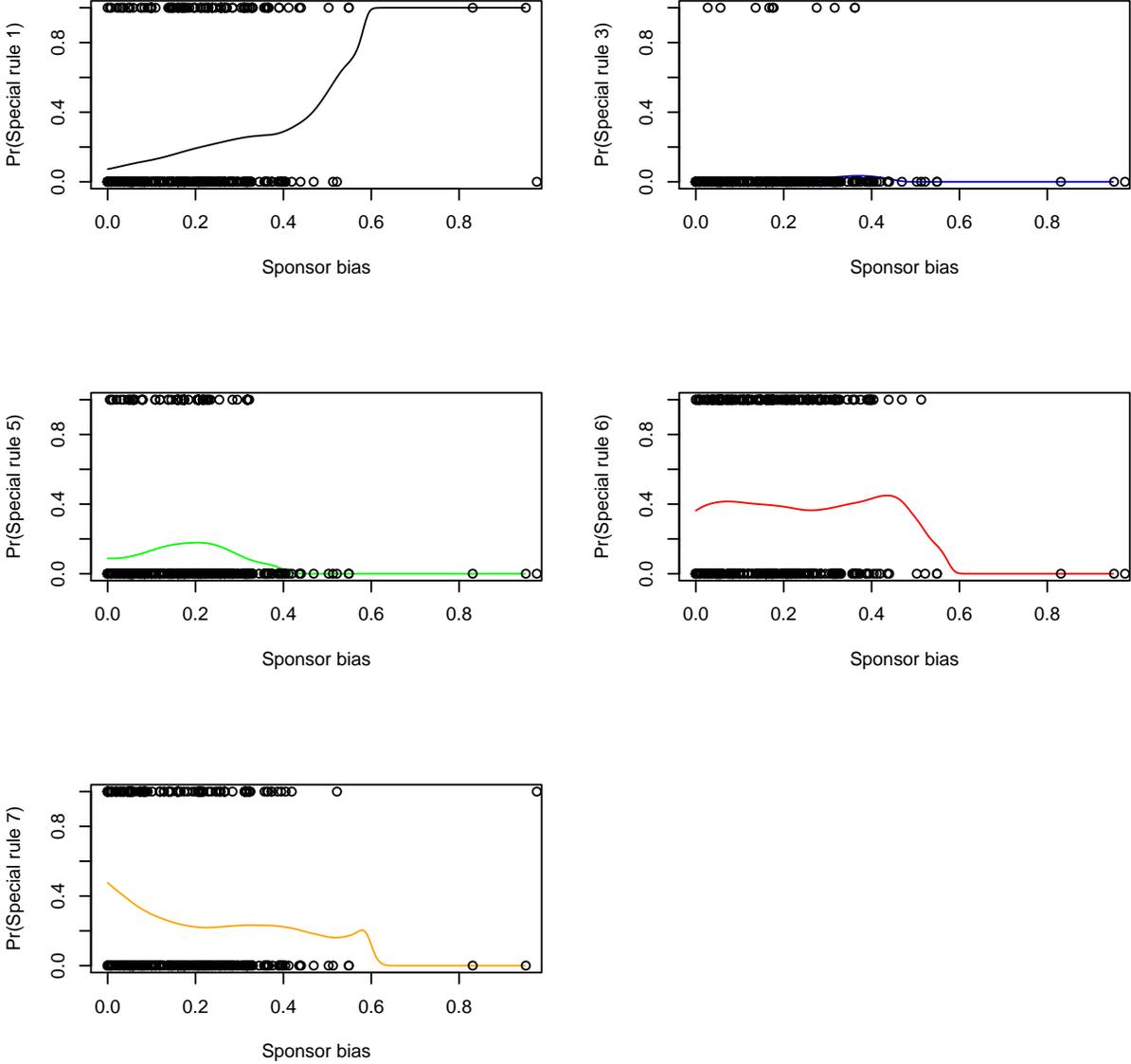
OLS regressions of average committee bias on average sponsor bias relative to the majority leader (DW-NOMINATE score), with and without controls. Huber-White standard errors, clustered at the Congress-committee level are reported in parentheses.

Figure 1: Local Logistic Regression with Fixed Bandwidth



Point estimates for probability of closed rule using a flexible local logistic regression model with the absolute value of the sponsor's bias relative to the majority leader (DW-NOMINATE score), using a bandwidth of 0.18.

Figure 2: Local Logistic Regression with Fixed Bandwidth for Each Rule Selection



Point estimates for probabilities of different special rules using a flexible local logistic regression model with the absolute value of the sponsor’s bias relative to the majority leader (DW-NOMINATE score), using a bandwidth of 0.18.

Figure 3: Local Linear Regression, Biases Relative to the Majority Leader (DW-NOMINATE score), for Bills with Multiple Referrals Only

