

Policy Dimensionality and Sponsorship Patterns in the U.S. House of Representatives *

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Abstract

We explore how ideology and seat vulnerability influence sponsorship patterns in the U.S. House of Representatives. Using data on congressional bill sponsorships in the 108th-112th congresses, we investigate if ideologically extreme members of Congress sponsor more bills than moderate members. We argue bill sponsorship better serves the goals of ideologically extreme lawmakers because they represent ideologically homogeneous districts, and their policy preferences are furthest from the chamber median. We also explore whether policy dimensionality is associated with the sponsorship patterns of electorally vulnerable members, with the expectation that vulnerable members will avoid sponsoring bills in one-dimensional areas that reinforce partisan divisions. To test our hypotheses, we use count data measuring bills sponsored across six distinct policy areas and use multidimensional scaling to identify members' policy specific ideal points. We find that on one-dimensional policy topics, electorally vulnerable members sponsor fewer bills than safe members, and ideologically extreme lawmakers sponsor more bills than moderate legislators. However, we find these patterns do not apply to sponsoring in multidimensional policy topics. Overall, this paper provides new insight into the biases that exist within the sponsorship stage of the congressional policy process.

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Introduction

The 112th Congress witnessed nearly 7,000 bills introduced, with the average member sponsoring more than 15 pieces of legislation.¹ While only 8 percent of those bills ever reached the president's desk to be signed into law, members spent significant time and resources securing cosponsors and delivering floor speeches to advocate for their sponsored policies. Lawmakers continue to sponsor bills at high rates, yet nearly all are fated for failure. This suggests that members often introduce legislation for other goals beyond advancing their policy preferences, and that when they do pursue policy goals, they need to be strategic in guiding their bill through the policy process.

Abundant congressional research has examined the goals and strategies behind members' roll call voting records, but we argue meaningful patterns can also be observed earlier in the policy process. Specifically, this paper adopts a policy specific approach to better understand lawmakers' bill sponsorship efforts and identify how member characteristics and policy dimensionality influence sponsorship patterns. In particular, we investigate how ideology and seat vulnerability may contribute to lawmakers' approaches to sponsorship.

We hypothesize that, all else equal, members with more ideologically extreme ideal points on a given policy dimension will be more likely to sponsor legislation related to that policy area than more moderate members. Ideologically extreme members likely represent relatively ideologically homogenous districts, and thus face less electoral risk in sponsoring policy items on dimensions that have sharp partisan divisions. Extreme members also stand to gain the most by shifting a policy to their ideal point, especially if the status quo lies close to the chamber median.

We also theorize about the importance of policy dimensionality in explaining sponsorship behavior. While some policy dimensions are almost completely explained by partisan divisions, the variance in voting on other policy areas may be explained by inter-party differences, such as regional characteristics or constituency demands. Moreover, we hypothesize a member who sits in a vulnerable seat will be more likely to sponsor bills in multidimensional policy topics than one-dimensional policies because she wants to avoid publicly taking positions on partisan issues that could alienate constituents and risk reelection.

To assess our hypotheses, we use data on bills sponsored in the U.S. House from the 108th to 112th congresses on six policy topics: three one-dimensional policies and three multidimensional policies. Our analysis finds support that electorally vulnerable members sponsor fewer bills in one-dimensional policy topics than safe members. We also find support that, in one-dimensional policy areas, ideologically extreme members are more likely to sponsor legislation than moderate legislators. However, these findings do not extend to multidimensional policy areas. We argue that these findings give insight into the biases that exist within the sponsorship stage of the policy process. The types of policies introduced in Congress are not representative of the chamber's preferences if all members sponsored at similar levels, which ultimately have implications for congressional behavior and institutional outcomes.

¹ "Vital Statistics on Congress" The Brookings Institution. www.brookings.edu/vitalstats

Bill Sponsorship in the U.S. House

Sponsorship and Member Goals

Members of Congress face limitations with regard to time and resources (both cognitive and material) in deciding how to devote efforts to developing and advancing policy (Jones 2003, Simon 1985). Because of the demands on a legislator's schedule, he must spend the vast majority of his time advancing his reelection and policy goals. Members hold these goals to varying degrees, shaped by their personal and district characteristics (Fenno 1973, Mayhew 1974) as well as differing configurations of institutional power (Lee 2016).

Indeed, much of how legislators present themselves and act in Congress is influenced by the reelection goal (Fenno 1978, Mayhew 1974). Lawmakers in vulnerable seats have to act in a way that appeals to a more heterogeneous constituency, so they direct more energy toward constituency work and securing money for their district while also avoiding taking positions on salient, partisan issues so as to not alienate voters (Grimmer 2013, Wichowsky 2012). Increasingly, members sit in electorally safer seats. This means they represent a more ideologically consistent constituency and would be rewarded for engaging in partisan policy debate.

Previous analyses of how members pursue their legislative goals have largely focused on roll call outcomes. The connection between sponsorship patterns and member goals, however, has been relatively understudied. Most members have little control over which policy alternatives reach the floor for a vote due to party agenda control and the winnowing process, but sponsorship offers members greater policy freedom to present bills that more align with their preferences and goals. Beyond the time and resource costs of drafting legislation, there are few limitations as to which policies and how many bills members can introduce (Garand & Burke 2006).

Sponsoring legislation sends a signal to other lawmakers and policy leaders that the policy issue is important to the legislator and is an issue the legislator would like to be associated with (Schiller 1995). Even if the legislator has no intention of the bill becoming law, legislators can use sponsorship to send a message to constituents, interest groups, donors, or other outside parties about their policy preferences (Rocca & Gordon 2010).

Voters often cite legislative effectiveness as a factor that influences their approval of lawmakers (Jacobson & Carson 2015), so legislators can use sponsorship efforts as a sign of effectiveness even when institutional obstacles prevent them from actually passing much of their policy agenda into law. In investigating the electoral consequences of sponsorship, it is also important to note that legislators will seek to *avoid* sponsoring legislation that could bring them unwanted attention or could be used against them in future elections.

Predictors of Sponsorship

Legislators' committee positions are consistently one of the most important predictors of sponsorship. Committee chairs sponsor more bills than the typical member, and legislators are more likely to sponsor legislation within the jurisdiction of their committee assignment (Krutz 2005). The committee system is designed to encourage policy expertise and investments in problem-solving activities, so it is not surprising this feature of committees is visible

through bill introduction activities (Adler & Wilkerson 2013).

Other common empirical predictors of congressional behavior have a more ambiguous association with sponsorship patterns. For instance, findings have been mixed on whether seniority or ideology predict increased bill sponsorship (Garand & Burke 2006, Lazarus 2013, Rocca & Sanchez 2008). Extant literature also contains opposing arguments regarding whether the majority of bills introduced primarily reflect substantive policy goals or simply represent member position taking (Anderson, Box-Steffensmeier & Sinclair-Chapman 2003, Krutz 2005, Lazarus 2013). We argue that because so few bills reach a floor vote, much less become law, often sponsoring is an opportunity to advocate a member’s preferences. Moreover, when members do prioritize substantive policy goals, their strategy for when to sponsor and which bills to introduce will be tailored to ensuring political success for their sponsored legislation.

