Does Lobbying Affect Bill Advancement? Evidence from Three State Legislatures

Abstract

Many studies consider the effect of lobbying on the behavior of individual legislators, but few studies demonstrate a relationship between lobbying and the ultimate dispositions of bills by the legislature. One challenge to establishing this latter relationship is data scarcity, as few legislatures systematically collect and publish information on organized interests' lobbying activities on each bill. We provide new insights on lobbying by using data from Colorado, Nebraska, and Wisconsin that records the positions organized interests take on proposals in those states' legislatures. We find that organized interests' lobbying predicts outcomes, especially when lobbying is directed against a proposal. We also use our data to test whether lobbying succeeds by building support among legislators (i.e., vote buying) or by affecting a proposal's advancement through the legislative process (i.e., agenda control). We find that lobbying does not buy legislators' votes, but lobbying does strongly predict what bills make it onto the agenda. Our findings contribute to ongoing discussions about money and politics, bias in representation, and legislator behavior.

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Whether organized interests' lobbying efforts affect policy outcomes is a contested issue.[1] Some studies of lobbying and policymaking provide evidence that lobbying influences political actors' behavior (e..g, Bergan 2009, Hall and Miler 2008) and final policy outcomes (e.g., Anzia and Moe 2015; Grasse and Heidbreder 2011; Grossmann and Pyle 2013; Haeder and Yackee 2015). Because some constituencies in the population, such as businesses and the upper-class, are better represented by organized interests, some scholars conclude that the effectiveness of lobbying leads to outcomes biased towards those privileged constituencies (Gilens and Page 2014; Schlozman, Verba, Brady 2012). However, other studies suggest that lobbying has a limited effect on political officials' actions (e.g., Baumgartner and Leech 1998; Wawro 2001; Wright 1989) and government outputs (e.g., Baumgartner et al. 2009; Lewis 2013), thus tempering the normative concerns often expressed about lobbying's pernicious effects (e.g., Bashir 2015, Enns 2015). Given these conflicting conclusions concerning the effectiveness of lobbying, it is difficult for scholars and practitioners to make claims about the normative consequences of lobbying and to offer reform proposals that improve the responsiveness of government to the polity at large (e.g., Flavin 2015).

One constant challenge to understanding whether and how lobbying influences policy outcomes is data scarcity about the positions that organized interests actually take on bills (Leech 2010; Anzia 2019). Data on the preferences and actions of organized interests is not systematically collected and distributed. While scholars are sometimes able to collect this information for a subset of bills, they typically cannot analyze the full set of bills considered

[1] We use the phrase "organized interests," rather than the more common "interest groups," to be inclusive in our terminology. Whereas the usage of "interest groups" typically implies that all entities are membership-based groups, the more broad "organized interests" accounts for other entities that lack members but pursue collective goals through political action, such as corporations and non-profit institutions (see Schlozman and Tierney 1986: 9-10).

before a legislature. Consequently, scholars "often focus only on issues that reach the end stages of the policy process or that are well published" because data is more accessible for these issues, making it difficult to draw generalizations because these issues "simply are not representative of what typically occurs" (Baumgartner et al. 2009: 2).

We offer new insights into the relationship between lobbying and policymaking by using lobbying disclosure data from three states that have information not available on lobbying in commonly studied institutions such as Congress (Anzia 2019). In particular Colorado, Nebraska, and Wisconsin require organized interests to report the bills on which they lobby and the positions they take on those bills. Whereas researchers looking to discern interests' positions on specific bills usually need to reconstruct those positions from other sources, this latter feature of the data—the positions interests take on bills—enables us to examine the impact of lobbying on legislative outcomes in three distinct institutional environments across more than a decade. Further, in contrast to most extant work, which focuses on the effects of lobbying on individual policymakers (e.g., legislators' roll-call votes) we consider how lobbying affects institutional policy outcomes--specifically, what bills become law, which are the ultimate objects of interest.

We also consider whether lobbying affects these outcomes by influencing the agenda (i.e., agenda control) or legislators' votes (i.e., vote buying). While previous studies have explored whether lobbying affects votes (Langbein and Lotwis 1990; Wawro 2001; Wright 1990), few assess whether organized interests influence outcomes through the agenda (but see Lorenz 2020)—a striking disparity given the importance of agenda-setting in legislative politics (Cox and McCubbins 2005; Anzia and Jackman 2013) and because organized interests are expected to have more influence in less visible stages of the legislative process (Evans 1996;

Hall and Wayman 1990; Witko 2006). We study the effects of lobbying on agenda control by assessing the relationship between lobbying and bills' progress through intermediate steps in the legislative process, such as being voted out of committee, to determine if lobbying helps bills overcome procedural hurdles and advance towards becoming law. We also investigate interests' ability to buy votes by studying how legislators vote on the floor, controlling for their vote on the bill in committee, when lobbying occurs between the committee and floor votes.

We find that organized interests' lobbying efforts are related to legislative outcomes. Of the over 26,000 bills in our data set, half experience one-sided lobbying, where all lobbying activity is either in support of or in opposition to the bill, and this lobbying strongly predicts bill outcomes. Consistent with previous work on niche lobbying (Baumgartner and Leech 2001), we find that one-sided lobbying for (against) a bill is associated with an 11 percentage point increase (26 percentage point decrease) in the probability of enactment. Consistent with previous work, we also find evidence of a status quo bias in lobbying, as groups lobbying against a bill are more successful in killing it than are groups lobbying to pass a bill (Baumgartner et al. 2009). As already noted, the magnitude of the effect of one-sided lobbying against passage is two-and-a-half times larger in magnitude than the effect of one-sided lobbying for passage. In addition, we find that bills are less likely to be enacted when they experience two-sided lobbying.

Finally, we use the data from Wisconsin to investigate the mechanisms by which lobbying influences legislative outcomes. We are able to study these questions because the frequency of Wisconsin's reporting requirements allow us to identify when, in a bill's progress through the legislative process, groups lobbied on it. Our analyses do not provide evidence that

lobbying buys legislators' votes; however, they provide evidence supportive of lobbying as a means of agenda control. While previous work has emphasized the importance of agenda control for understanding legislative politics, it has largely focused on party leaders' influence on what bills get to the floor (Cox and McCubbins 2005; Anzia and Jackman 2013). We show that lobbying appears to influence outcomes in a similar way. Lobbyists are not changing votes on the floor, but are instead shaping outcomes by affecting the agenda.

How Lobbying Can Influence Outcomes

Interests organize to accomplish collective goals through political action (Schlozman and Tierney 1986: 10). While organized interests focus their energies on a wide range of governmental and nongovernmental actors, including the executive branch (Haeder and Yackee 2015; Miller n.d.*a*; Yackee and Yackee 2006), the courts (Collins et al. 2015), political parties (Heaney 2010), and the media (Sobbrio 2011), scholars and practitioners agree that their venue of choice is legislatures (Baumgartner et al. 2009; Schlozman and Tierney, 1986).[2] Consequently, studies of lobbying and policymaking tend to focus on organized interests' efforts to influence legislation. These studies typically assume that organized interests affect legislative outcomes through one or both of two mechanisms. First, lobbying may leverage legislative procedure to exert agenda control, facilitating or blocking a proposal's advancement by lowering or raising institutional roadblocks in the proposal's path (Anzia and Jackman 2013; Fouirnaies

[2] Previous studies using surveys and interviews of organized interest representatives or observational data to determine which venues lobbyists tend to concentrate their time and energy unanimously agree that, at any given level of government, legislatures are the focal point of lobbying activity. For example, while 80.6% of respondents in Baumgartner et al.'s (2009) study reported making personal contacts with members of Congress or their staffs as part of their lobbying efforts, many fewer reported making contact with officials in federal agencies or the White House (41.9% and 18.7%, respectively). See also Boehmke et al. (2013); Heinz et al. (1993); Holyoke (2003); Schlozman and Tierney (1986).

2018; Fouirnaies and Hall 2018; Garlick 2016; Powell and Grimmer 2016). Second, lobbying may promote or inhibit a proposal's success through vote buying, or by securing the votes of enough legislators to pass or defeat the proposal (Schnakenberg 2017; You n.d.).

Despite scholars' ultimate interest in the relationship between aggregate lobbying activity and legislative outcomes, most extant studies focus on the strategies and tactics organized interests direct towards individual legislators, such as making campaign contributions (Fouirnaies 2018; Fouirnaies and Hall 2018; Powell and Grimmer 2016; Wright 1989), directly contacting legislators and their staffs (Hojnacki and Kimball 1998; Miller n.d.*b*, Wiener n.d.; You n.d.), mobilizing legislators' constituents (Bergen 2009; Hall and Reynolds 2012), subsidizing their legislative effort (Hall and Deardorff 2006; Hall and Miler 2008), and leveraging network connections (Bertrand et al. 2014; Blanes i Vidal et al. 2012; McCrain 2018).

