

**Diffusion in Congress:
Measuring the Social Dynamics of Legislative Behavior**
Supplemental Appendix*

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A Discharge Petitions

Standing committees in the U.S. House are extended considerable gatekeeping (i.e., negative) powers. It is difficult to circumvent committees at the referral stage, and perhaps even more difficult to do so once legislation has been referred to them. Members who are frustrated by a committee(s) that fails to report legislation have precious few alternatives for bringing that legislation to the floor. One option is for members to offer an amendment in the form of the blocked legislation, but given the germaneness requirements in the House, it may be difficult for these members to find a suitable vehicle for such amendments. Alternatively, members can move to suspend the rules and bring the blocked legislation to the floor. However, the threshold to suspend the rules is high (two-thirds support required), and the Speaker is often disinclined to recognize such motions (Smith, Roberts and Vander Wielen, 2015). Another possibility is to secure a special rule from the Rules Committee that discharges the legislation from the hostile committee. Here again, the support of party leaders is typically necessary in order for the Rules Committee to carry out a special rule of this variety. The final, conventional approach to bringing legislation to the floor is the discharge petition.

A discharge petition is a procedural mechanism by which a majority of House members can force a measure out of committee for floor consideration. Discharge petitions are almost always executed without the approval of the standing committee of jurisdiction and the majority party leadership. In particular, discharge petitions are considered an affront to committee “turf.” The modern discharge procedures were established in 1931, although the House has had a discharge rule since 1910 (Beth, 2003). Since the adoption of the 1931 rules, the discharge petition has undergone two particularly important reforms. One reform, implemented in 1935 (74th Congress), increased the requisite number of signatures from one third of the membership (145 members) to a simple majority (218 members). The other notable reform, adopted in 1993 (103d Congress), requires the House Clerk to make public the names of all discharge petition signatories.¹ While the actual petition is kept at the House Clerk’s desk, the names of signatories are published online and as part of the Congressional Record where the information is accessible to both members of Congress and the public.

¹Beth (2003) identifies two other, less substantially important, reforms since 1931.

Under the modern discharge procedure, a discharge petition may target any measure that has remained in committee for at least 30 legislative days.² Special rules are an exception to this, in that they are subject to a discharge petition if they have been before the Committee on Rules for at least seven legislative days. There are no restrictions on who is eligible to file a petition, or on who may subsequently sign it. Moreover, any member who signs a petition is permitted to remove her signature from it at any time during the process, although signatures can neither be added nor removed once a petition has achieved 218 signatures. However, signature withdrawals are extremely rare. Of the 16,036 signatures in our data set, only 44 signatures, or 0.27%, were subsequently withdrawn. Therefore, this possibility is of little concern to the analysis that follows. Appendix Figure 1 shows the distribution of signatures across all petitions between the 104th and 113th Congresses (1995–2014), the period of analysis.

Should a discharge petition garner the requisite number of signatures, the motion to discharge is placed on the Discharge Calendar and is considered privileged business on designated days. On such days, norm dictates that the member who filed the discharge petition is recognized to offer the motion, although any signatory of the petition is permitted to do so. The motion is debatable for 20 minutes, equally divided between supporters and opponents. If a majority of the members present vote in favor of the motion, the committee is discharged from considering the measure, and a subsequent motion is in order for the immediate consideration of the discharged measure.

Discharge petitions are filed with some frequency but are rarely successful. Between 1931 and 2014, 646 discharge petitions were filed and only 48 petitions received 218 signatures. Moreover, the motion to discharge passed on only a fraction of the petitions that received the requisite number of signatures (26 discharge motions passed).³ The rarity of successful discharge petitions underscores the capital intensiveness of the practice. Interestingly, though, studies have demonstrated systematic patterns across signatories (e.g., Burden, 2005; Pearson and Schickler, 2009; Miller and Overby, 2010). While these are excellent studies of micromotives, to borrow Schelling’s (2006) terminology, there is less consideration in the literature of how behavior disseminates through the membership (macrobehavior). For reasons discussed above, the discharge petition process lends itself well to the

²Private bills are not subject to discharge petitions.

³These counts are provided by Pearson and Schickler (2009) for the period 1931–2006, and by the authors for the period up to 2014.