Policy Dimensionality

Across time, most roll call voting in Congress can be explained by members’ ideology. In particular, Poole & Rosenthal’s (1991) NOMINATE scores, which place lawmakers on a single dimension ranging from liberal to conservative, have led to rigorous empirical treatments of congressional roll call voting. Indeed, the development of NOMINATE has greatly benefited the congressional literature; however, past scholars have noted that this parsimonious model can obscure important variation when examining specific policies versus aggregate political outcomes (Aldrich, Montgomery & Sparks 2014, Crespin & Rohde 2010, Hurwitz, Moiles & Rohde 2001, Jochim & Jones 2013, Roberts, Smith & Haptonstahl 2009).

Within a legislative session, legislators are not necessarily ideologically consistent across policy topics, and voting patterns on specific issues, such as agriculture or foreign trade, are often best explained by two or more dimensions due to inter-party divides or constituent demands. Other issues, such as the economy or social welfare, represent policy topics that the parties have well established positions on and are often the most salient issues debated by the two parties on the campaign trail. These highly prominent issues are largely explained by partisanship. In other words, political dimensionality demonstrates the “complexity of the issues and the presence of cross-cutting majorities” (Maltzman & Smith 1994, 457).

This paper takes into special consideration policy dimensionality and how this may influence sponsorship efforts. Due to majority party agenda control (Cox & McCubbins 2005), legislation that reaches the floor may be more party-centric. However, lawmakers are afforded more policy freedom at the sponsorship stage of the process, and thus more room to offer bills that could be backed by a bipartisan coalition (Dougherty, Lynch & Madonna 2014). Due to personal or district characteristics, members may advance their goals by spending more time and resources sponsoring either one-dimensional or multidimensional policy issues. Specifically, this paper takes a policy specific approach to studying sponsorship; we adopt policy specific measures of member preferences to address the issue specific nuances that impact the policy process.

Theory & Hypotheses

Some lawmakers sponsor legislation frequently, while others devote minimal effort to this stage of the policy process. In our exploration of what influences congressional sponsorship patterns, we theorize that policy dimensionality is an underlying factor that members consciously consider in determining how to allocate their policy efforts. Below, we outline two hypotheses regarding seat vulnerability and ideology, member characteristics that we predict represent important influences on sponsorship patterns.

Seat Vulnerability and Sponsorship

At the ballot box, lawmakers are often judged by the political positions they take rather than the outcomes they achieve (Mayhew 1974), so it is reasonable to assume members view bill sponsorship as an opportunity to take a position on an issue which they believe will aid their electoral goals. All lawmakers have reelection goals, yet marginal members have to engage in different types of activities than safe members to ensure electoral success. Vulnerable members often adopt a more credit claiming focused strategy (Grimmer 2013), and spend more time on securing money for their district (Lee 2003) and managing constituency casework (Anderson, Box-Steffensmeier & Sinclair-Chapman 2003, Wichowsky 2012).

We theorize that policy dimensionality will play a role in these vulnerable members' decisions to sponsor legislation. Marginal lawmakers may avoid one-dimensional policies because nearly all of the variance in voting on these policies is explained by party differences. Because one-dimensional policy is typically contentious, vulnerable members will avoid sponsoring bills on these partisan policy topics in order to avoid endangering their bid for reelection. Indeed, members fearing defeat on election day will try their best to dodge taking a public stance on an issue that could be potentially divisive among constituents. Further, vulnerable members are more likely to represent districts that are ideologically heterogeneous, and thus will not want to sponsor legislation that could put them at risk of losing the votes of key constituent groups.

Electoral safe members are still, to a lesser degree, concerned about reelection efforts; however, safe members can accomplish electoral goals through different avenues because they represent a more ideologically homogeneous constituency. These lawmakers have more flexibility in the policies they pursue (Anderson, Box-Steffensmeier & Sinclair-Chapman 2003, Bianco 1994) as they are less tied down by district demands.

Because safe legislators represent more ideologically consistent districts, they are likely rewarded for taking public positions on salient, partisan policy issues, and thus will not shy away from sponsoring legislation in one-dimensional policy topics. This incentive is further enhanced if the member believes the primary contest to be the most relevant to their reelection bid, a venue that rewards clear stances on controversial partisan issues. This rationale leads to our first hypothesis:

Hypothesis 1a *Electoral safe members of Congress will sponsor fewer bills in one-dimensional policy topics than electorally safe members.*

While vulnerable members may tend to avoid one-dimensional policy topics, we expect they will devote *more* of their sponsorship efforts to multidimensional policy topics. A

majority of voting on multidimensional policy topics is still explained by party differences; however, these issues display an important second or third dimension that represents legislative coalitions that cross party lines.

We still expect electorally safe members to engage in sponsoring in multidimensional policy areas, but they will certainly spend less time sponsoring bills in multidimensional versus unidimensional policy areas. Because vulnerable members will tend to avoid one-dimensional issues, their time spent sponsoring legislation is allocated to multidimensional issues. Vulnerable members that spend considerable effort sponsoring in multidimensional policy areas can capitalize on the politically advantageous justification that they have spent their precious time in the legislature meeting district demands or advocating for measures that draw bipartisan support. From this distinction we draw our second prediction:

Hypothesis 1b *Electorally vulnerable members of Congress will sponsor more bills in multidimensional policy topics than electorally safe members.*

Ideology and Sponsorship

Past scholarship on the relationship between ideology and bill sponsorship has produced mixed findings; however, typically scholars have only analyzed aggregate bills sponsored by legislators. When extant literature does consider bill sponsorship by policy topic, the ideology variable used is often an aggregate measure (Garand & Burke 2006, Schiller 1995). By contrast, we argue for a policy specific approach to best capture any policy specific nuance that surrounds sponsorship. While members are relatively ideologically consistent across time (Poole 2007), they are not ideologically consistent across policy issues (Crespin & Rohde 2010). Due to regional differences, district demands, or individual preferences, a legislator could be moderate on one policy topic while more extreme on another.

Legislators who vote in an ideologically extreme fashion most often do so to advance either the reelection goal or the policy goal. From a reelection perspective, a lawmaker who takes extreme positions on policy areas is more likely to represent constituents who also hold consistently extreme views within that policy area. An extreme member would then be more likely to articulate their stance through public position taking because they do not risk losing necessary votes in their district, and would even be rewarded electorally for making their policy preference public.

Additionally, legislators who adopt a more moderate record on a policy are more likely to represent a district that is ideologically inconsistent on that policy. These legislators would want to adopt a record of bipartisan actions in this policy area to demonstrate they are serving different interests among constituents. In sponsoring legislation, moderate members will avoid sponsoring bills in a policy area in which taking a public stance could threaten their electoral future. In comparison to extreme members with more homogenous constituencies, moderate members will have a more difficult time drafting a bill that is broadly appealing to their more heterogeneous constituents.

From a policy perspective, ideologically extreme members have the most to gain from sponsoring successful legislation. In other words, because these members' ideal policy lies far from the chamber median, they have the most to gain by sponsoring a bill that pushes legislation in their favor, rather than toward the chamber median. While changes to a bill can

be made throughout the policy process, sponsoring legislation offers a unique opportunity for a legislator to frame the debate surrounding an issue and focus attention to dimensions of the issue that give their preferences the best hope of advancing through the policy process (Jones 1994). Sponsoring legislation allows lawmakers to set the terms of the debate which best favor their preferred outcome.