This focus on the effect of lobbying at the legislator-level, rather than the legislature-level, stems in part from two research design challenges. First, because legislatures are collective institutions, it is difficult for researchers to design empirical tests that identify the effect of lobbying strategies and tactics directed at individual legislators on aggregate policy outcomes. For example, though it is feasible to trace organized interests' campaign contributions to individual legislators and compare the levels of contributions made to those who gain or lose an agenda setting position to other legislators (e.g., Fouirnaies 2018), it is difficult to test the relationship between organized interests' campaign contributions to individual legislators and the legislature's ultimate disposition of a given bill. Second, researchers often lack the requisite data to evaluate the relationship between the lobbying activity on and final dispositions of those proposals. For example, in Congress, where most studies of lobbying and policymaking focus,

organized interests infrequently indicate on their Lobbying Disclosure Act (LDA) reports the bills on which they lobby, and they are not encouraged or required to provide their positions on the bills they list.[3]

In recent years, a few studies have found innovative ways to overcome these data scarcity challenges to examine the relationship between aggregate-level lobbying activity and legislative outcomes. However, these studies collectively offer contrasting conclusions as to whether lobbying influences bill dispositions. At the federal level, Baumgartner et al. (2009) draws on interviews with randomly sampled lobbyists and government officials to track lobbying activity and policy change in 98 issue areas over the course of four years. While the authors find modest evidence that the degree of lobbying activity affects the likelihood of policy change, they conclude that policy change is rare because activists often mobilize on both sides of an issue to cancel out each other's lobbying efforts and leave the status quo intact. Differently, drawing on LDA reports, Grossmann and Pyle (2013) conclude that the volume of lobbying activity directed towards a bill, as measured by the number of times it is mentioned in those reports, increases its likelihood of advancement through the legislative process.[4]

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[3] Grossmann and Pyle report that only 29.7% of LDA reports filed in the 106th and 107th Congresses contained bill numbers, and "almost uniformly lack information on whether the lobbyist has taken a position on a bill or whether that position is in favor or against" (2013; 98). Some recent studies have drawn on Maplight (https://maplight.org/), which uses public records to identify organized interests' position-taking on congressional bills (e.g., Holyoke 2019; Lorenz 2020; Moore et al. 2013). However, as it notes in its methodology section, Maplight "gather[s] this data for newsworthy bills: bills that move forward in Congress or that are mentioned in the news or blogs. We do not research support/opposition for ceremonial bills (such as naming post offices). Every bill is published on our site, even ceremonial ones, but not all bills include our original research on support/opposition" (http://classic.maplight.org/us-congress/guide/data/support-opposition). Given Maplight's data collection strategy, its information on organized interest position-taking is both incomplete and subject to non-random missingness that may bias inferences gleaned from it (see Lorenz et al. 2020). For example, if lobbying is more effective for low-salience bills that do not attract public attention (Grasse and Heidbreder 2011), then an analysis using Maplight's data of organized interest position-taking on high-salience bills may underestimate the effect of lobbying on the full population of congressional bills.

[4] Because LDA reports seldom indicate the filer's position on the bill mentioned, Grossmann and Pyle (2013) can account for the volume, but not the directionality, of the lobbying efforts put forth with regard to each bill and the bill's advancement through the legislative process. In supplemental analyses, the authors investigate how the

Grasse and Heidbreder (2011) and Lewis (2013) draw on lobbying disclosure filings from Wisconsin from the 2005-06 and 2007-08 legislative sessions, respectively, to examine the relationship between lobbying and legislative outcomes and again arrive at conflicting conclusions. Whereas Grasse and Heidbreder (2011) argue that the balance of lobbying activity on a bill is related to its disposition, such that bills with more lobbying activity in favor of (in opposition to) them are more (less) likely to pass, Lewis (2013) finds weak evidence for a relationship between lobbying and legislative outcomes, instead suggesting that the balance of campaign contributions made by interests taking positions on a given bill are predictive of its success.

Our research design, which we outline in the next section, builds on these previous studies in several ways by drawing on lobbying disclosures and legislative histories from 24 sessions in the legislatures of three states—Colorado, Nebraska, and Wisconsin. First, we build on Baumgartner et al. (2009) by using a design that enables us to consider both proposals on which lobbying occurred and those on which it did not, thus limiting concerns about post-treatment bias (Montgomery, Nyhan, and Torres 2018). Second, we incorporate the full population of bills for the states and legislative sessions in our study. Third, our study incorporates a long time series across three distinct legislative institutions. In contrast to the the "one-shot, cross-sectional" approach common in the study of organized interests, which Baumgartner and Leech suggest "seems a perfect strategy for producing unexplained variation between studies" and "is a recipe for the creation of a contradictory and noncumulative literature" (1998: 176), the wider scope of our study enhances the generalizability of our

directionality of lobbying efforts related to legislative outcomes for a subset of bills for which they can discern organized interests' positions, but ultimately do not find evidence that lobbying for or against a bill is related to its advancement.

findings. Finally, we go beyond merely examining the relationship between aggregate-level lobbying and legislative outcomes by using the data from Wisconsin to investigate whether the agenda control and/or vote buying mechanisms underpin our findings.

While the observational nature of our analysis precludes us from making explicit causal claims, we draw on results from a survey of lobbyists to evaluate concerns that the observed empirical results are driven by lobbyists strategically choosing to lobby when they can win as a way to justify their jobs. In 2018 and 2019, we surveyed several hundred registered lobbyists from the three states we study, asking them questions about how they decide on which bills to lobby. Our survey results suggest that this form of reverse causality is not a concern because the decision to take a position on a bill is not primarily driven by its likelihood of success or other factors that would lead to concerns about this and related forms of endogeneity.

Data on Lobbying and Legislation

We examine the relationship between lobbying activity and legislative outcomes with data drawn from three states where organized interests are required by law to submit detailed reports on their lobbying activity—Colorado,[5] Nebraska,[6] and Wisconsin.[7] Importantly for our

[5] Under Colorado's Sunshine law (C.R.S. 24.6), lobbyists are required to disclose all positions they take on bills in a given month by the 15th of the following month. This data is provided by the Secretary of State and is available in bulk download on the following site: https://data.colorado.gov/Legislative/Bill-Information-and-Position-with-Income-of-Lobby/gxnn-wthy

[6] The applicable law is found in Neb. Rev. Stat. Ann. § 49-1480. Under this law, lobbyists are required to disclose all positions they take on bills in a given legislative session following the session's conclusion. The data drawn from the reports is available from the Nebraska legislature's website: https://nebraskalegislature.gov/lobbyist/view.php

[7] Under Wis. Stat. §13.67 and Wis. Stat. §13.69, lobbying principals are required to report contacts with legislators on specific bills within 15 days of the contact, and failure to do so can result in fines ($25 for the first offense, $100 for the second offense, <$5,000 thereafter). Wisconsin's Eye on Lobbying website, which is maintained by the Wisconsin Ethics Commission, provides this information in a searchable database: https://lobbying.wi.gov/Home/Welcome.

study, anyone lobbying the legislature in these states must report the specific bills for which they make any lobbying communications with legislators or staff members, as well as the positions they take on those bills.[8] Grasse and Heidbreder (2011) and Lewis (2013) draw on this same data from the state of Wisconsin, but they each do so for only a single legislative session. Our data encompasses 24 legislative sessions across these three states (Colorado from 2007-2016, Nebraska from 2007-2018, and Wisconsin from 2003-2018).[9]

We use data that comes from two different sources in each of the three states. First, we collect information on which bills each organized interest lobbied and the positions they took on those bills.[10] While Colorado provides this information in an easily downloadable format, we needed to scrape this data from the state government websites of Nebraska and Wisconsin. Second, to ascertain the fates of the bills considered by each state legislature, we scraped the legislative histories of each bill introduced for the legislative sessions in our analysis from each of the state legislatures' websites. In total, our data set contains 26,051 unique bills, 81% of which were the object of lobbying activity by at least one organized interest.

To start, we analyze whether a bill is enacted into law or not. While intermediate steps in the legislative process are important antecedents of legislative success, organized interests'

[8] Organized interests in each of these three states can express a position in support of or in opposition to a bill, or can indicate an ambiguous position (i.e., organized interests in Colorado can simply denote that they are "monitoring" a bill). Though organized interests are not forced to indicate support for or opposition to a bill, 44.2% of the 242,521 positions taken by organized interests on bills in our data include an explicit statement of support or opposition. In the Appendix, we also run models where we control for whether this type of lobbying occurs on the bill; the results from these models are substantively consistent with those presented in the main text.

[9] While Nebraska and Wisconsin's legislatures hold biennial sessions, Colorado's legislature holds annual sessions. Thus, our data includes 10 legislative sessions from Colorado, 6 legislative sessions from Nebraska, and 8 legislative sessions from Wisconsin.

[10] We limit our analysis to bills considered during regular legislative sessions. This excludes other types of proposals considered before these state legislatures, such as resolutions and constitutional amendments, as well as bills considered during special sessions. We do because other types of proposals often follow different legislative procedures and have different impacts on policy; for example, resolutions only require the assent of their chamber of origin and have no legal consequences.

policy goals are achieved only with the final success or failure of a bill, and our outcome measure reflects this reality. Further, many of the normative debates about lobbying come down to whether it affects outcomes. Of the 26,051 proposals in our data, 8,752 (34%) were enacted into law.

We model our measure of organized interests' lobbying activity on Baumgartner et al. (2009)'s emphasis on one-sided versus two-sided lobbying. Specifically, we construct four binary indicators to describe the pattern of lobbying on each bill—whether the bill experiences no lobbying activity ("no lobbying"), experiences lobbying activity only from groups supporting the bill ("only lobbying for"), experiences lobbying activity only from groups opposing the bill ("only lobbying against"), or experiences lobbying activity from groups that support and oppose the bill ("lobbying for and against"). Table 1 presents the number of legislative proposals falling into each of these four lobbying patterns. The modal bill experiences one-sided lobbying; in 44% of the cases, there is only lobbying for the proposal, and in another 7% of the cases, all of the lobbying is against the proposal.