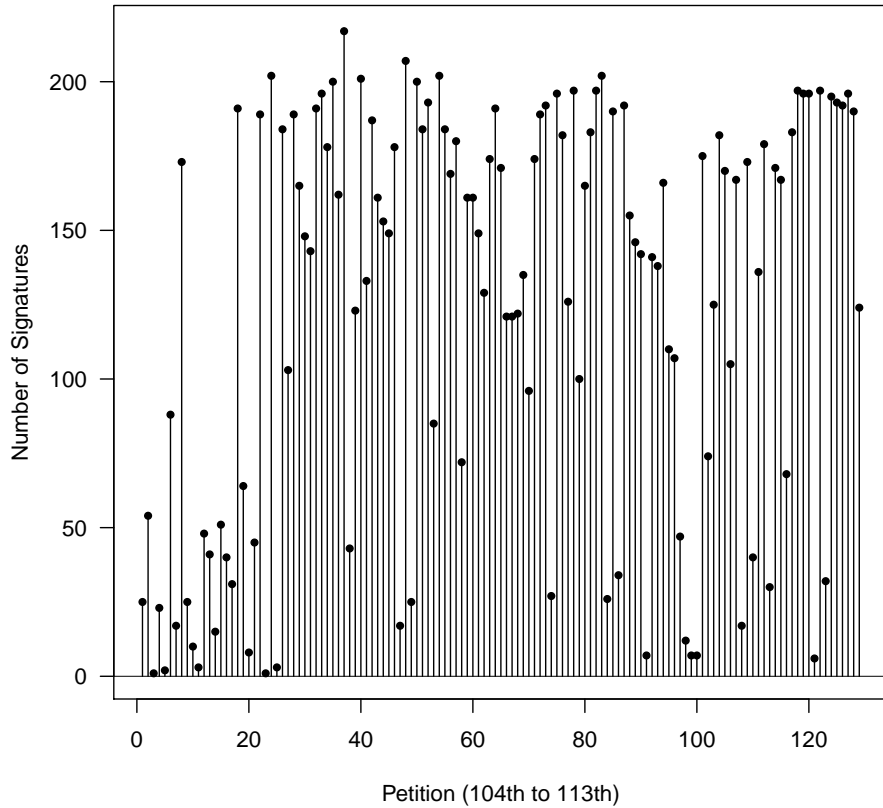


Figure 1: *Discharge Petition Signatures by Petition, 104th to 113th Congress.*

study of behavior diffusion. Moreover, we contend that discharge petition behavior is generalizable to the broader class of costly legislative behavior. We note that in the post-103d era, where the names of the signatories is publicly available, the costs of signing discharge petitions is particularly pronounced. The lack of anonymity associated with signing discharge petitions implies that these decisions potentially have internal (via the membership) and external (via the public) ramifications, not unlike recorded votes.

B Analyzing the Micromotives of Discharge Diffusion

While the analysis appearing in the manuscript has assessed the aggregate evidence for diffusion in the discharge petition process, we now turn to an individual-level analysis. In our view, this analysis serves three purposes. First, the individual-level analysis can be seen as a way of confirming the aggregate-level results. Second, it allows us to take into account various individual-level factors that previous studies have shown to be important for explaining discharge petition behavior. Finally, it provides for direct comparison with existing studies of discharge petition behavior, which have studied the phenomenon exclusively at the individual level. While it is by no means straightforward to account for the complex details of the two social diffusion models in an individual-level analysis, which was the motivation for the aggregate-level approach, we contend that the proxy measures we develop below effectively capture the social diffusion processes.

Since the social diffusion models suggest that a member's decision to sign a discharge petition depends on either the number of or payoffs to previous adopters, we must structure the data to account for the cumulative signature process over time. In particular, it is necessary that the data be set up to permit the information on previous adopters to update whenever new adoptions occur. We construct the data set such that each member faces a series of binary choices for each petition. Therefore, each observation indexes a petition, member, and signing day (i.e., day on which signatures occurred).⁴ For a given petition, a member's binary decision is observed at every signing day up to and including the day on which the member signs the petition, after which point the member exits the sample (see Carter and Signorino, 2010). For example, if a particular petition has five observed days on which signatures occur, then a member who signs on the third day appears in the data three times, with the first two days of signing coded as 0 and the third day

⁴In the individual-level analysis, we only look at behavior on signing days, rather than including member observations for each day since the petition was filed. Accounting for all of the days since the petition was filed, not just signature days, would be quite impractical given the large data matrix that would result. Moreover, we would essentially be artificially inflating the data set with observations of variables that do not change between signature days (in fact, only the polynomial terms for time would vary for observations between signature days). The result of inflating the data set that way would be to decrease the size of the standard errors for the independent variables (because of their invariance between signature days). We are therefore confident that our choice to include only observations for signature days does not bias the results in our favor, but rather makes it more difficult to find statistically significant effects in line with our theoretical predictions.

of signing coded as 1. The member drops out of the data for the fourth and fifth days, since she cannot sign the petition again, having signed it on the third day. Conversely, if the member never signs the petition, she receives a value of 0 for all five days.

This data structure allows us to examine whether the likelihood of signing is influenced by new adoptions over time. The final data set consists of $n = \sum_{i=1}^I T_i M_i$ observations, where T is the total number of unique days on which signatures occurred for petition i , M is the total number of unique members who were eligible to sign petition i , and I is the total number of petitions during the period of analysis. We examine all petitions filed between the 104th and 110th Congresses (1995–2008).