From the perspective of theories of legislative organization that posit the chamber median as pivotal, (Krehbiel 2010), the status quo policy is already more likely to represent the preferences of moderate legislators, and these members have little incentive to propose an alternative to the status quo. Thus, we propose our second hypothesis:

Hypothesis 2 *Ideologically extreme members of Congress will sponsor more legislation than moderate members.*

Data & Methods

To examine our hypotheses about members of Congress and sponsorship patterns, we collected data on House sponsorships from the 108th to 112th congresses, a ten year time span that includes periods of both unified and divided government. Because we are interested in understanding sponsorship in one-dimensional and multidimensional policy areas, we need to first identify policy topics that fit into both of these categories.² For this paper, we identify three unidimensional policy topics, economy, social welfare, and labor, and three multidimensional policy topics, agriculture, foreign trade, and business.

First, to uncover the underlying dimensionality of our policies, we identified all roll call votes for each session of Congress during this 10 year period that were coded as one of these six policy topics of interest, as made available through the Congressional Bills Project (Adler & Wilkerson 2003-2012).³ We adopt the W-NOMINATE method to scale these roll call votes (Poole, Lewis, Lo & Carroll 2008).

W-NOMINATE assumes legislators have an ideal policy preference point in a multidimensional space, and that this ideal point can be uncovered through preferences expressed in roll call votes. When faced with a roll call vote, a legislator will vote aye if the proposed policy is more aligned with her preferences than the status quo and nay if she prefers the status quo. To conduct our analysis we employ multidimensional scaling, a data reduction technique useful for identifying the distinct underlying sources of variability in data. This method is traditionally used to analyze the dimensionality of all roll call votes, which throughout history typically identifies two distinct dimensions with the first dimension, identified as political party differences, capturing the vast majority of the variance (Poole & Rosenthal 1991).

The second step was to subset roll call votes by Congress and by each of our policy topics of interest, and then to scale members so that each representative would have a separate ideal point for economy, social welfare, labor, agriculture, foreign trade, and business for

²We used Jochim & Jones 2012 as a starting reference in identifying which policies to test for dimensionality.

³There were too few roll call votes under the policy topic of social welfare to scale, so we combine social welfare and housing policies. These policies are coded separately via the Policy Agenda Project, but we felt these two policy areas contain similar issue content, and prior research has identified both as being unidimensional.

each session they served in Congress.⁴ W-NOMINATE first dimension ideal point estimates are constrained between -1, most liberal, to 1, most conservative.⁵ To identify the number of dimensions for each policy topic, we graphed scree plots and identified the elbow of the plot to signify the number of dimensions (Cattell 1966).

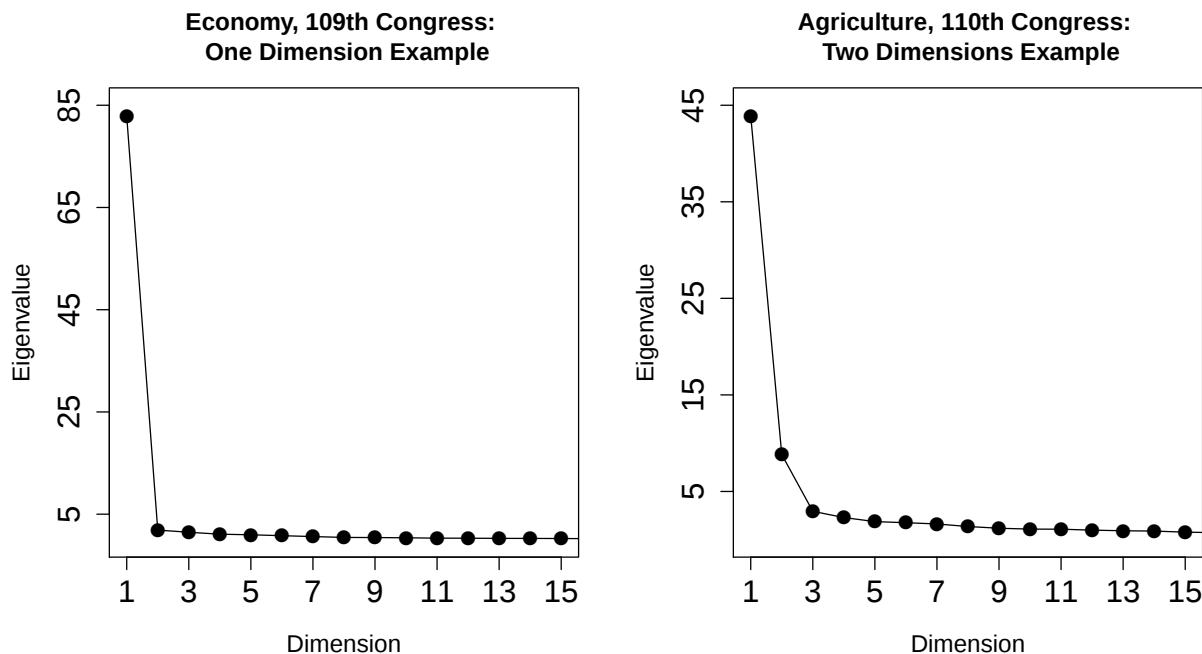


Figure 1: Scree Plots: Unidimensional & Multidimensional Policy Topics

Note: These plots are two examples of the scree plots we used to visualize the number of distinct dimensions within each policy topic. A scree plot visualizes the proportion of variance in voting that is explained by each additional dimension. The elbow of each plot is used to identify the number of distinctly interesting dimensions.

Figure 1 presents examples of a unidimensional and a multidimensional policy topic. For example, the scree plot of the economy policy area in the 109th Congress shows an elbow at the second dimension, thus signifying this is a one-dimensional policy topic (meaning most voting on the economy can be explained by party differences). For comparison, the first dimension for agriculture in the 110th Congress explains much less of the variance in

⁴We follow (Armstrong, Bakker, Carroll, Hare, Poole, Rosenthal et al. 2014) and treat abstentions as missing data and code a vote as 0 if the member was not serving in Congress at the time of that vote. We omitted the president from the roll call data.

⁵For our scaling, we followed (Jochim & Jones 2013) and specified 12 as the minimum number of votes a legislator needed to have cast to be included in the analysis. We use the Poole and Rosenthal default value for lop-sided votes, discarding any votes where less than 2.5 percent of members were in the voting minority. We used Poole and Rosenthal’s DW-NOMINATE scores to identify legislators to set as the polarity of our estimates, which serves as a jump off point to set which legislators fall on the positive side of each dimension.

voting than the first dimension for the 109th economy as evident in the eigenvalue of the first dimension. Agriculture also displays a clear second dimension of important variance.

For agriculture, business, economy, and labor, there were enough votes in each Congress to scale for all five sessions; however, because of limitations on roll call votes, we were unable to scale foreign trade for the 110th or 112th congresses and social welfare for the 109th or 112th congresses. Figure 2 shows, on the left, the average number of dimensions for each policy topic. Social welfare, labor, and the economy were consistently unidimensional across the 10 years while foreign trade, agriculture, and business varied between one and three dimensions.