Relative to a bill that experiences no lobbying activity, a bill that experiences one-sided lobbying in favor of passage is expected to be more likely to become law and a bill that experiences one-sided lobbying against passage is expected to be less likely to become law. As for bills that experience two-sided lobbying, if there is a status quo bias that favors organized interests lobbying against bills, then we would expect bills that experience two-sided lobbying to be less likely to pass than bills that experience no lobbying.[11]

[11] Of the 26,501 proposals in our data, 15,966 (61.3%) experience at least one organized interest report lobbying on the bill but stating an ambiguous position on the bill (e.g., "monitoring"). In the coding scheme described here, we consider such ambiguous instances of lobbying to be the absence of lobbying. We report additional models in the Appendix which account for these ambiguous types of lobbying; the results of these models are substantively similar to those presented in the main paper.

While this coding of lobbying activity describes the basic patterns of lobbying activity on a given bill, it does not capture the intensity of that lobbying activity as measured by the number of groups lobbying on the bill or the amount of time and resources they devote to the bill. In the main paper and in the Appendix, we present additional analyses which explicitly account for the number of organized interests lobbying on each side of each bill; these specifications yield estimates that are substantively similar to those obtained when coding only the pattern of lobbying activity for each bill.

Table 1: Lobbying Patterns on Legislative Proposals

Lobbying Patterns	Number of Proposals	Percent of Sample
No lobbying	5,032	19%
Only lobbying for proposal	11,452	44%
Only lobbying against proposal	1,884	7%
Lobbying for and against proposal	7,683	29%

Note: The percentages are rounded to whole numbers, which is why the numbers in the "Percent of Sample" column sum to 99 rather than 100.

For ease of interpretability, we estimate the relationship between the four different patterns of lobbying activity and bill enactment with ordinary least squares regression which, given the dichotomous nature of our dependent variable, constitutes a linear probability model.[12] Our main analysis includes dichotomous indicators for one-sided lobbying for the bill, one-sided lobbying against the bill, and two-sided lobbying on the bill. The omitted category contains bills which attracted no lobbying activity, and the coefficient for the intercept represents the rate of passage for these bills. Further, the coefficients for each dichotomous indicator constitute the

[12] In Appendix Table A1, we fit the same model with logistic regression, which is better suited when a model's outcome is dichotomous. The results obtained through logistic regression are substantively similar to those presented in the main paper.

offset to the baseline rate of passage for bills experiencing each type of lobbying activity. Finally, to account for fluctuations in the baseline rate of passage across legislative sessions and states, our models include fixed-effects for each legislative session in each state.[13]

Evidence that Lobbying Influences Outcomes

The results of our main analysis are presented in Table 2. The model presented in the first column pools observations from all three states, while the next three columns include only bills from Colorado, Nebraska, and Wisconsin, respectively. For ease of exposition, we focus primarily on the model which pools across all three states.

The results suggest that organized interest lobbying is related to the success of a legislative proposal. When lobbying is one-sided, such that organized interests only lobby for or against a proposal, the outcome is more likely to align with the preferences of the organized interests lobbying on it. When organized interests only lobby for a bill, the probability of enactment increases by 11 percentage points. When organized interests only lobby against a bill, its probability of enactment decreases by 26 percentage points. When lobbyists are unopposed, they appear to get their way, though the effect of lobbying to protect the status quo is significantly larger than is the effect of lobbying to change the status quo, indicative of the status quo bias described by Baumgartner et al. (2009).[14]

[13] Despite including these fixed-effects, this model does not account for the non-independence of observations arising from the same state or the same legislative session. This non-independence violation is important to consider when conducting hypothesis tests, as it biases our measures of uncertainty and may lead us to make incorrect inferences. To account for the non-independence of observations, we re-estimate our main model in a multilevel framework, thus enabling pooling across states and legislative sessions when estimating coefficients and measures of uncertainty. The substantive results from this multilevel model, presented in Appendix Table A4, are substantively similar to those presented in the main paper.

[14] We draw this conclusion by conducting a hypothesis test using the absolute values of the coefficients and standard errors for the number of groups lobbying for and against a given bill. In the model pooling data from all three states and the models for Colorado and Nebraska, the absolute values of these coefficients are distinguishable at the 95%

Table 2: Lobbying Patterns and Probability of Enactment (OLS)

	All	Colorado	Nebraska	Wisconsin
Lobbying For and Against	-0.13*	-0.40*	-0.21*	-0.01
	(0.01)	(0.02)	(0.02)	(0.01)
Only Lobbying Against	-0.26*	-0.66*	-0.33*	-0.11*
	(0.01)	(0.02)	(0.03)	(0.01)
Only Lobbying For	0.11*	0.05*	0.02	0.11*
	(0.01)	(0.02)	(0.02)	(0.01)
Includes State FEs?	Yes	n/a	n/a	n/a
Includes Session FEs?	Yes	Yes	Yes	Yes
Num. obs.	26,051	5,666	6,817	13,568

Models are estimated with ordinary least squares regression. * denotes statistical significance at the p<0.05 level. The dependent variable is a dichotomous indicator for whether a legislative proposal is enacted into law. The explanatory variables are coded as dichotomous indicators for whether organized interests officially take positions only in support of a proposal, only against a proposal, or both for and against a proposal. Proposals in the omitted category are those proposals on which no organized interest takes an official position for or against the proposal. The model in the leftmost column pools legislative proposals from Colorado, Nebraska, and Wisconsin, while the remaining three models use only data from the state indicated. All models contain fixed-effects for state and/or legislative session, where appropriate; the intercept and fixed-effects are excluded from the table.

However, when two-sided lobbying occurs, such that a bill experiences lobbying activity both in support of and in opposition to its passage, these contrasting lobbying positions do not appear to cancel out; rather, those interests lobbying against the bill's passage are more likely to get their way. Compared to bills on which no organized interests lobby, bills experiencing two-sides lobbying are 13 percentage points less likely to be enacted. In other words, when groups lobby to support something that another group is opposing, they lessen the negative impact of the opposition's efforts.[15] Lobbyists are thus able to counteract at least some of each others' influence (Austen-Smith and Wright 1994). At the same time, the proposals that receive two-sided lobbying are significantly less likely to be enacted than proposals receiving no

confidence level; however, in the model for Wisconsin, the absolute values of these coefficients are not distinguishable.

[15] The coefficients for one-sided lobbying against and two-sided lobbying on a bill are distinguishable at the 95% level for all four models.

lobbying. This is consistent with evidence that there is a status quo bias where it is easier to defend the status quo than it is to change policy (Baumgartner et al. 2009).

While Table 2 provides an easily interpretable analysis of the effect of lobbying on a bill's likelihood of enactment, it does not account for the intensity of the lobbying efforts put forth by groups. One concern with this approach is that it does not account for the number of groups lobbying, which may vary with the patterns of lobbying observed across bills. For example, each group might have a comparable level of influence, but if there are more groups lobbying against proposals than there are groups lobbying for proposals, it would incorrectly appear that there is a status quo bias.

Table 3: Lobbying Patterns and Probability of Enactment (OLS)

	All	**Colorado**	**Nebraska**	**Wisconsin**
Number Lobbying For	0.01*	0.01*	0.01*	0.02*
	(0.00)	(0.00)	(0.00)	(0.00)
Number Lobbying Against	-0.02*	-0.03*	-0.02*	-0.02*
	(0.00)	(0.00)	(0.00)	(0.00)
Includes State FEs?	Yes	n/a	n/a	n/a
Includes Session FEs?	Yes	Yes	Yes	Yes
Num. obs.	26,051	5,666	6,817	13,568

Models are estimated with ordinary least squares regression. * denotes statistical significance at the $p<0.05$ level. The dependent variable is a dichotomous indicator for whether a legislative proposal is enacted into law. The explanatory variables are counts of the number of organized interests who take positions in support and in opposition to a proposal. The model in the leftmost column pools legislative proposals from Colorado, Nebraska, and Wisconsin, while the remaining three models use only data from the state indicated. All models contain fixed-effects for state and/or legislative session, where appropriate; the intercept and fixed-effects are excluded from the table.

We repeat the analysis in Table 3 using counts of the number of groups lobbying for and against a bill's passage instead of binary indicators of the pattern of lobbying activity on the bill. The results from these models are substantively similar to those presented in Table 2; when the number of groups lobbying for a bill increases, that bill's likelihood of passage increases and

when there are more groups lobbying against a bill, that bill's likelihood of passage decreases. Further, the magnitude of the coefficient estimate for the number of groups lobbying against a bill is significantly larger than that for the number of groups lobbying for a bill, providing further evidence of a status quo bias in the policy process (Baumgartner et al. 2009).[16] Thus, whether looking at the general pattern of lobbying activity or the intensity of lobbying efforts, we find that lobbying is related to legislative outcomes.

Evaluating whether Endogeneity is a Major Concern in Lobbying Decisions

Our main analysis provides evidence for a relationship between lobbying activity and legislative outcomes, but it does not not establish a causal relationship. For example, one endogeneity concern is that reverse causality might be at play if the decision to lobby is driven by lobbyists' perceptions of a bill's likelihood of success (Grossmann and Pyle 2013: 97). While we cannot definitively rule out this or other forms of endogeneity, we investigate their plausibility by drawing on contextual knowledge gathered through a survey of lobbyists in these three states.

Between December 2018 and February 2019, we distributed a survey to 4,304 current and former registered lobbyists from Colorado, Nebraska, and Wisconsin asking them about their lobbying experiences.[17] 421 lobbyists completed our survey for a response rate of 10 percent, which is a typical response rate for elite-level surveys in the United States (e.g., Fisher and

[16] The absolute values of these coefficients are distinguishable at the 95% level for the pooled model and the Colorado and Nebraska models, but not for the Wisconsin model.