Our decision to pool all petitions deserves a brief discussion. In particular, considering petitions separately significantly limits the number of petitions we can analyze. The reason is that some petitions have very little variation in terms of signing dates (i.e., some petitions have few days on which signatures occurred), which means that one would have to forgo examination of these petitions altogether in the context of a petition-level analysis (see Lindstädt and Martin, 2007). By pooling petitions, we can consider all of the petitions filed during the period of analysis, and thus make more generalizable statements about diffusion processes.

As a result of pooling petitions, the data involve repeated observations, due to members making signing decisions across multiple petitions and signing days. Therefore, we account for the correlation in errors by estimating a logit model with robust standard errors clustered on unique members. In addition, we account for petition-specific behavior by including petition fixed effects. The model appears in Appendix Equation 1.

$$\Pr(\text{sign}_{itm} = 1) = \frac{1}{1 + \exp \left[- \left(\alpha + \beta \text{SInfl}_{it} + \beta \text{SLearn}_{it} + \beta \mathbf{x}'_{im} + \sum_{k=1}^3 \zeta_k \text{Days}_{it}^k \right) \right]} \quad (1)$$

The key independent variables, denoted SInfl and SLearn , measure the processes inherent to the social influence and social learning models, respectively. To account for the social influence model, the variable SInfl measures the total number of members who signed petition i prior to a given day t . That is, this variable is constructed such that on day t' of petition i , it records the count of signatures having occurred on days 1 through $t' - 1$. The measurement of this variable follows directly from the social influence model. Moreover, in accordance with the social influence

model, the variable *SInfl* should have a positive effect on the probability of signing, suggesting that members are more likely to sign petitions as the number of previous signatories increases.

Accounting for the social learning model is somewhat more complicated, since this model suggests that members are increasingly likely to sign a petition upon observing favorable payoffs to previous signatories. Since it is unknown what payoffs potential signers are attentive to, there is no obvious means of directly measuring the operative payoffs received by previous signers. Moreover, we are somewhat constrained in terms of observable measures of payoffs that are theoretically viable. Instead, we contend that inferences can be made about the payoffs that members receive from signing petitions by observing the types of members who sign. In other words, we might learn about the payoffs of discharge petition signatures by examining the extent to which signatories have themselves adopted successful legislative strategies. If the group of members who sign a given petition tend to be quite successful (on some meaningful dimension), then it is likely that the returns to signing this particular petition are high. Therefore, to account for the social learning model, the variable *SLearn* measures, for a given day t and petition i , the average percentage of the two-party vote received in the *previous* election by all members who signed prior to that day.⁵ More formally, for day $t' > 1$ of a given petition, this variable takes the value $S^{-1} \sum_{t=1}^{t'-1} \sum_{m=1}^M \delta(m, t) \text{previousvoteshare}_m$, where $\delta(m, t)$ is an indicator function equal to 1 if member m signed the given petition on day t , and $S = \sum_{t=1}^{t'-1} \sum_{m=1}^M \delta(m, t)$. On the first day of signatures, at which time there are no previous signatories, the variable takes the value of the chamber mean of previous vote share, reflecting the naïve expectation. Since we suggest that increasing average vote share among previous signatories signals favorable payoffs, a positive effect of this variable would provide support for the social learning model.⁶

⁵Ideally, a member would prefer to wait until the next election to observe the electoral performance of discharge petition signatories before deciding whether or not to follow suit. Of course, the timing of these decisions does not permit this. We, therefore, use vote share in the previous election since this is revealed information that offers members an effective proxy of their colleagues' future electoral success at the time of making signing decisions.

⁶We note that we also used an alternative specification of the social learning variable, measured as the average chamber seniority of previous adopters. One might infer from their repeated electoral success that senior members possess a particularly acute ability to discern optimal strategies. This alternative specification likewise provides statistically significant support for the social learning model (results available upon request).

We also account for the possibility of in-network diffusion effects (e.g., Fowler, 2006*a,b*). The logic here is that social diffusion — of the social influence and social learning varieties — might occur primarily within parties. For that reason, we include two network versions of the social diffusion variables discussed above (denoted *SInfl – Network* and *SLearn – Network*). The variables are constructed the same way as the *SInfl* and *SLearn* variables, except that we use the running averages within parties, rather than across the entire membership.

The model in Appendix Equation 1 also includes a number of control variables, represented by the vector \mathbf{x}_{im} . These control variables are intended to account for the myriad factors that might affect member m 's propensity to sign discharge petitions. Since we know that discharge petitions are disproportionately signed by minority party members (Burden, 2005), we include a dummy variable, *Minority*, that accounts for minority party membership.