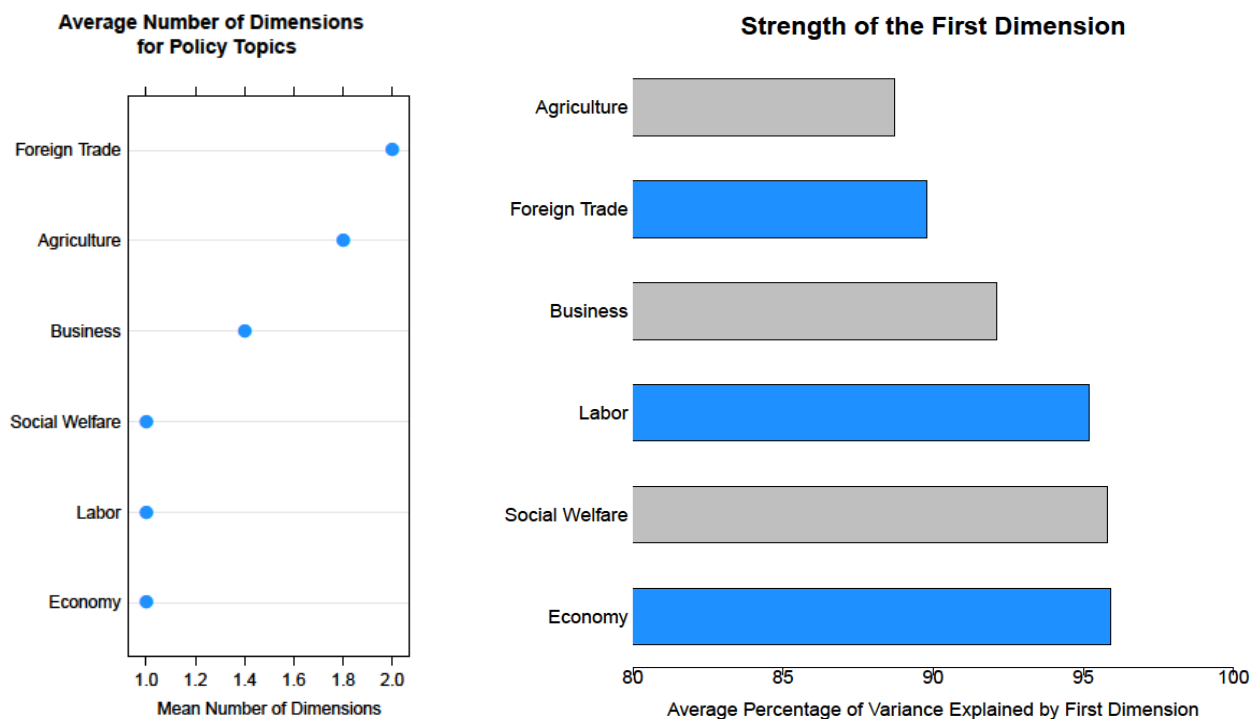


Figure 2: Policy Dimensionality

The right side of Figure 2 presents the average percentage of variance explained by the first dimension for each policy. The three consistently one-dimensional policies averaged approximately 95 percent explained by the first dimension, while less variance was captured in the first dimension for the other three policies as the second dimension captured additional interesting variance in voting. The first dimension for each of these policy areas is party differences, but the explanation for the second or third dimension for some of these domains is ambiguous.

Additional dimensions represent some sort of inter-party difference which could be regional differences, district demands, or personal preferences. While exploring the meaning behind these dimensions is an interesting avenue for future research, within this project we are agnostic to the causes of inter-party divisions. Rather, we are interested in observing the

overall differences between unidimensional policies, which are explained mostly by party, and multidimensional policies, which are explained by party and one or two additional important sources of influence.

As outlined in our theory, legislators are not ideologically consistent across policy topics, which is why we argue that the use of an aggregate ideology score is not appropriate when addressing policy specific research questions. Figure 3 highlights four legislators in the 112th Congress who demonstrate this point. Each of these four legislators is ideologically extreme on one policy dimension (close to either -1 or 1) and moderate on another (close to zero).

For example, Representative Steve King (R-IA) is close to 1 on the first dimension of economy, meaning he is one of the chamber’s most conservative members when voting on economy bills, yet is much more moderate when it comes to agriculture bills. If we were to use an aggregate ideology measure, we would miss this policy specific nuance of legislators’ voting behavior. However, to validate our ideology measures, we correlated members’ overall DW-NOMINATE score with our measures of ideology. Our policy specific ideology measures correlated with DW-NOMINATE between 0.81 and 0.93. This correlation speaks to the construct validity of our measure while also indicating the important variation concealed by aggregate measures for member preferences.

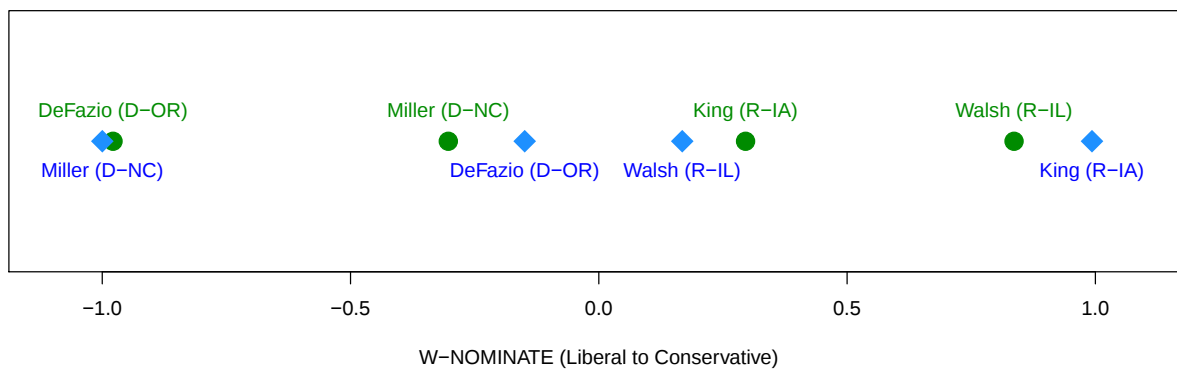


Figure 3: Agriculture and Economy W-NOMINATE in the 112th Congress

Note: The blue diamonds represent legislators’ economy ideal points, and green circles are legislators’ agriculture ideal points.

Variables

The dependent variable for our analysis is a count of bills sponsored by each legislator by policy topic in the 108th-112th congresses. Figure 4 plots the distribution of our dependent variable by policy area. For each policy topic, the median number of bills sponsored is zero, but the range of sponsorships varies by policy topic. For example, the maximum number of agriculture bills sponsored by a single legislator was nine, compared to a maximum of 57 bills within foreign trade policy.

Our first hypothesis is that electorally vulnerable members sponsor more bills in multi-dimensional policy areas. To assess this prediction, we use a member’s vote share, measured as the vote percentage secured by the member in her most recent election.⁶ Our second hypothesis states that ideologically extreme members will sponsor more bills across both unidimensional and multidimensional issues. We test this using our policy specific measure of ideology, which we construct using the scaling process outlined above. In our models, we only included the first dimension of each policy so as to be consistent across policies.