[17] We obtained the names and email addresses of these lobbyists by scraping lobbying reports published on each state's websites. Because the survey included both current and former registered lobbyists, we included the following instruction at the beginning of the survey: "If you no longer work as a lobbyist, answer the questions based on when you last worked as a lobbyist."

Herrick 2013; Butler and Powell 2014; Miller n.d.*b*).[18] In the survey, we asked respondents three questions about their motivations to lobby on the last bill they lobbied on.[19] The questions were presented together on one page of the survey. The full wording for these three questions is given in Figure 1.

Figure 1: Survey Question Wording

In answering the following questions, think about the **last bill you worked on**.

Who decided whether to take a position on this bill?
- It was my decision
- It was a decision of the principal
- It was a joint decision between me and the principal

What was the **most** important determinant in deciding whether to lobby on the bill?
- The strength of my client's interest/stake in the proposal
- How likely the proposal was to become law
- These two factors were equally important
- Neither of these two factors were important (other factors drive the decision to lobby).

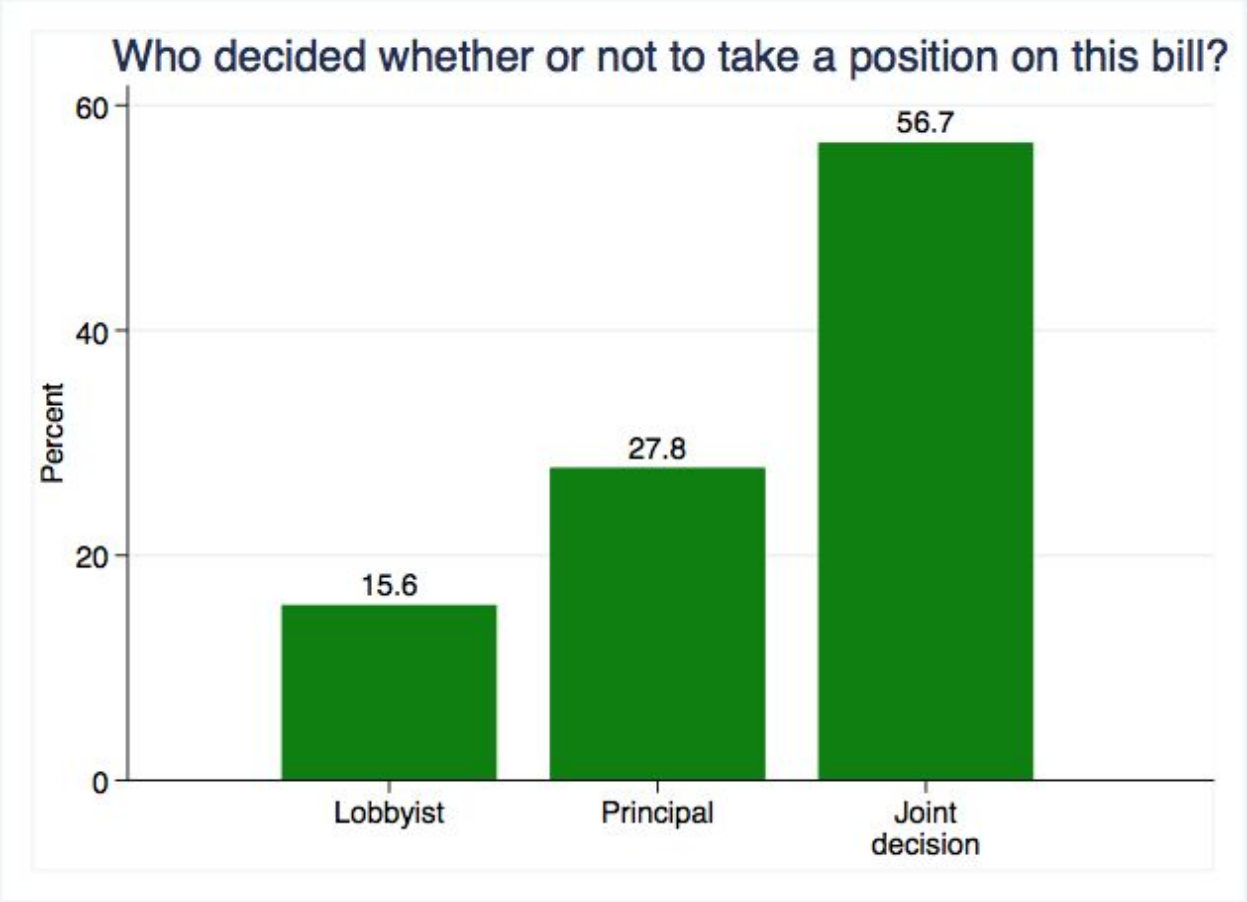
Please elaborate in the provided space. _____

When you took the position on the bill, how certain were you that the bill would be enacted into law?
- Very certain that it would be enacted into law
- Somewhat certain that it would be enacted into law
- Uncertain of the outcome
- Somewhat certain that it would not be enacted into law
- Very certain that it would not be enacted into law

[18] For instance, Miller (n.d.*b*) reports that the mean and median response rates to elite level-surveys containing experiments published in the past decade in the *American Journal of Political Science*, *American Political Science Review*, and *Journal of Politics* are 13.4% and 11.8%, respectively.

[19] By asking respondents to answer our questions by thinking about the last bill they lobbied on, we lessen concerns that respondents answer our questions with their experiences in lobbying on salient pieces of legislation, which may share characteristics unusual of the full population of bills. In this sense, asking lobbyists to think about the last bill they lobbied on constructs a sample of bills which is, in expectation, random (see Baumgartner et al. 2009: 7-12).

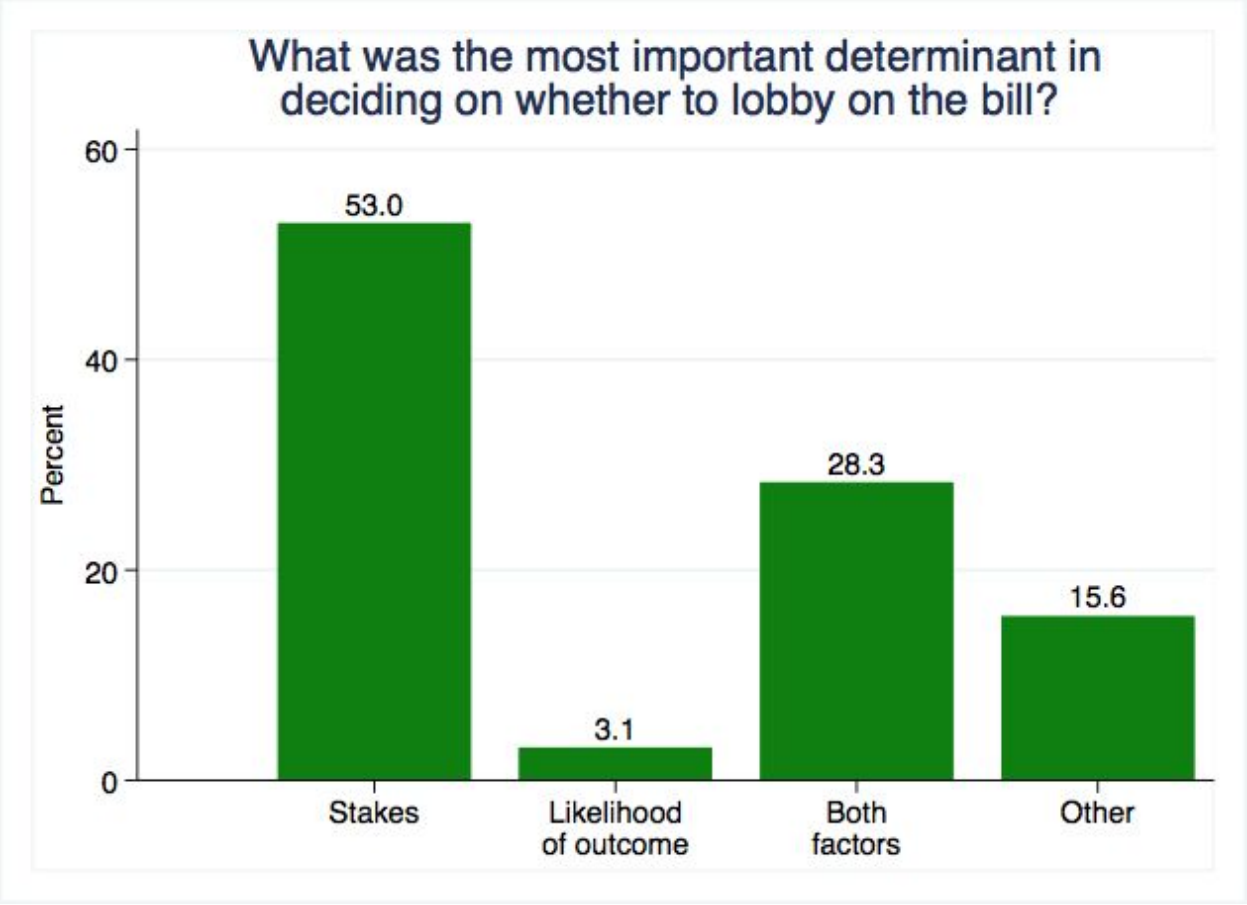
Figure 2: Lobbyists are not acting unilaterally



We should be concerned about endogeneity, and specifically reverse causality, if a few things are occurring. First, if lobbyists are deciding which bills to lobby on by themselves, then they may be more likely to lobby on bills on which they can "win" rather than on bills that reflect their clients' preferences (see Drutman 2015; Kersh 2002; Stephenson and Jackson, 2010). Lobbyists have an interest in faithfully representing their clients, but they also have a separate motivation to justify their employ, and one of the ways they can serve this motivation is to achieve concrete goals that can be construed as fulfilling their clients' wishes. As a result, lobbyists placing personal advancement over their clients' preferences may be more likely to take positions on bills that are more likely to succeed or fail in accordance with their clients'

preferences, as these bills provide opportunities for them to claim credit for an outcome which they did not influence. On this front, the survey results are reassuring. Figure 2 is a histogram of the responses to the question of who decided to take a position on the bill. In the majority of cases, lobbyists report that principals make the decision to take a position on a bill either on their own or jointly with the input of their lobbyists. In contrast, lobbyists reported making the decision to take a position on a bill in just over 15% of the cases.