We also include a variable measuring the distance between each legislator's ideal preference point and the ideal preference point of the member who initiated the discharge petition (Lindstädt and Martin, 2007). Here, we consider the preference position of the petition filer to be a reasonable proxy for the policy content of the targeted bill — presumably the preferences of the petition filer are closely aligned with the policy content of the bill targeted by the petition. We would therefore expect members to be more likely to sign a discharge petition if they support the targeted bill. The variable *Distance to Filer* is measured as the absolute distance between the petition filer's first-dimension DW-Nominate score and that of each member.⁷ We expect this variable to be negatively related to the likelihood of signing a discharge petition: as the ideological distance between a petition filer and a member decreases, the member should be more likely to sign.⁸ Similarly, the variable *Distance to Party Median* measures the absolute difference in DW-Nominate scores between members and their respective party median. We include this variable to account for the possibility that partisans

⁷DW-Nominate scores are normalized such that positive scores imply policy conservatism and negative scores indicate policy liberalism (Poole and Rosenthal, 1997). We use DW-Nominate scores in this analysis since we require a measure of preferences that is comparable across Congresses.

⁸One might argue that the bill sponsor's DW-Nominate score should be used, rather than that of the petition filer, but we believe that the petition filer's ideal point is a better indicator of how the petition is viewed from a policy perspective. Regardless, petition filers tend to have estimated preferences that are relatively close to those of the corresponding bill cosponsors. In fact, often the sponsor and filer are the same lawmaker. Bootstrapping confirms that this proximity in preferences is closer than would be due to random chance (results available upon request).

exhibit systematic signing behavior. Since the effect of ideological proximity to party median is likely to differ across parties, we interact the *Distance to Party Median* variable with minority party membership (termed *Distance to Party Median* \times *Minority*). We might expect minority members who are closely aligned with the center of their party to be particularly inclined to sign discharge petitions, and majority party members with preferences near their party's median to be particularly disinclined. Thus, we expect increasing distance from party median to have a negative effect on minority party members' likelihood of signing petitions and a positive effect on majority party members. In line with the existing literature on cosponsorship, we also account for the effect that having cosponsored the bill targeted by the discharge petition has on the probability of an individual member signing the petition.⁹ We expect that cosponsorship has a positive effect on the probability of signing, since cosponsors have a heightened interest in having their bill considered on the floor.¹⁰

Preferences are also likely to influence petition signing in another fashion. We might expect members at the far ends of the ideological continuum (liberal Democrats and conservative Republicans) to be most strongly affected by a discharge petition. That is, under typical spatial conditions, the implications of discharge politics are most pronounced for ideologically extreme members. Therefore, we expect extreme minority party members to be particularly inclined to sign petitions, because they have preferences that are farthest from the majority party, and thus these members experience the greatest level of dissatisfaction with the majority party's policy choices. By the same logic, we expect extreme majority party members to be particularly disinclined to sign petitions, since they have the most to gain from preventing the targeted legislation from being considered on the House floor. Therefore, we include the variable *Ideological Extremity*, measured as the absolute value of a member's first-dimension DW-Nominate score, and its interaction with minority party membership (termed *Ideological Extremity* \times *Minority*), to account for these countervailing expectations.

⁹Cosponsorship data are provided by Fowler (2006a,b) at: <http://jhffowler.ucsd.edu/cosponsorship.htm>.

¹⁰There is an excellent literature on cosponsorship (Kessler and Krehbiel, 1996; Wilson and Young, 1997; Burstein, Bauldry and Froese, 2005; Koger, 2003). There are also some outstanding studies that have drawn a connection between cosponsorship and discharge petitions (Krehbiel, 1995; Martin and Wolbrecht, 2000; Miller and Overby, 2010).

To measure electoral considerations, we use the variable *Vote Share*, which is operationalized as a member’s two-party vote share in the previous congressional election.¹¹ Smaller values of this variable suggest greater electoral vulnerability and potentially a corresponding interest in petitions as position-taking opportunities. We suggest that another important member characteristic to account for is chamber seniority. The fairly aggressive means by which petitions bypass committee deliberation and force bills to the House floor may make them particularly unappealing to legislators with seniority, since such lawmakers are more likely to be successful by using the traditional legislative process (Cox and Terry, 2008). Therefore, chamber seniority is positively associated with a commitment to “regular order.” The variable *Chamber Seniority* is measured in terms of the number of continuous years of service in the House.¹² We expect *Chamber Seniority* to have a negative effect on the likelihood of signing a petition.

In a similar vein, Pearson and Schickler (2009) contend that members of exclusive committees and committee leaders are particularly invested in protecting committee autonomy, and are therefore less likely than other members to sign discharge petitions. To account for this possibility, we also include the variables *Exclusive Committee Member*, a dummy variable coded 1 if a member served on an exclusive committee, and *Committee Leader*, a dummy variable coded 1 if a member was the chair or ranking minority member of a standing committee. In addition, Pearson and Schickler (2009) control for members serving on committees targeted by discharge petitions, since petitions jeopardize these committees’ gatekeeping authority. Presumably, members serving on targeted committees are less likely to sign a discharge petition because it challenges their autonomy. Therefore, we include the dummy variable *Targeted Committee Member*, which is coded 1 for members serving on the committee(s) targeted by a discharge petition.¹³

¹¹Data available from the Federal Election Commission at <http://www.fec.gov/pubrec/electionresults.shtml>.