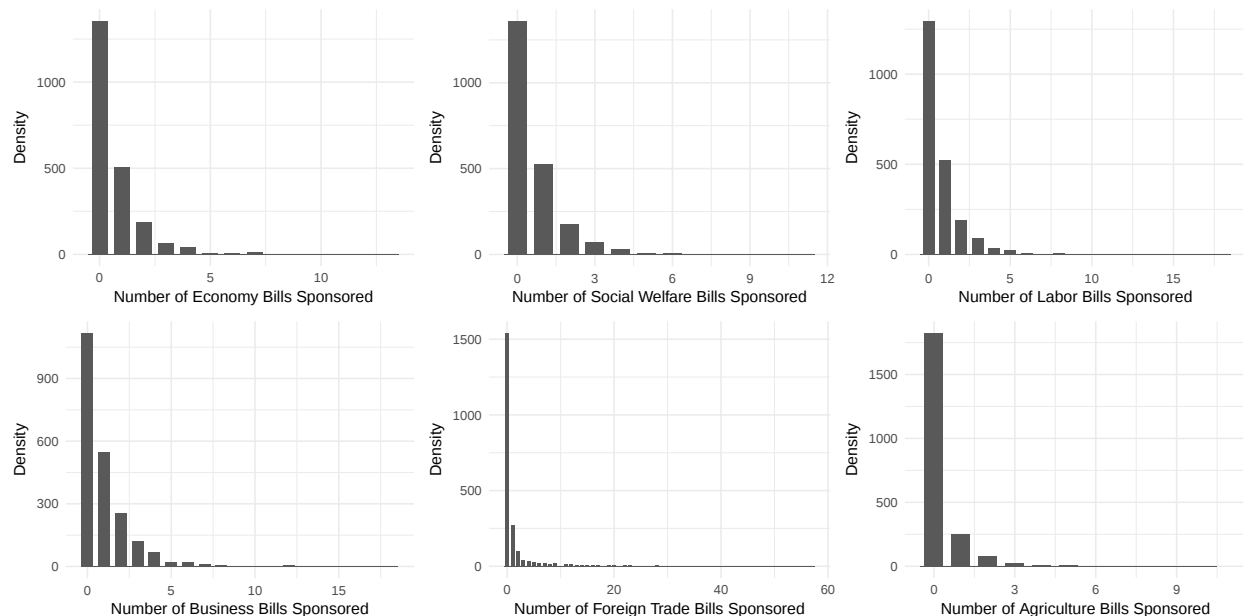


Figure 4: Dependent Variable: Bill Sponsorship by Policy Topic

We also include several covariates in our models that we theorize have a relationship with both our dependent variable and key independent variables of interest. Past research has noted the importance of committee assignments in understanding bill sponsorship patterns, as members are more likely to sponsor legislation within their committee’s jurisdiction both because they have more political knowledge of those policy topics and because bills pertaining to their committee’s jurisdiction have a greater likelihood of advancing through the policy process.

Using the descriptions of each policy topic as outlined through the Policy Agendas Project, we matched each policy with the House standing committees whose jurisdiction was most similar. We also looked at which committees these policies were most likely to be referred to for guidance in constructing this variable.

Table 1 (see Appendix) highlights the committees we selected for each policy area. For example, in our model when the dependent variable is number of labor bills sponsored, we include a binary variable of assignment to the Education and the Workplace Committee,

⁶This variable and others on member characteristics were collected from Volden, Craig and Alan E. Wiseman. 2014. *Legislative Effectiveness in the United States Congress: The Lawmakers*. New York: Cambridge University Press.

coded 0 for a non-member and 1 for a member.⁷

Another important set of covariates for modeling sponsorship patterns are district demands. We theorize that a legislator is more likely to sponsor legislation in policy areas for which their district demonstrates high demand. For example, we expect a member from a predominantly rural district to sponsor more agriculture legislation. To measure district demand, we base our measures on Adler’s (2002) original data on district characteristics, which were updated for 2003-2012 by Clemens, Crespin, and Finocchiaro (2015). We used these measures and best matched them up with our policy topics, as presented in Table 2 (see Appendix).⁸

We also account for additional member characteristics that we expect impact bill sponsorship. We control for seniority, measured as number of terms served in Congress, as more senior members are expected to sponsor legislation at higher rates due to their political experience and knowledge of the policy process. Democrats are predicted to sponsor more legislation than Republicans, because in general they advocate for more government services than their Republican colleagues. To account for partisan differences by policy topic, we include a binary variable coded 0 for Republican and 1 for Democrat.

Minority members have been found to sponsor at different levels than non-minority members (Rocca & Sanchez 2008), so we use two dichotomous variables, 1 for African American and 0 for not African American, and 1 for Latino/a and 0 for not Latino/a. Party leaders, while fundamental in crafting important legislation, often do not introduce their own bills, so we include a binary variable coded 1 for party leadership and 0 for rank-and-file members to control for this difference.

Modeling Sponsorship Patterns

Our model’s dependent variable is the number of bills sponsored by policy topic. Because this is a count variable, it lends itself to either a Poisson or negative binomial model. As evident by the distribution of our dependent variable (see Figure 4), we have an abundance of zeros in our data. This observation points to the use of a zero-inflated count model to accommodate the increased probability of having a zero count.

We choose to model our outcome using the zero-inflated negative binomial, which combines a logistic regression model with a count to model the two processes, structural or incidental, for which a zero can arise. For our purposes, we are only interested in interpreting the count process, not the structural zeros. We argue for the use of a zero-inflated negative binomial to account for the overdispersion in our data.⁹

⁷Committee membership data provided by Charles Stewart III and Jonathan Woon. Congressional Committee Assignments, 103rd to 114th Congresses, 1993–2017: [House], [November 1, 2017].

⁸Because many of these measures are collected through the Census data, they are constant across the 10 years of our analysis. We selected to limit our study to a 10 year window to ensure congressional district boundaries were consistent across our analysis.

⁹We also ran each model as a zero-inflated Poisson. Vuong Test results support the use of a zero-inflated negative binomial over a Poisson.

Bills sponsored y_i is modeled using the zero-inflated negative binomial:

$$y_i = ZINB(\psi_i, \lambda_i, \alpha) \quad (1)$$

$$\text{logit}(\psi_i) = z_i\gamma \quad (2)$$

$$\log(\lambda_i) = x_i\beta + \log(t_i) \quad (3)$$

where y_i is a structural zero with probability ψ_i , otherwise it is a count with probability λ_i . x_i is a vector of covariates in our model and β is a matrix of estimated parameters.

Results

In the figures and tables below, we present the results from several zero-inflated negative binomial models to demonstrate the relationship between sponsorship patterns and member electoral vulnerability and ideology. All results and interpretations are based on 10,000 simulations of model parameters. In general, we find support for our theoretical expectations that more electorally vulnerable members sponsor fewer bills in one-dimensional policy topics and that ideologically extreme members sponsor more legislation.

Results for Seat Vulnerability and Sponsorship

To test hypotheses 1a and 1b, that electorally vulnerable members will sponsor fewer bills in one-dimensional policy topics and more in multidimensional policy topics, we run six models, one for each of our three one-dimensional policy areas and three multidimensional policy areas. The dependent variable is a count of bills sponsored by policy area, and our independent variable of interest is the lawmaker's vote share from the most recent election.

We find evidence that supports hypothesis 1a, that electorally vulnerable members sponsor fewer bills in one-dimensional policy topics than electorally safe members (see Table 3 for full models). As illustrated in Figure 5, we find a positive and statistically significant relationship between vote share and sponsorship on one-dimensional policy topics. As a member's vote share increases (as a member becomes more electorally safe), she is more likely, on average, to sponsor bills in the policy areas of the economy, social welfare, and labor, taking into account district demand, committee status, whether the member is a minority, and whether the member is part of the congressional leadership.

Using labor bills as an example, holding all other variables at their mean or mode,¹⁰ a member with the minimum vote share in our dataset, 39 percent, is predicted to sponsor 0.58 labor bills during one session of Congress (95% CI: 0.47, 0.71). This compares to a member with the maximum vote share in our dataset, 100 percent, who has nearly double the predicted count as the minimum vote share, sponsoring 1.04 labor bills (95% CI: 0.85, 1.25).

We do not, however, find support for hypothesis 1b, that electorally vulnerable members sponsor more bills in multidimensional policy topics than electorally safe members (see Table

¹⁰Continuous (or treated as continuous) variables were held at their mean value, respectively, while binary variables were held at their modal value.