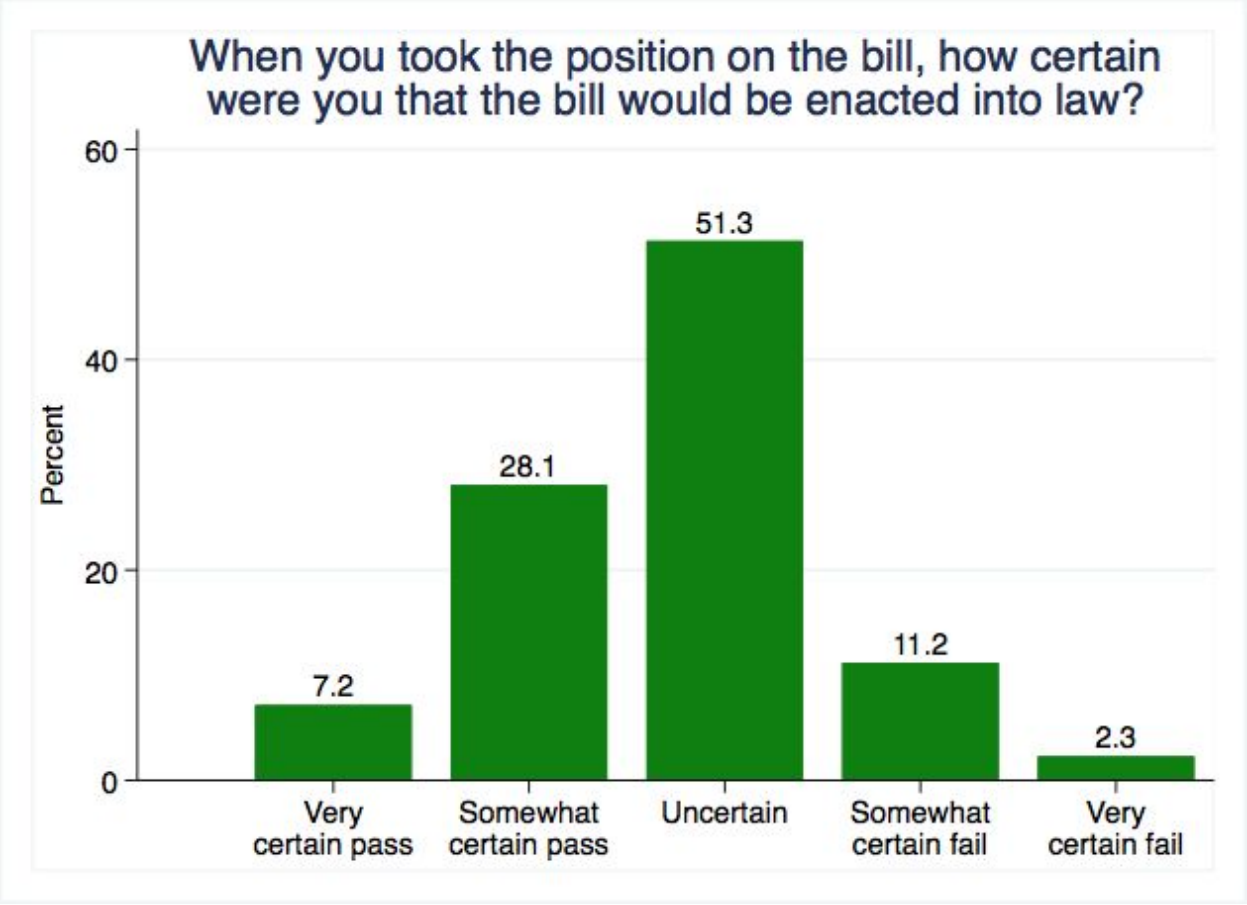
Figure 3: Likelihood of the outcome is not the primary driver of lobbying



Second, endogeneity is a concern if clients' and lobbyists' decisions about whether to lobby on bills is motivated by their expectation of the bills' outcomes rather than the clients' stakes concerning the bill. Related to the previous concern, it would be troubling if people are

just lobbying because they think they are likely to succeed rather than expressing their true preferences. Figure 3 provides the histogram for this result and shows that in more than half of the cases, the primary driver of the decision to lobby was the principal's interests. In only 3 percent of the cases was the likelihood of the outcome the primary driver on the decision to lobby. Thus, the survey results alleviate concerns that the decision to lobby on a bill is endogenous to its expected outcome.

Figure 4: Most lobbying occurs on issues where there is some uncertainty



Finally, we might be worried about endogeneity if lobbyists expressed certainty about the bill before deciding to lobby on it. In order for lobbyists to selectively take positions on bills given their expected outcomes, they must have a good sense of whether those bills will succeed or fail prior to taking a position. Figure 4 gives the histogram for the lobbyists' reported levels

of certainty concerning the fate of the last bill on which they lobbied. In more than half of the cases, they reported being uncertain about the outcome, and they reported high levels of certainty in fewer than 10 percent of the cases.

Taken together, the survey responses from lobbyists in the three states we studied suggest that the forms of endogeneity we probed are not driving the observed relationship between lobbying activity and legislative outcomes. The lobbyists reported that clients were playing a major role in lobbying decisions and that they were uncertain of the outcome in the majority of cases. Further, the primary motivation for lobbying was the client's stakes and not the bill's expected outcome. To be clear, some lobbyists answered these questions in ways that suggest that they had room to act strategically; however, the number of lobbyists fitting that description is likely small enough that it is not a major source of endogeneity for the question we study. The survey results thus strengthen the case that the correlations observed in the main analysis are evidence that lobbying affects the likelihood that a bill becomes law.

Lobbying Affects the Agenda, Not Votes

We now investigate whether two mechanisms by which lobbying is thought to influence outcomes can explain the relationship we observe in the data. First, we consider whether lobbying helps organized interests alter the agenda by leveraging procedural tools to promote or inhibit a bill's progress by evaluating the relationship between lobbying activity and intermediate legislative outcomes, such as bill passage out of committee. Second, we explore if lobbying enables organized interests to "buy" legislators' votes by testing whether lobbying predicts how legislators vote on final passage when we control for their vote on the same bill in committee.

Agenda Control

We first probe whether lobbying influences legislative outcomes by affecting bills' ability to progress through the legislative agenda. While a bill's ultimate disposition is the primary object of interest for organized interests, as it determines whether interests achieve their policy goals, the path to its ultimate disposition consists of a series of intermediate steps, such as making it out of committee. The ability for legislators, and particularly legislative leaders, to use legislative procedures to advance or stymie a bill's movement through these steps is referred to as agenda control (e.g., Anzia and Jackman 2013; Cox and McCubbins 2005), and organized interests' position-taking on bills can influence their final outcomes by encouraging legislators to exercise agenda control in accordance with their wishes.

Following previous studies on agenda control in legislatures, we focus on the outcomes of bills introduced into the legislature (e.g., Cox and McCubbins, 2005). In doing so, we and others who use this approach unavoidably condition on a latent policy proposal's ability to manifest as a bill in the legislature, which could raise concerns about endogeneity. This potential concern is most relevant for one-sided lobbying in support of bills; if organized interests lobby to get bills introduced into the legislature (Garlick 2016; Garret and Jansa 2015), then subsequent lobbying in favor of those bills and their advancement through the legislative process might be endogenous to the supportive lobbying that took place prior to the bill's introduction. However, this potential endogeneity concern does not apply to lobbying against a bill on its advancement through the legislative process because the proposal's introduction as a bill evidences the absence or failure of any opposition lobbying prior to its introduction. If we find evidence that

lobbying against a bill inhibits its advancement through the legislative process, that would suggest that our results are not simply driven by endogeneity.

To determine whether lobbying activity affects legislators' use of agenda control, we perform a series of analyses similar to those in our main analysis (see Table 2) that use bills' progress through three intermediate steps of the legislative process as our outcomes of interest. Specifically, we model the relationship between the pattern of lobbying a bill experiences and whether it makes it out of the committee process, reaches the floor, and passes in its chamber of origin.[20] For all three models, we code the pattern of lobbying for each bill using only the lobbying activity reported prior to the bill's advancement through the given stage of the legislative process to minimize post-treatment bias (Montgomery, Nyhan, and Torres 2018).