¹²Data available from Charles Stewart’s website at http://web.mit.edu/17.251/www/data_page.html.

¹³We adopt Pearson and Schickler’s (2009) coding scheme for targeted committees. Specifically, when a special rule pertaining to a *reported* bill is the subject of a discharge petition, we consider the Rules Committee to be the targeted committee. Conversely, when a discharge petition is filed against a special rule pertaining to a bill that has *not* been reported, then we consider the targeted committee to be the legislative committee with jurisdiction over the relevant bill.

Finally, we include a cubic polynomial of the duration (in days) between the filing of a discharge petition and the signing days.¹⁴ The inclusion of the polynomial terms, denoted $Days^k$ for $k \in \{1, 2, 3\}$ in Appendix Equation 1, accounts for the fact that the structure of our data is, in essence, disaggregated event history data. The use of a cubic polynomial has been shown to efficiently model temporal dependence, and overcomes some pitfalls of other commonly used methods [e.g., complete and quasi-complete separation associated with time dummies] (Carter and Signorino, 2010). We note that using alternative approaches to modeling temporal dependence, such as including splines, does not substantively alter our results (available upon request).

The results from the model shown in Appendix Equation 1 are provided in Appendix Table 1 both with and without the control variables (\mathbf{x}_{im}). In particular, Model 1 is the base model, which includes only the non-network diffusion variables and the polynomial terms of time. Model 2 adds the control variables, and Model 3 adds the in-network diffusion variables to Model 2. Each of the models yields substantively similar results for our key independent variables — the non-network diffusion variables. Across the models, we find that the $SInfl$ variable, measured as the number of previous adopters, is negative and statistically significant. This result is contrary to the prediction of the social influence model. At the same time, this is not an entirely surprising result considering that, for most petitions, the majority of signatures occur in the earliest days following filing. In fact, an average of 69.3 signatures occur on the first signature day. This number drops off steadily, with an average of only 25.6 new signatures recorded on the second day, 15.1 on the third day, 3.1 on the fourth, and so on. Therefore, contrary to the social influence model, the highest frequency of adoptions occurs on the first day, where there are no previous adopters, and the growth in adoptions rapidly declines afterwards. Thus, our analysis finds no evidence supporting the social influence model when considering diffusion of behavior across the entire membership.

On the other hand, we find evidence in support of the social learning model. That is, the $SLearn$ variable, measured as the average vote share of the previous adopters (from the most recent previous election), is both positive and statistically significant throughout. This suggests that as members observe electorally successful previous adopters, they update their beliefs about the viability of

¹⁴We note that the following results are substantively unchanged when measuring time as the duration (in days) from the first signature day, which defines the innovation as the initial signatures rather than the filing of the discharge petition.

	Coefficient (Standard Error)		
	Model 1	Model 2	Model 3
SInfl (Number of Prev. Adopters)	-0.0140* (0.0004)	-0.0079* (0.0004)	-0.0183* (0.0016)
SLearn (Average Vote Share of Prev. Adopters)	2.5339* (0.6393)	3.3526* (0.6625)	2.2790* (1.0593)
SInfl – Network			0.0108* (0.0017)
SLearn – Network			1.7780 (1.2488)
Minority		3.7635* (0.2387)	3.2960* (0.2331)
Distance to Filer		-2.5773* (0.0957)	-2.3753* (0.0880)
Distance to Party Median		5.4040* (0.6222)	5.3285* (0.6282)
Distance to Party Median × Minority		-5.5320* (0.7089)	-5.5396* (0.7184)
Ideological Extremity		0.7356* (0.3553)	0.5931 (0.3574)
Ideological Extremity × Minority		2.0371* (0.4181)	2.1481* (0.4246)
Vote Share		-0.4939* (0.2072)	-0.5092* (0.2094)
Chamber Seniority		-0.0679* (0.0111)	-0.0681* (0.0111)
Exclusive Committee Member		-0.0449 (0.0868)	-0.0470 (0.0874)
Committee Leader		0.1887 (0.1196)	0.1876 (0.1205)
Targeted Committee Member		0.0803 (0.1315)	0.0799 (0.1325)
Cosponsor		1.1941* (0.0491)	1.1913* (0.0493)
Days	-0.0180* (0.0033)	-0.0162* (0.0029)	-0.0161* (0.0028)
Days ²	0.0001* (3.54e-05)	0.0001* (2.97e-05)	0.0001* (2.87e-05)
Days ³	-1.63e-07 (8.62e-08)	-1.49e-07* (6.98e-08)	-1.49e-07* (6.78e-08)
Intercept	-5.5055* (0.4648)	-9.2959* (0.5565)	-9.2118* (0.5643)
Petition Fixed Effects		Yes	Yes
Log Likelihood	-38160.331	-23834.039	-23776.120
Wald χ^2	45200.07	20290.98	19134.97
Pr > χ^2	<0.0001	<0.0001	<0.0001
N	272,330	267,572	267,572
Number of Petitions	98	98	98
Number of Clusters (Members)	789	767	767

Table 1: *Individual-Level Empirical Test of Diffusion Models.*

Notes: The dependent variable measures whether a member signed a petition on a day on which signatures occurred. We estimate a logistic regression model with fixed effects for petitions and robust standard errors clustered on unique members. Standard errors in parentheses. * denotes $p \leq 0.05$.

signing the petition and are, as a result, more likely to add their signature to the petition. In other words, the electoral success of previous adopters conveys important information to members regarding the payoffs associated with signing.