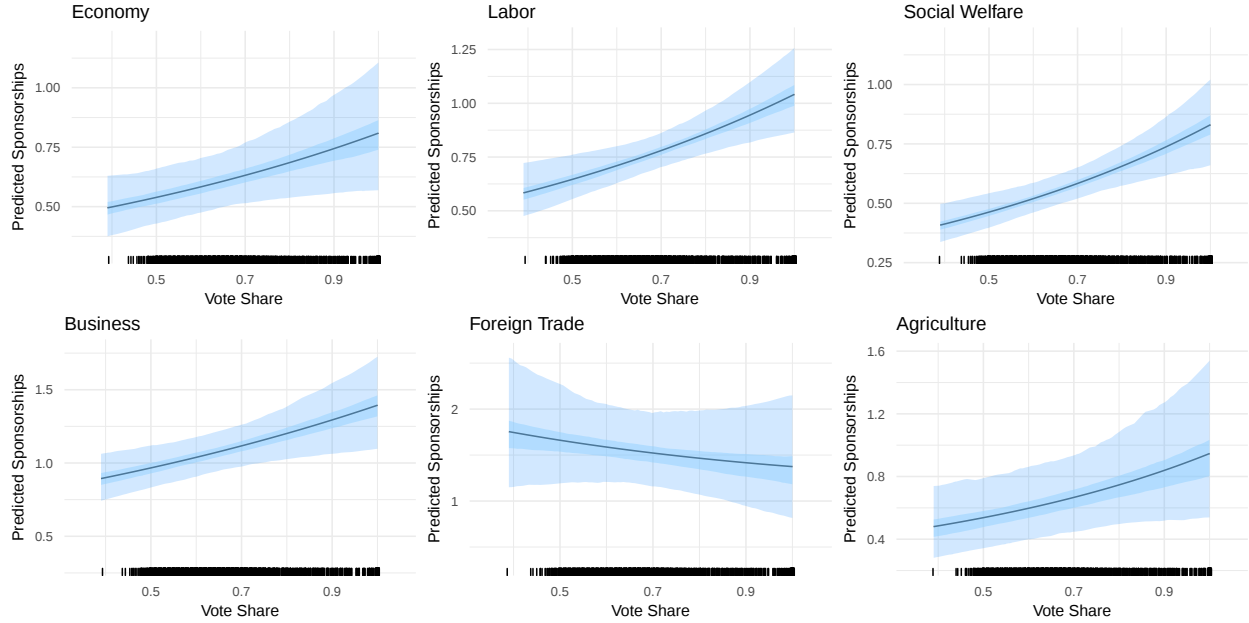


Figure 5: Predicted Count for Sponsorship Across Range of Vote Share

Note: Figure 5 displays predicted counts for sponsorship across values of member vote share (from the most recent congressional election). Simulated coefficients were created using 10,000 draws from a multivariate normal distribution. The darker colored band displays confidence intervals at the first standard deviation, with the lighter band depicting confidence intervals at the second standard deviation.

4 for full models). The model finds a statistically significant relationship between vote share and business bills sponsored but in the opposite direction than predicted. There is not a significant relationship between vote share and agriculture or foreign trade bills sponsored.

We had hypothesized that because electorally vulnerable members want to avoid position taking on partisan issues they would devote more sponsorship efforts to multidimensional issues. But our results seem to signify that there are different sponsorship patterns for the electorally vulnerable on one-dimensional versus multidimensional policy topics, but that overall electorally vulnerable legislators do not have a sponsorship advantage in any policy topic over safe lawmakers. This suggests that, in general, vulnerable legislators sponsor bills less frequently in order to avoid position taking all together in fear of sponsorship efforts negatively impacting their future electoral goals.

Findings are mixed on our expected relationship between sponsorship and our covariates. In general, committee members sponsor more bills in policy topics within their committee jurisdiction than non-committee members. For example, we find those on the Agriculture Committee sponsor significantly more agriculture bills than members not on the Agriculture Committee, and that lawmakers on the Ways and Means Committee sponsor significantly more economy bills than non-committee members.

While we do find strong support for this relationship between committee assignment and sponsorship, the results are not consistent across policy topics. This is likely due to the fact

that while some policy topics, such as agriculture, have only one committee with primary jurisdiction, some policy topics, such as business, are not concentrated within one committee but are spread across several.

To get a better understanding of our model and how the covariates within our model influence sponsorship, we crafted some ideal type lawmakers and generated predicted counts for these members. For example, a Democrat member who won with 59 percent of the vote (relatively electorally vulnerable member) who is not on any of the committees we identified as having jurisdiction over economy issues is predicted to sponsor 0.58 economy bills (95% CI: 0.47, 0.7). However, an electorally safe Republican member who won with 73 percent of the vote and serves on the Ways and Means Committee is predicted to sponsor 2.23 economy bills (95% CI: 1.73, 2.82).

Looking at some ideal types of social welfare sponsorship, an electorally vulnerable (59 percent vote share) Republican member not on any committee with primary jurisdiction over social welfare issues is predicted to sponsor 0.34 social welfare bills (95% CI: 0.3, 0.39), whereas a Democrat who won with 73 percent of the vote and sits on the Financial Services and Ways and Means committees is predicted to sponsor 1.82 social welfare bills (95% CI: 1.4, 2.35).

Results for Ideology and Sponsorship

To test our second hypothesis, that ideologically extreme members sponsor more legislation than moderate members, we ran six models predicting sponsorship patterns, where this time our independent variable of interest was our policy specific first dimension measure of ideology. We find conditional support for our second hypothesis (see Tables 5 and 6 for full models). As demonstrated in Figure 6, for one-dimensional policy topics (economy, social welfare, and labor) we find consistently positive and statistically significant relationships between ideology and sponsorship. In short, as a member becomes more ideologically extreme, they are more likely, on average, to sponsor bills in these one-dimensional policy topics.

Holding all other variables at their means or modes, a member whose economy preference ideal point is 0, the most moderate in the chamber, has a predicted count of sponsoring 0.48 economy bills (95% CI: 0.39, 0.59), as compared to a member with an economy preference ideal point of 1, the most ideologically extreme, who has a predicted count of sponsoring 0.9 economy bills (95% CI: 0.7, 1.14).

We see a similar pattern with social welfare bills, although the overall substantive effect is smaller than for economy bills. The most moderate member has a predicted count of sponsoring 0.43 social welfare bills (95% CI: 0.35, 0.51), and the most extreme member has a predicted count of sponsoring 0.6 social welfare bills (95% CI: 0.48, 0.73).

For our multidimensional policy topics, business, foreign trade, and agriculture, there is a positive relationship between ideology and sponsorship, but it is not statistically significant for any of these policy topics. Overall, these results support the idea that member differences in ideology matter for predicting sponsorship in one-dimensional policy topics but do not matter much for determining sponsorship on multidimensional policy topics. In the future, it may be worthwhile to include members' second dimension ideal point in the model and see if the second dimension holds significant predictive power for bill sponsorship.