This analysis uses only data from Wisconsin. We focus on Wisconsin and exclude Colorado and Nebraska because of differences in the states' reporting requirements. In Nebraska, organized interests are not required to indicate the dates of their initial lobbying efforts on specific bills, such that we cannot determine when in a bill's life cycle positions were taken. While Colorado requires interests to report the month in which they first took a position and lobbied on a bill, many bills move between stages of the legislative process within the same month, such that we often cannot determine when positions were taken with respect to landmarks in a bill's advancement. In contrast, Wisconsin requires interests to file reports within 15 days of

[20] We code bills' legislative advancement by reviewing their legislative histories, as provided by the Wisconsin State Legislature's website, and identifying key events that correspond to passing committee, reaching the floor, and passing the chamber of origin. Bills are deemed to pass committee if they are scheduled for a second reading on the floor; this event signifies that the bill has successfully emerged from the committee process. We opt for this coding rule rather than a bill merely receiving a majority vote in a committee because the bill might fail to emerge from the committee process because the rules committee or another committee with jurisdiction over the bill does not grant its approval. Bills are deemed to reach the floor if they receive a third reading, at which time the full bill is debated by the entire chamber membership before proceeding to a final vote and no further amendments can be made. Finally, we deem bills to pass their chamber of origin if they receive an affirmative majority vote in their chamber of origin.

their initial lobbying efforts, offering us the most granular temporal measure of position-taking timing among the three states.[21]

Table 4: Lobbying Patterns and Probability of Legislative Advancement (OLS)

	Passed Committee	Reached Floor	Passed Chamber
Lobbying For and Against	-0.01	-0.01	0.00
	(0.01)	(0.01)	(0.01)
Only Lobbying Against	-0.15*	-0.15*	-0.14*
	(0.02)	(0.02)	(0.02)
Only Lobbying For	0.11*	0.10*	0.11*
	(0.01)	(0.01)	(0.01)
Includes Session FEs?	Yes	Yes	Yes
Num. obs.	13,568	13,568	13,568

Models are estimated with ordinary least squares regression. * denotes statistical significance at the $p<0.05$ level. The dependent variable is a dichotomous indicator for whether a legislative proposal reached the stage of the legislative process indicated by the column heading. The explanatory variables are coded as dichotomous indicators for whether organized interests officially take positions only in support of a proposal, only against a proposal, or both for and against a proposal. Proposals in the omitted category are those proposals on which no organized interest takes an official position for or against the proposal. The models include only legislative proposals from Wisconsin. All models contain fixed-effects for legislative sessions; the intercept and fixed-effects are excluded from the table.

Table 4 provides the results for our models of the relationship between lobbying and reaching each of these intermediate steps using the full sample of bills from Wisconsin. For each step, we find a significant relationship between the pattern of lobbying activity on a bill and its likelihood of achieving that step. Further, the coefficients in all three models are roughly similar. This is because the first step in the process is a necessary condition for the later stages. Looking

[21] Using information concerning when organized interests in Wisconsin report on their lobbying activity and each bill's legislative history, we determine what lobbying activity occurred before the bill's achievement of each intermediate step of the legislative process and use only that activity to code the pattern of lobbying activity it experienced. If the timing of an initial lobbying report relative to a bill's achievement of an intermediate step is ambiguous (e.g., if an organized interest in Wisconsin first reports lobbying on a bill fewer than 15 days before the bill reaches the floor), that lobbying report is excluded in our coding of the pattern of lobbying that bill experienced for that stage of the legislative process.

at the first column, which models the probability of a bill making it out of committee, we find that bills on which only negative lobbying takes place are 15 percentage points less likely to achieve that intermediate step. By contrast, when a bill receives only supportive lobbying activity, it is 11 percentage points more likely to make it out of committee. The magnitudes of these coefficients are similar to those observed in the main analysis in Table 2, suggesting that lobbying affects outcomes because it influences what bills make it out of committee and thereby onto the agenda for the floor.

Previous work shows that the agenda control is significant in influencing outcomes (Anzia and Jackman 2013; Cox and McCubbins 2005). Our results indicate that lobbying matters because it also affects what what bills get on the agenda (see also Garlick 2016; Garret and Jansa 2015), which helps to explain why campaign donations and direct contact efforts are targeted towards legislators who can control the agenda (Fouirnaies 2018; Fouirnaies and Hall 2018; Hojnacki and Kimball 1998; Miller n.d.*b*).

Vote Buying

We next scrutinize whether lobbying affects how legislators vote by analyzing whether lobbying after the committee vote and before the floor vote changes how a legislator on the committee of jurisdiction votes on the final passage vote. . We again use data from Wisconsin because its relatively short window for the reporting of lobbying activity enables us to identify the cases in which the first instance of lobbying for or against a bill by organized interests took place between the final committee and final floor votes.[22] We use each bill's legislative history

[22] For this analysis, we needed to measure when the lobbying occured on the bill. If the lobbying occurred before the committee vote, then its effect should have already been incorporated into the committee vote and we would not expect it to further influence the final passage vote once we control for the committee vote. However, if the

to determine how committee members voted at the committee and floor stages and the timing of those votes. To ensure that the legislators are voting on the same content at both stages, we limit the sample to bills where no amendments passed between the two votes. While this is a narrow subset of the types of votes that legislators take, we use this approach because it allows us to observe a legislators' votes on the same bill content at different points in time, thus limiting the range of confounders that could influence changes in legislators' votes (e.g., Krehbiel 1998).

The outcome variable for the analysis is a binary indicator of the legislator's vote on the floor for final passage of the bill. In the model, we include a binary indicator of the legislator's vote on the bill in committee. The vote in committee should strongly correlate with the final passage vote because the two votes are votes on the same bill content. By controlling for this we are able to see whether lobbying induces them to change their votes. If lobbying is having an impact, then the variables that capture new lobbying before the final passage vote should be statistically significant. The main covariates of interest in the model are seven binary indicators that describe the pattern of lobbying on the bill. The omitted category is bills on which no lobbying occurred. The coefficients on the included variables thus give the effect of that type of lobbying on the final passage voter relative to the situation where no lobbying occurred. Table 5 shows how these indicators capture the timing of and the type of lobbying on a bill.[23]

lobbying represented the first instance of lobbying on that side of the issue and that lobbying took place between the committee and floor vote, the vote buying mechanism would posit that it should have had an effect on legislators' floor votes. Thus, we coded the lobbying patterns bills experienced by focusing on whether initial lobbying efforts took place before or after the committee vote. Because lobbying activity in Wisconsin must be reported within 15 days, we exclude lobbying activity first reported within 14 days after the committee vote because, in those cases, we do not know whether the lobbying occurred before or after the committee vote. Additionally, we exclude lobbying activity which clearly occurred after the floor vote took place (i.e., first reported 15 days or more after the floor vote). Excluding these ambiguous cases facilitates a clean test of the vote buying mechanism.

[23] Table 5 only describes cases which exist in our data set. For instance, a bill could be lobbied on by groups supporting and opposing in between the committee and floor votes, but our data set contains no such instances.

We are interested in the four indicators that capture new lobbying that occurs after the committee vote but before the floor vote. If lobbying is influencing legislators' votes, we would expect negative coefficients for the variables *Lobbying Between-Against, Unopposed* and *Lobbying Between-Against, Opposed* because in those cases the new lobbying is trying to block the bill, which would lead legislators to vote no if the lobbying is in fact effective. We would also expect to see positive coefficients for the variables *Lobbying Between-For, Unopposed* and *Lobbying Between-For, Opposed* if the lobbying is influencing legislators because in those cases the lobbying is being done to help pass the bill by getting the legislators to vote yes.

Table 5: Variable Coding for Vote Buying Analysis

	Before Committee Vote		**After Committee Vote**	
Variable in Regression	For Bill	Against Bill	For Bill	Against Bill
Lobbying Only Pre-For	Yes	No	No	No
Lobbying Only Pre-Against	No	Yes	No	No
Lobbying Only Pre-Both	Yes	Yes	No	No
Lobbying Between-For, Unopposed	No	No	Yes	No
Lobbying Between-For, Opposed	No	Yes	Yes	No
Lobbying Between-Against, Unopposed	No	No	No	Yes
Lobbying Between-Against, Opposed	Yes	No	No	Yes
No Lobbying	No	No	No	No

Table 6: Lobbying Patterns and Vote Switching (OLS)

	Model 1
Committee Vote-Yes	0.42*
	(0.04)
Lobbying Only Pre - Anti	-0.03
	(0.03)
Lobbying Only Pre-Both	-0.00
	(0.02)
Lobbying Only Pre - Pro	0.00
	(0.00)
Anti Between - Opposed	0.01
	(0.02)
Anti Between - Unopposed	-0.01
	(0.01)
Pro Between - Opposed	-0.14*
	(0.04)
Pro Between - Unopposed	0.00
	(0.01)
Includes Session FEs?	Yes
Num. obs.	6,230

Models are estimated with ordinary least squares regression. * denotes statistical significance at the $p<0.05$ level. The dependent variable is a dichotomous indicator for whether a legislator voted for a given legislative proposal on the floor. The explanatory variables include a dichotomous indicator for whether a legislator voted for a given legislative proposal in committee and a series of dichotomous indicators specifying the timing and directionality of lobbying activity on the proposal. The model includes only legislative proposals from Wisconsin. All models contain fixed-effects for legislative sessions; the intercept and fixed-effects are excluded from the table.