When we consider in-network diffusion (Model 3), we find that social influence operates within networks. That is, the *SInfl - Network* variable is positive and statistically significant. This implies that members are more likely to sign a discharge petition as the number of previous signers from their party increases. Conversely, there is less support for social learning following network pathways — at least partisan pathways — as evidenced by the statistically insignificant coefficient on the *SLearn - Network* variable. In our opinion, these results make intuitive sense. These findings suggest that members learn from all of their colleagues' behavior when assessing the electoral viability of signing, but nonetheless experience peer pressure from within their party.¹⁵

Appendix Figure 2 shows the means and 83.5% confidence intervals for the effect of the *SLearn* variable on the predicted probability of signing a discharge petition across the range of the *SLearn* variable.¹⁶ Panel (a) shows the predicted probabilities for Model 1, Panel (b) shows the predicted probabilities for Model 2, and Panel (c) shows the predicted probabilities for Model 3. In particular, Panel (c) contrasts a scenario with high and low levels of in-network average vote share, represented by the 99th and 1st percentiles of the *SLearn - Network* variable, respectively. We find that, on average, members are more than twice as likely to sign a discharge petition when the average vote share of the previous signatories changes from the minimum to the maximum value of the variable (as shown). These differences in predicted probabilities are statistically significant (i.e., non-overlapping confidence intervals) across all models. We find some evidence to suggest that low network average vote share reduces the probability of signing, although the differences in predicted probabilities across the high and low in-network scenarios are not statistically discernible from one another. These findings provide confirmation of the results from the aggregate analysis appearing

¹⁵When we estimate this model across the three classes of petitions identified in the aggregate-level analysis (see manuscript), we find that the *SLearn* variable only proves statistically significant at the $p = 0.05$ level for those petitions classified as following a social learning process. This provides some evidence of internal consistency across the individual and aggregate-level analyses.

¹⁶When comparing confidence intervals to one another (across values of a variable) in effort to make inferences regarding statistical significance, 83.5% confidence intervals are appropriate for achieving a type I error rate of 5% [i.e., 95% confidence] (Goldstein and Healy, 1995; Maghsoodloo and Huang, 2010).

in the manuscript, where we find the strongest support for the social learning model. We note briefly that the control variables included in the complete models (Models 2 and 3) largely conform with our expectations and are consistent with existing research on discharge petitions.