With these models we once again find strong support that committee members are more

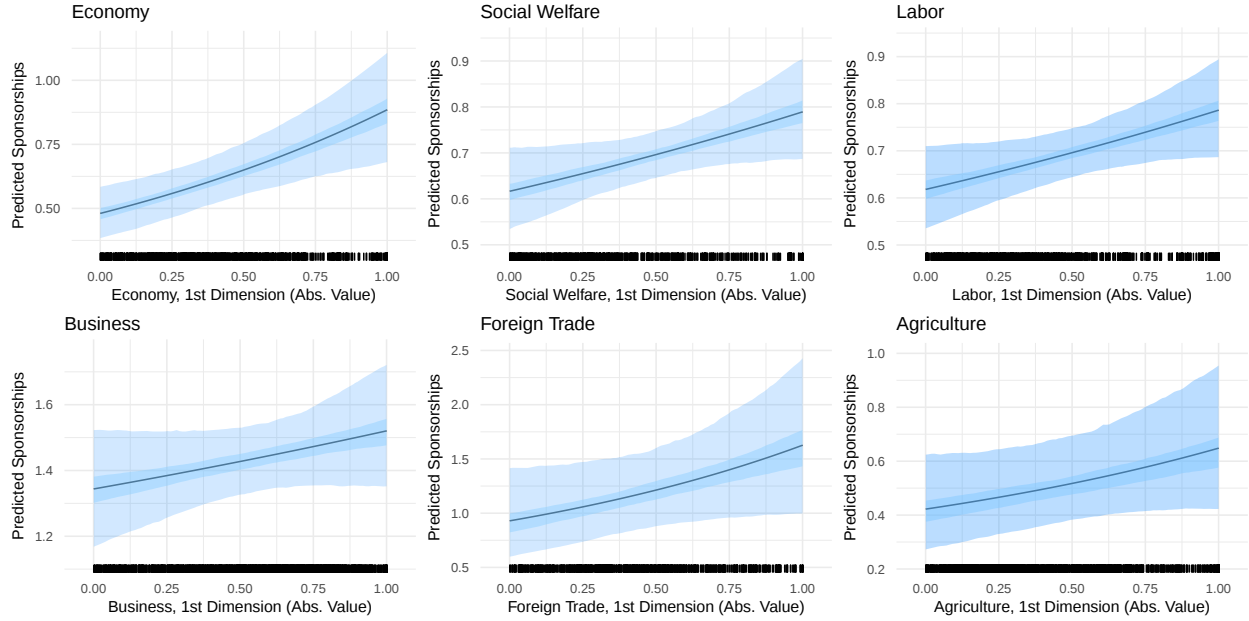


Figure 6: Predicted Count for Sponsorship Across Range of Ideology

Note: Figure 6 displays predicted counts for sponsorship across values of member ideology (using the absolute value). Simulated coefficients were created using 10,000 draws from a multivariate normal distribution. The darker colored band displays confidence intervals at the first standard deviation, with the lighter band depicting confidence intervals at the second standard deviation.

likely than non-committee members to sponsor bills within their jurisdiction. For our district demand variables, we find that members from districts with higher rural populations are more likely to sponsor agriculture bills, and that representatives of districts with a higher percentage of unionized workers are more likely to sponsor labor bills.

To give a better view of our results, we present ideal types for one of our one-dimensional policy topics. When predicting the number of labor bills sponsored, a moderate member with a labor ideal point estimate of 0 who does not serve on the Education and the Workplace Committee and who has a low percentage of workers in their district unionized (3.5 percent) is predicted to sponsor 0.52 labor bills (95% CI: 0.44, 0.62). Conversely, an ideologically extreme member (ideal point of 1) who serves on the Education and Workplace Committee and has a significant number of constituents who are part of a union (24.9 percent) is predicted to sponsor 1.9 labor bills (95% CI: 1.55, 2.47).

Figure 7 provides a more explicit test of differences in sponsorships at varying levels of policy specific ideology for our one-dimensional issues. This graph provides further evidence of our earlier assertion about ideology and sponsorship, specifically indicating that members at the third quartile of ideology sponsor more bills, on average, than members at the first quartile. This difference may seem substantively small, but the substantive impact is comparable or substantively greater than the substantive impact estimated by models using first dimension DW-NOMINATE scores to predict member sponsorship patterns.

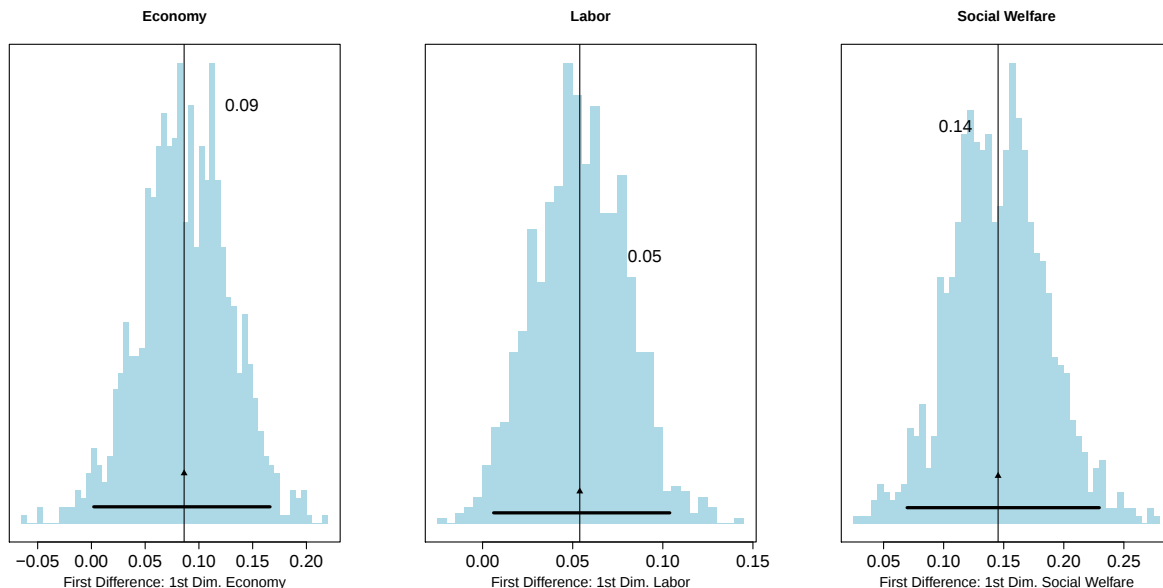


Figure 7: First Differences, Ideology

Note: Figure 7 displays simulated first differences for a member possessing a value of ideology corresponding to the third quartile versus a member with a value of ideology equivalent to the first quartile. Simulated coefficients were created using 10,000 draws from a multivariate normal distribution. The histogram represents the results of this simulation, with the vertical line segment representing the best estimate of this difference and the line segment representing a 95 percent confidence interval.

Conclusion

In this paper, we outlined a theory for how member characteristics and policy dimensionality influence policy sponsorship patterns. In our analysis of the 108th through 112th congresses, we find that the influence of member characteristics on sponsorship is conditional on the policy considered.

We identify three policy topics, the economy, social welfare, and labor, that are consistently one-dimensional across our time span of interest, meaning most voting on these issues is explained by ideology differences. For these one-dimensional issues, we find support that electorally vulnerable members sponsor fewer bills in these policy topics than electorally safe members so as to avoid taking a public position on a partisan issue and to avoid putting their reelection goals at risk. We also find support for our prediction that for one-dimensional policy topics, ideologically extreme members are more likely to sponsor legislation than more moderate lawmakers, as we argue these members have more to gain by sponsoring their own legislation by framing the policy debate that will give their extreme preference the best hope of advancing through the policy process.

We also identified three multidimensional policy topics, business, foreign trade, and agriculture, for which voting is explained by party differences along with one or two additional important sources of variance. For these policy topics, we find limited support of a relation-

ship between electoral vulnerability and sponsorship. The relationship between ideology and sponsorship is also found not to be statistically significant.