Our final data set consists of 6,230 bill-legislator dyads, consisting of 856 bills and 250 legislators, where each observation includes information about a legislator's vote on a bill at the committee and floor stages. As in our main analyses, we use ordinary least squares regression to estimate the relationship between lobbying and legislators' voting behavior; given the dichotomous nature of the outcome, this constitutes a linear probability model.[24] We present the

[24] Additionally, because the variable of interest—lobbying—varies at the bill level, we account for non-independence across observations by clustering standard errors on bills. In Table A8, we alternatively account for this non-independence with a multilevel model that accounts for repeated observations of each legislator, bill, and session. The substantive results from this model are consistent with those presented here.

results of our vote buying analysis in Table 6. As expected, legislators' committee votes are strong predictors of their floor votes. However, the coefficients for most of the lobbying pattern indicators are substantively small and indistinguishable from zero. Further, the only lobbying pattern indicator which is significantly different from zero—"Pro Between - Opposed," which describes bills which experienced lobbying in support of passage between the committee and floor votes—is in the opposite direction of what was expected, as the negative coefficient suggests that lobbying in support of a bill between the committee and floor votes makes legislators less likely to vote for it on the floor. Taken together, our results provide no evidence that lobbying buys votes.

Discussion

Lobbying is influential. We find that when groups lobby for a proposal, it is more likely to be enacted into law. When organized interests lobby against a proposal, it is less likely to be enacted into law. This suggests that lobbying has clear consequences for outcomes when it is one-sided. At the federal level, things are usually salient enough that forces in favor and opposed to new laws are usually mobilized (Baumgartner et al. 2009). In that case, we would expect interests' lobbying efforts to partly cancel out. However, when things are less salient, as they typically are at the state level, we are likely to only see mobilization for one side of the issue (Baumgartner and Leech 2001). In Colorado, Nebraska, and Wisconsin, half of the proposals only received lobbying from one side of the issue. As we have seen, this had real consequences for what laws were enacted. We also find that two-sided lobbying does not completely cancel out. Consistent with previous findings of a status quo bias in lobbying, interests lobbying against

change were more likely to get their way than interests lobbying for change (Baumgartner et al. 2009).

We also explored how lobbying affects legislative outcomes. Significantly, we do not find that lobbying changes how legislators vote on the floor. When we control for how legislators voted in committee, new lobbying after the committee vote does not affect their votes on the floor. Instead, we find that lobbying influences outcomes by shaping the agenda. This pair of findings not only highlights the importance of lobbying in the policymaking process, but also reiterates the importance of elections and representation relationships. Elected officials have to fulfill their constituents' wishes in order to get reelected. If officials stray too far from constituents' wishes, they risk losing office (Canes-Wrone et al. 2002; Burden 2004). Given these incentives, it is not surprising that lobbyists are not changing legislators' votes. Rather, we find that lobbying influences outcomes in ways similar to how party leaders operate (Anzia and Jackman 2013; Cox and McCubbins 2005). Party leaders typically do not change legislators' votes. Instead, party leaders influence outcomes by determining which alternatives come up for votes on the floor. Lobbyists are also shaping outcomes by influencing the agenda, as their position-taking is related to bills' advancement through the legislative process. Taken together, our findings with respect to agenda control and vote buying help clarify some inconsistencies in the conclusions of previous studies of lobbying and policymaking. Because lobbying influences outcomes through agenda control, rather than through vote buying, null relationships found in analyses of lobbying and policymaking which focus on individual legislators' votes may result from looking for the effects of lobbying in the wrong places in the legislative process (e.g., Ansolabehere et al. 2003).

Our results also highlight why it is important to be explicit about the level at which the action occurs when discussing or investigating the influence of lobbying. The results show that lobbying does not affect how individual legislators vote because legislators are not changing their votes in response to lobbying activity. However, influence over the agenda, which Schattschneider describes as the "prime instrument of power" (1960: 73) and has shaped major policies throughout American history (Wawro and Schickler 2006), provides organized interests with substantial leverage to affect policy outcomes.

Alongside previous research, our findings highlight that lobbying likely induces bias in the policymaking process. This is not to say that the act of lobbying itself is necessarily normatively undesirable; extant research suggests that lobbying often helps legislators with limited information and resources make better policy choices, and that ethically and legally questionable quid pro quo lobbying is rare (Fowler, Garro, and Spenkuch, 2020; Hall and Deardorff 2006; Schnakenberg 2017). Indeed, we find no evidence that lobbying leads legislators to change their vote on roll calls. However, irrespective of the tactics by which lobbyists influence legislators, lobbying leads to biased policy outcomes because the population of organized interests is not representative of the population at large. Given the costs of collective action, latent interests in society that wield more resources are more likely to organize (Olson, 1965), and, because resources are distributed unevenly in society, interests with higher concentrations of resources, such as businesses and the upper-class (Schlozman, Verba, and Brady 2012; Gilens and Page 2014), manifest more often than do interests associated with the general public. Because the preferences of businesses and the upper-class often diverge from those of the general public (Gilens 2012; Gilens and Page 2014), our evidence of lobbying's

effect on the agenda implies that policy outcomes will better reflect the interests who populate the organized interest universe.

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Appendix. Alternative Regression Models

This appendix presents a number of models that serve as robustness checks for the coding decisions made for the models presented in the paper. The following gives a short description of each of the Tables in this appendix and also describes how they relate to the results presented in the main body of the paper. The additional models uniformly confirm the conclusions reached in the main body of the paper.

List of Tables with Description of Results

Table A1 corresponds to the results presented in Table 2 of the paper. In the main body of the paper, we use an OLS model and thus present linear probability models. In Table A1 we run models with the same variables but instead use a logistic regression. The results confirm what is presented in Table 2. (Page A2)

Table A2 corresponds to the results presented in Table 3 of the paper. In the main body of the paper, we use an OLS model and thus present linear probability models. In Table A2 we run models with the same variables but instead use a logistic regression. The results confirm what is presented in Table 3. (Page A3)

Table A3 corresponds to the results presented in Table 4 of the paper. In the main body of the paper, we use an OLS model and thus present linear probability models. In Table A3 we run models with the same variables but instead use a logistic regression. The results confirm what is presented in Table 4. (Page A3)

Table A4 corresponds to the results presented in Table 3 of the paper. In the main body of the paper, we use an OLS model and thus present linear probability models. In Table A4 we run models with the same variables but instead use an OLS multi-level model regression. The results confirm what is presented in Table 3. (Page A4)

Table A5 corresponds to the results presented in Table 4 of the paper. In the main body of the paper, we include the number of groups lobbying for the bill and the number of groups lobbying against the bill. In Table A5 we instead use the difference between these number and include the number of groups lobbying on the topic as a separate regressor. The results confirm what is presented in Table 4. (Page A4)

Table A6 corresponds to the results presented in Table 3 of the paper. In the main body of the paper, we model the independent effects of the number of groups lobbying for and against the bill, but do not consider whether the balance of groups lobbying for and against the bill predict its passage. In Table A6 we include variables for the "balance" of groups lobbying for and against the bill, the total number of groups lobbying for and against the bill, and the multiplicative effect of these two variables. The results confirm what is presented in Table 3. (Page A5)

Table A7 corresponds to the results presented in Table 2 of the paper. In the main body of the paper, we code the people who do not take a position on their lobby report as if they did not lobby on the issue and we code the independent variables accordingly. In Table A7 we code these reports as occurrences of "other" and include them as a separate independent variable in the models. The results confirm what is presented in Table 2. (Page A6)

Table A8 corresponds to the results presented in Table 3 of the paper. In the main body of the paper, we code the people who do not take a position on their lobby report as if they did not lobby on the issue and we code the independent variables accordingly. In Table A8 we code these reports as occurrences of "other" and include them as a separate independent variable in the models. The results confirm what is presented in Table 3. (Page A7)

Table A9 corresponds to the results presented in Table 6 of the paper. In the main body of the paper, we use an OLS model and thus present linear probability models. In Table A9 we run models with the same variables but instead use an OLS multi-level model regression. The results confirm what is presented in Table 6. (Page A8)

Table A1: Lobbying Patterns and Probability of Enactment (Logit)

	All	Colorado	Nebraska	Wisconsin
Lobbying For and Against	-0.78*	-1.88*	-1.00*	-0.06
	(0.05)	(0.11)	(0.09)	(0.07)
Only Lobbying Against	-2.06*	-3.28*	-2.01*	-1.21*
	(0.09)	(0.17)	(0.18)	(0.14)
Only Lobbying For	0.52*	0.37*	0.10	0.67*
	(0.09)	(0.17)	(0.18)	(0.14)
Includes State FEs?	Yes	n/a	n/a	n/a
Includes Session FEs?	Yes	Yes	Yes	Yes
Num. obs.	26,051	5,666	6,817	13,568

Models are estimated with logistic regression. * denotes statistical significance at the $p<0.05$ level. The dependent variable is a dichotomous indicator for whether a legislative proposal is enacted into law. The explanatory variables are coded as dichotomous indicators for whether organized interests officially take positions only in support of a proposal, only against a proposal, or both for and against a proposal. Proposals in the omitted category are those proposals on which no organized interest takes an official position for or against the proposal. The model in the leftmost column pools legislative proposals from Colorado, Nebraska, and Wisconsin, while the remaining three models use only data from the state indicated. All models contain fixed-effects for state and/or legislative session, where appropriate; these fixed-effects are excluded from the table.

Table A2: Lobbying Patterns and Probability of Enactment (Logit)

	All	Colorado	Nebraska	Wisconsin
Number Lobbying For	0.08*	0.08*	0.06*	0.09*
	(0.00)	(0.01)	(0.01)	(0.01)
Number Lobbying Against	-0.23*	-0.26*	-0.25*	-0.15*
	(0.01)	(0.01)	(0.02)	(0.01)
Includes State FEs?	Yes	n/a	n/a	n/a
Includes Session FEs?	Yes	Yes	Yes	Yes
Num. obs.	26,051	5,666	6,817	13,568

Models are estimated with logistic regression. * denotes statistical significance at the p<0.05 level. The dependent variable is a dichotomous indicator for whether a legislative proposal is enacted into law. The explanatory variables are counts of the number of organized interests who take positions in support and in opposition to a proposal. The model in the leftmost column pools legislative proposals from Colorado, Nebraska, and Wisconsin, while the remaining three models use only data from the state indicated. All models contain fixed-effects for state and/or legislative session, where appropriate; these fixed-effects are excluded from the table.