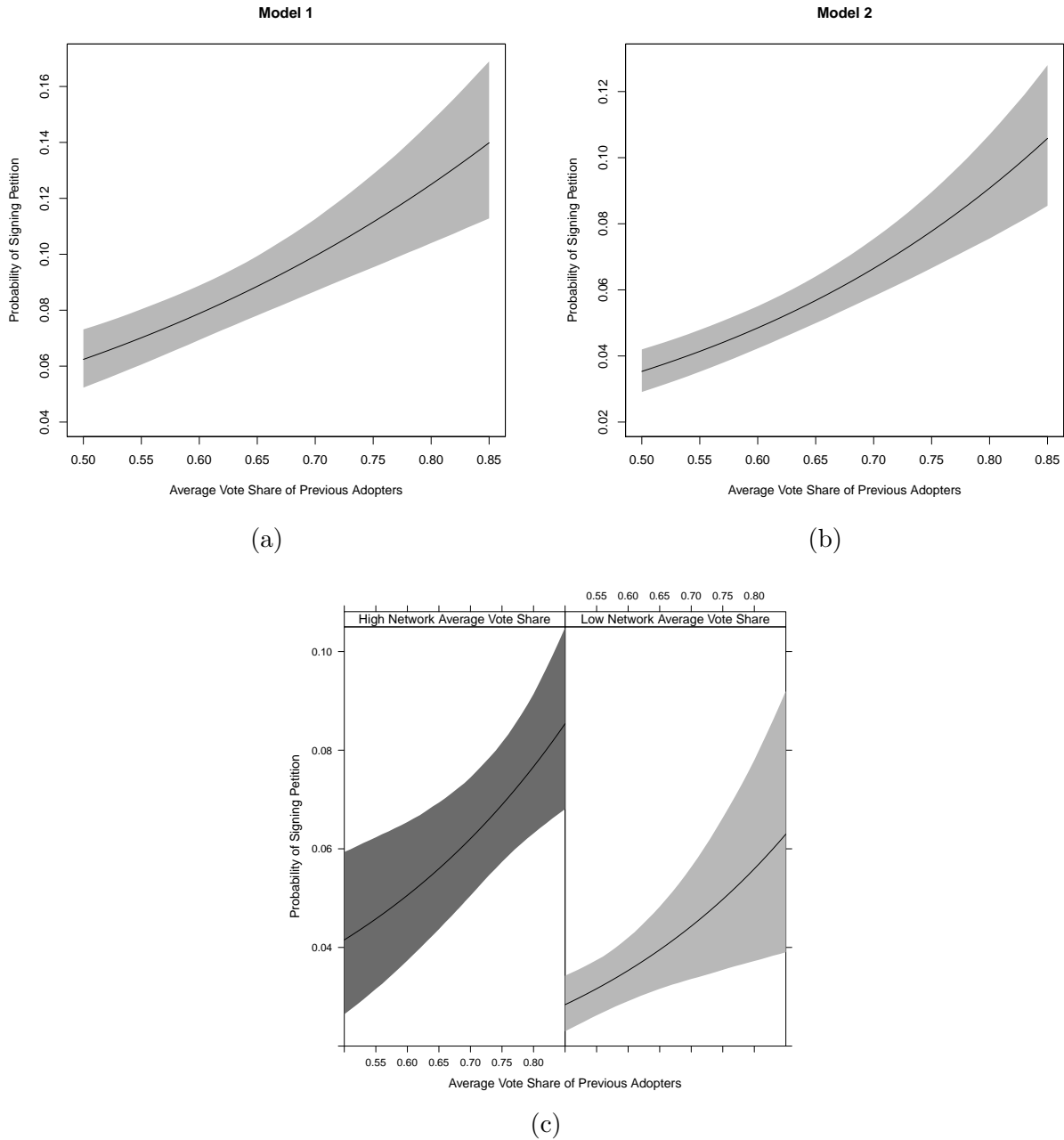


Figure 2: *Predicted Probabilities of Signing Across Range of Average Vote Share of Previous Adopters.*

Notes: Panels show the means and 83.5% confidence intervals of the predicted probabilities of signing a discharge petition across the range of average vote share of previous adopters for the models in Appendix Table 1. Panel (c) shows the predicted probabilities associated with high and low levels of in-network average vote share, measured as the 99th and 1st percentiles of the **SLearn-Network** variable, respectively.

C Analyzing the Diffusion Classification of Discharge Petitions

This section offers a preliminary analysis of the factors that affect which diffusion process a discharge petition will follow. We hypothesize that petitions that seek to discharge (i.e., target) legislation that is broadly consequential to members’ legislative and/or electoral fortunes will be more likely to follow a social diffusion process, and the social learning process in particular, given that these processes involve active observation and evaluation of previous adoption behavior. Quite simply, members are more likely to engage in higher order processing when legislation is meaningful to their careers. To examine this possibility, we introduce two models — a logit model in which we examine classification of discharge petitions as following either a contagion or social diffusion process (i.e., social influence or social learning) and a multinomial logit model in which we examine classification into each of the three diffusion processes explored in this project. While the dependent variable differs across the models, thus requiring the use of different link functions to accommodate the different number of outcomes, both models include the same basic structure with the identical covariates shown in Appendix Equation 2. Moreover, and as discussed in more detail below, both approaches yield substantively similar results.

$$\begin{aligned} \text{Model Classification} \sim & f(\text{DP Sponsor’s Common Space Score, Democratic Control,} & (2) \\ & \text{DP Sponsor’s Common Space Score} \times \text{Democratic Control,} \\ & \text{Coefficient Value of Committee, Number of Bill Cosponsors,} \\ & \text{Polarization, Legislative Significance}) \end{aligned}$$

In Appendix Equation 2, *DP Sponsor’s Common Space Score* refers to the discharge petition sponsor’s policy position, measured using Poole’s (1998) Common Space DW-NOMINATE scores. The variable *Democratic Control* accounts for those Congresses in which the Democrats had a majority of the House seats, and the interaction term is the product of the aforementioned variables. The variable *Coefficient Value of Committee* measures the value of a committee seat to House members, using Stewart’s (2012) method of measuring the value of committee service as a function of committee transfers. Broadly speaking, this approach can be used as a cardinal measure of

the relative prestige of House committees.¹⁷ *Number of Bill Cosponsors* measures the number of cosponsors on the bill targeted by the discharge petition, and *Polarization* uses Vander Wielen and Smith’s (2011) measure of party polarization that captures both the levels of intra-party homogeneity and inter-party heterogeneity in a single measure.¹⁸ Finally, the *Legislative Significance* variable seeks to capture variation in the importance of the legislation targeted by discharge petitions, and is a dichotomous measure that indicates whether or not the targeted legislation received coverage in the *Congressional Quarterly Almanac*. Use of the *CQ Almanac* to measure legislative significance is widespread in the congressional literature (e.g., Cameron, 2000; Volden and Wiseman, 2014).