Overall, these results highlight important differences between member sponsorship of one-dimensional versus multidimensional policy topics. Differences in bill sponsorship associated with individual characteristics are accentuated in sponsorship patterns of unidimensional policy topics, but are muted in the sponsorship patterns of multidimensional policy topics.

From a methodological perspective, our findings speak to the importance of policy differences in understanding congressional behavior. Specifically, with our use of policy specific ideology measures, this paper argues that while the use of DW-NOMINATE scores has made an important contribution to congressional research, this aggregate measure may mask important policy specific dynamics in Congress. Future research questions that are policy specific would benefit from considering these differences, specifically differences that arise between partisan policy issues and those that are best explained by multiple dimensions.

Our findings suggest that electorally safe and ideologically extreme members have the edge in sponsoring legislation within partisan policy topics. One implication of these finding is that bills introduced in partisan policy topics are less representative of Congress as a whole, and, more specifically, not representative of the median preference of the chamber.

Past scholars have noted an increasingly polarized Congress since the 1970s (Rohde 2010). Scholars' explanations for this shift have included rule changes, changing public preferences, and other factors, but we find that perhaps sponsorship patterns have also worked to exacerbate this problem. The House now has fewer moderate members, and those that have survived are likely incentivized to focus their attention on district needs rather than participating in national policy making. This leaves the most electorally safe and ideologically extreme members to dominate the policy process, particularly on the most partisan issues, contributing to the increasingly divisive partisan discourse we see in the modern Congress.

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Appendix

Table 1: Congressional Committees by Policy Topic

Policy Topic	Committees
Agriculture	Agriculture
Economy	Ways and Means Budget
Social Welfare	Financial Services Ways and Means
Labor	Education and the Workplace
Foreign Trade	Ways and Means Foreign Affairs
Business	Financial Services Ways and Means Energy and Commerce

Table 2: Policy Topic District Demand Measures

Policy Topic	Measure of District Demand (Clemens, Crespín & Finocchiaro, 2015)
Agriculture	Percent employed in farming, fishing, and wildlife (U.S. Census) Percent living in rural-farming areas (U.S. Census)
Economy	Percent unemployed (U.S. Census) Median family income (U.S. Census)
Social Welfare	Percent living in urban areas (U.S. Census) Median family income (U.S. Census)
Labor	Percent employed in blue-collar industries (U.S. Census) Percent of workers in state unionized (Bureau of Labor Statistics)
Foreign Trade	District is in a city with one of the 25 most active posts (U.S. Army Corps of Engineers)
Business	*We do not currently have a district demand measure for this policy topic

Table 3: Zero-Inflated Negative Binomial of Vote Share and Sponsorship

	<i>Dependent variables:</i>		
	Economy Bills	Social Welfare Bills	Labor Bills
Vote Share	0.766* (0.350)	1.162* (0.284)	0.951* (0.286)
Seniority	0.005 (0.011)	−0.004 (0.009)	0.054* (0.009)
Democrat	−0.228* (0.098)	0.416* (0.079)	0.007 (0.078)
African American	−0.463* (0.206)	0.220 (0.140)	
Latino	−1.259* (0.239)	0.115 (0.177)	0.320* (0.146)
District Unemployment	1.729 (5.055)		
District Percent Urban		−0.108 (0.243)	
District Median Income		0.916 (0.468)	
Financial Committee		0.888* (0.085)	
Ways & Means Committee	1.232* (0.110)	0.620* (0.109)	
Budget Committee	0.065 (0.130)		
District Percent Unionized			0.011 (0.006)
District Blue-Collar Employment			−6.653* (2.141)
Leader		0.194 (0.173)	−0.498* (0.197)
Constant	−0.874* (0.253)	−2.059* (0.261)	−0.954* (0.238)
Observations	2,190	2,190	2,190
Log Likelihood	−2,305.759	−2,265.698	−2,584.251
AIC	4649.518	4577.396	5202.503

Note: *p<0.05

Table 4: Zero-Inflated Negative Binomial of Vote Share and Sponsorship

	<i>Dependent variables:</i>		
	Business Bills	Foreign Trade Bills	Agriculture Bills
Vote Share	0.722* (0.269)	−0.425 (0.616)	1.069 (0.609)
Seniority	0.042* (0.008)	0.006 (0.019)	0.042 (0.022)
Democrat	0.285* (0.075)	−0.512* (0.138)	0.393* (0.164)
African American	0.014 (0.106)	1.311* (0.271)	−1.682* (0.602)
Latino	−0.267 (0.162)	−0.905* (0.352)	−0.175 (0.332)
Financial Committee	0.810* (0.085)		
District Active Port		0.529 (0.299)	
Foreign Affairs Committee		0.050 (0.200)	
Ways & Means Committee	0.223 (0.121)	0.279 (0.184)	
Energy Committee	−0.089 (0.101)		
District Percent Farming			3.040 (3.111)
District Percent Rural			7.377* (3.761)
Agriculture Committee			0.426* (0.209)
Leader	−0.369* (0.174)	−1.320* (0.271)	0.519 (0.367)
Constant	−0.927* (0.177)	1.179* (0.396)	−1.936* (0.468)
Observations	2,190	2,190	2,190
Log Likelihood	−2,937.952	−2,819.934	−1,225.643
AIC	5917.904	5681.868	2493.286

Note: *p<0.05

Table 5: Zero-Inflated Negative Binomial of Ideology and Sponsorship

	<i>Dependent Variables:</i>		
	Economy Bills	Social Welfare Bills	Labor Bills
Economy W-NOMINATE	0.619* (0.165)		
District Unemployment	-0.323 (5.164)		
District Median Income	1.004 (0.534)		
Social Welfare W-NOMINATE		0.341* (0.161)	
Financial Committee		0.950* (0.103)	
Ways & Means Committee	1.378* (0.105)	0.621* (0.139)	
Budget Committee	-0.031 (0.141)		
Labor W-NOMINATE			0.237* (0.115)
District Blue-Collar Employment			-5.344* (2.051)
District Percent Unionized			0.018* (0.005)
Education Committee			0.693* (0.101)
Leader	-0.359 (0.212)	0.627* (0.273)	-0.215 (0.196)
Constant	-1.161* (0.391)	-0.860* (0.091)	-0.379* (0.171)
Observations	2,149	1,301	2,129
Log Likelihood	-2,267.666	-1,412.707	-2,531.486
AIC	4565.333	2847.415	5088.973

Note: *p<0.05

Table 6: Zero-Inflated Negative Binomial of Ideology and Sponsorship

	<i>Dependent variables:</i>		
	Business Bills	Foreign Trade Bills	Agriculture Bills
Business W-NOMINATE	0.127 (0.110)		
Financial Committee	0.596* (0.056)		
Foreign Trade W-NOMINATE		0.548 (0.333)	
District Active Port		0.187 (0.428)	
Ways & Means Committee	0.120 (0.093)	0.474 (0.260)	
Foreign Affairs Committee		-0.480 (0.254)	
Agriculture W-NOMINATE			0.425 (0.295)
District Percent Farming			0.027 (0.028)
District Percent Rural			0.077* (0.035)
Agriculture Committee			0.443* (0.202)
Leader	-0.128 (0.156)	-1.201* (0.505)	0.507 (0.377)
Constant	0.292* (0.071)	-0.091 (0.221)	-0.993* (0.233)
Observations	2,158	1,249	2,100
Log Likelihood	-3,119.787	-1,277.142	-1,211.252
AIC	6259.573	2580.285	2448.505

Note: *p<0.05