Table A3: Lobbying Patterns and Probability of Legislative Advancement (Logit)

	Passed Committee	Reached Floor	Passed Chamber
Lobbying for and Against	-0.03	-0.05	-0.02
	(0.05)	(0.06)	(0.06)
Only Lobbying Against	-0.90*	-0.93*	-0.92*
	(0.10)	(0.10)	(0.10)
Only Lobbying For	0.51*	0.47*	0.49*
	(0.05)	(0.05)	(0.05)
Includes Session FEs?	Yes	Yes	Yes
Num. obs.	13,568	13,568	13,568

Models are estimated with logistic regression. * denotes statistical significance at the p<0.05 level. The dependent variable is a dichotomous indicator for whether a legislative proposal reached the stage of the legislative process indicated by the column heading. The explanatory variables are coded as dichotomous indicators for whether organized interests officially take positions only in support of a proposal, only against a proposal, or both for and against a proposal. Proposals in the omitted category are those proposals on which no organized interest takes an official position for or against the proposal. The models include only legislative proposals from Wisconsin. All models contain fixed-effects for legislative sessions; the intercept and fixed-effects are excluded from the table.

Table A4: Lobbying Patterns and Probability of Enactment (MLM)

	All	Colorado	Nebraska	Wisconsin
Lobbying for and Against	-0.13*	-0.40*	-0.21*	-0.01
	(0.01)	(0.02)	(0.02)	(0.01)
Only Lobbying Against	-0.26*	-0.66*	-0.33*	-0.11*
	(0.01)	(0.02)	(0.03)	(0.01)
Only Lobbying For	0.11*	0.05*	0.02	0.11*
	(0.01)	(0.02)	(0.02)	(0.01)
Num. obs.	26,051	5,666	6,817	13,568
Num. State-Sessions	23	9	6	8
Num. States	3			
Var(State-Sessions)	0.00	0.00	0.00	0.00
Var(States)	0.06			
Var(Residual)	0.18	0.16	0.20	0.16

Models are estimated with multilevel ordinary least squares regression. * denotes statistical significance at the p<0.05 level. The dependent variable is a dichotomous indicator for whether a legislative proposal is enacted into law. The explanatory variables are coded as dichotomous indicators for whether organized interests officially take positions only in support of a proposal, only against a proposal, or both for and against a proposal. Proposals in the omitted category are those proposals on which no organized interest takes an official position for or against the proposal. The model in the leftmost column pools legislative proposals from Colorado, Nebraska, and Wisconsin, while the remaining three models use only data from the state indicated. The first model includes varying intercepts for each legislative session and for each state (with legislative sessions nested in states). The remaining models include varying intercepts for each legislative session.

Table A5: Lobbying Patterns and Probability of Enactment (OLS)

	All	Colorado	Nebraska	Wisconsin
# Groups For - # Groups Against	0.02*	0.02*	0.02*	0.02*
	(0.00)	(0.00)	(0.00)	(0.00)
Total # Groups for and Against	-0.01*	-0.01*	-0.00*	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Includes State FEs?	Yes	n/a	n/a	n/a
Includes Session FEs?	Yes	Yes	Yes	Yes
Num. obs.	26,051	5,666	6,817	13,568

Models are estimated with ordinary least squares regression. * denotes statistical significance at the p<0.05 level. The dependent variable is a dichotomous indicator for whether a legislative proposal is enacted into law. The explanatory variables are the balance of the number of organized interests who take positions in support and in opposition to a proposal and the sum of organized interests taking positions in support of or in opposition to a proposal. The model in the leftmost column pools legislative proposals from Colorado, Nebraska, and Wisconsin, while the remaining three models use only data from the state indicated. All models contain fixed-effects for state and/or legislative session, where appropriate; these fixed-effects are excluded from the table.

Table A6: Lobbying Patterns and Probability of Enactment (OLS)

	All	Colorado	Nebraska	Wisconsin
# Groups For - # Groups Against	0.03*	0.04*	0.03*	0.03*
	(0.00)	(0.00)	(0.00)	(0.00)
Total # Groups for and Against	-0.01*	-0.01*	-0.01*	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
# Groups For - # Groups Against:	-0.00*	-0.00*	-0.00*	-0.00*
Total # Groups for and Against	(0.00)	(0.00)	(0.00)	(0.00)
Includes State FEs?	Yes	n/a	n/a	n/a
Includes Session FEs?	Yes	Yes	Yes	Yes
Num. obs.	26,051	5,666	6,817	13,568

Models are estimated with ordinary least squares regression. * denotes statistical significance at the $p<0.05$ level. The dependent variable is a dichotomous indicator for whether a legislative proposal is enacted into law. The explanatory variables are the balance of the number of organized interests who take positions in support and in opposition to a proposal and the sum of organized interests taking positions in support of or in opposition to a proposal. The model in the leftmost column pools legislative proposals from Colorado, Nebraska, and Wisconsin, while the remaining three models use only data from the state indicated. All models contain fixed-effects for state and/or legislative session, where appropriate; these fixed-effects are excluded from the table.

Table A7: Lobbying Patterns and Probability of Enactment (OLS)

	All	Colorado	Nebraska	Wisconsin
Lobbying For, Against, and Other	-0.27*	-0.77*	-0.29*	-0.11*
	(0.01)	(0.04)	(0.04)	(0.02)
Only Lobbying Against	-0.10*	-0.50*	-0.16*	0.01
	(0.01)	(0.03)	(0.03)	(0.01)
Only Lobbying Against and Other	-0.13*	-0.53*	-0.26*	-0.04*
	(0.01)	(0.10)	(0.03)	(0.02)
Only Lobbying For	0.15*	-0.06	0.04	0.13*
	(0.01)	(0.03)	(0.03)	(0.01)
Only Lobbying For and Against	-0.19*	-0.51*	-0.35*	-0.11*
	(0.02)	(0.14)	(0.04)	(0.02)
Only Lobbying For and Other	0.09*	-0.00	0.02	0.11*
	(0.01)	(0.05)	(0.03)	(0.01)
Only Lobbying Other	0.05*	-0.14*	0.02	0.02
	(0.01)	(0.03)	(0.04)	(0.01)
Includes State FEs?	Yes	n/a	n/a	n/a
Includes Session FEs?	Yes	Yes	Yes	Yes
Num. obs.	26,051	5,666	6,817	13,568

Models are estimated with ordinary least squares regression. * denotes statistical significance at the $p<0.05$ level. The dependent variable is a dichotomous indicator for whether a legislative proposal is enacted into law. The explanatory variables are dichotomous indicators of the lobbying patterns for each bill, including lobbying for or against the bill, as well as those who take positions neither for nor against the proposal. The model in the leftmost column pools legislative proposals from Colorado, Nebraska, and Wisconsin, while the remaining three models use only data from the state indicated. All models contain fixed-effects for legislative sessions; the intercept and fixed-effects are excluded from the table.

Table A8: Lobbying Patterns and Probability of Enactment (OLS)

	All	Colorado	Nebraska	Wisconsin
Number Lobbying For	0.01*	0.01*	0.01*	0.02*
	(0.00)	(0.00)	(0.00)	(0.00)
Number Lobbying Against	-0.02*	-0.03*	-0.02*	-0.02*
	(0.00)	(0.00)	(0.00)	(0.00)
Number Lobbying Other	-0.00*	-0.00*	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Includes State FEs?	Yes	n/a	n/a	n/a
Includes Session FEs?	Yes	Yes	Yes	Yes
Num. obs.	26,051	5,666	6,817	13,568

Models are estimated with ordinary least squares regression. * denotes statistical significance at the $p<0.05$ level. The dependent variable is a dichotomous indicator for whether a legislative proposal is enacted into law. The explanatory variables are counts of the number of organized interests who take positions in support and in opposition to a proposal, as well as those who take positions neither for nor against the proposal. The model in the leftmost column pools legislative proposals from Colorado, Nebraska, and Wisconsin, while the remaining three models use only data from the state indicated.

Table A9: Lobbying Patterns and Vote Switching (MLM OLS)

	Model 1
Committee Vote-Yes	0.41*
	(0.01)
Anti Between - Opposed	0.01
	(0.02)
Anti Between - Unopposed	0.00
	(0.06)
Lobbying Only Pre - Anti	-0.03
	(0.01)
Lobbying Only Pre-Both	-0.00
	(0.01)
Lobbying Only Pre - Pro	0.00
	(0.00)
Pro Between - Opposed	-0.14*
	(0.03)
Pro Between - Unopposed	-0.00
	(0.01)
Num. obs.	6230
Num. Bills	250
Num. Legislators	856
Num. Sessions	8
Var(Legislators)	0.00
Var(Bills)	0.00
Var(Sessions)	0.00
Var(Residual)	0.01

Models are estimated with multilevel ordinary least squares regression. * denotes statistical significance at the $p<0.05$ level. The dependent variable is a dichotomous indicator for whether a legislator voted for a given legislative proposal on the floor. The explanatory variables include a dichotomous indicator for whether a legislator voted for a given legislative proposal in committee and a series of dichotomous indicators specifying the timing and directionality of lobbying activity on the proposal. The model includes varying intercepts for each legislator, each bill, and each legislative session.