We include these variables to capture variability across targeted bills in terms of both (i) the policy and/or electoral costs they present to members, and (ii) the legislative context within which they are being considered (i.e., control variables). We anticipate that when members encounter petitions that target bills that are particularly important to their legislative and/or electoral careers, they are more likely to observe and critically evaluate the adoption practices of their colleagues. As a result, we expect that the prestige of the targeted committee(s), the number of bill cosponsors, the level of party polarization within the chamber, and the importance of the targeted legislation are theoretically related to diffusion practices. In particular, we predict that the prestige of the targeted committee will be positively related to the likelihood of a social diffusion process. That is, members are confronted with a more consequential (i.e., costly) decision when they are considering discharging a prestigious committee. In addition, as the number of bill cosponsors increases, indicating greater initial support for the legislation (i.e., broader member interest in the legislation), there is an increasingly likelihood that discharge petition behavior will follow a social diffusion process. In the context of increasing levels of polarization, policy wins and losses become more costly to members. Thus, we should expect polarization to be positively related to the prevalence of social diffusion processes. Moreover, the importance of legislation should likewise increase the costs of decision-making to members, making social diffusion processes more likely. Other variables

¹⁷When petitions seek to discharge multiple committees, this variable is coded as the highest coefficient value among the parent committees. We note that alternatively using Deering and Smith’s (1997) dichotomous measure of committee prestige yields substantively similar results to those reported below.

¹⁸Using Common Space scores, the *Polarization* variable is measured as $|\text{Majority Median} - \text{Minority Median}| / \sqrt{(\text{Majority Variance} + \text{Minority Variance})/2}$.

are intended as contextual controls.

These predictions can be explored via the *Logit* model, which makes only a distinction between the contagion process and social diffusion processes (i.e., social influence and social learning processes). We can elaborate upon these predictions by separately considering each of the diffusion processes explored in this study. Specifically, social learning involves a higher order of agency (i.e., critical evaluation) than social influence, and therefore the above factors should have a more discernible effect on the occurrence of the social learning process. We can explore this possibility using the *Multinomial Logit* model specification. In particular, we expect the above relationships to be most pronounced in terms of the difference in probability of occurrence between the contagion (baseline category) and social learning processes.

The results of this analysis are shown in Appendix Table 2, and demonstrate consistency of results across the model specifications. We find the expected relationships in terms of both the *Polarization* and *Legislative Significance* variables across the models. The other predicted relationships do not achieve conventional levels of statistical significance. Rising polarization leads to a greater likelihood of a social diffusion process (*Logit* model). Polarization is positively related to the likelihood of both the social influence and social learning processes, relative to contagion, and has a larger marginal effect on the occurrence of social learning (*Multinomial Logit* model). Likewise, legislative significance increases the probability of a social diffusion process (*Logit* model), and the social learning process in particular (*Multinomial Logit* model).

	Coefficient (Standard Error)		
	Logit	Multinomial Logit (Social Influence)	Multinomial Logit (Social Learning)
DP Sponsor's Common Space Score	-2.9869** (1.3610)	-2.7890 (1.7175)	-3.1079** (1.2055)
Democratic Control	3.1120** (0.5268)	1.4410** (0.6427)	3.9372** (0.7252)
DP Sponsor's Common Space Score \times Democratic Control	-1.0491 (1.8572)	1.1360 (2.9434)	-2.0268 (1.5902)
Coefficient Value of Committee	-0.1756 (0.3214)	-0.0635 (0.3292)	-0.2518 (0.3296)
Number of Bill Cosponsors	0.0044 (0.0045)	0.0037 (0.0055)	0.0048 (0.0041)
Polarization	2.8805** (0.8816)	2.7044** (0.7948)	3.0252** (1.0076)
Legislative Significance	1.1812* (0.6698)	0.6611 (0.6279)	1.5220* (0.8150)
Intercept	-15.8130** (5.3489)	-15.5898** (4.8186)	-17.2622** (6.0259)
Log Likelihood	-41.4584		-94.6078
LR χ^2	25.81		31.05
Pr $> \chi^2$	0.0005		0.0055
N (Number of Petitions)	107		107
Number of Clusters (Congresses)	10		10

Table 2: *Diffusion Classification of Discharge Petitions.*

Notes: The dependent variable in the Logit model is coded as zero for petitions classified as following the contagion process and 1 for classification as either of the social diffusion processes. The dependent variable in the Multinomial model measures the three diffusion processes explored in this project, and therefore has three categorical outcomes, with contagion serving as the baseline outcome. We estimate all models with robust standard errors clustered on Congresses. Standard errors in parentheses. * denotes $p \leq 0.1$, ** denotes $p \leq 0.05$.

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