Persuasive Lobbying with Allied Legislators*

Emiel Awad†

September 30, 2018

Abstract

Why do interest groups lobby their allies if they already agree? One proposed answer is that allies are intermediaries who help persuade unconvinced legislators. To further study this mechanism, we develop a formal model of persuasive lobbying in legislatures where interest groups provide verifiable information to a strategically chosen coalition of legislators. These groups face a trade-off: Lobbying aligned legislators generates greater influence as they are more willing to endorse the group's preferred policy, but those who are too aligned cannot persuade a majority of their peers. The model illustrates that connections to legislators are especially valuable when groups cannot be persuasive by themselves and when they face little competition. Finally, the results highlight how groups publicly and privately provide information, and illuminate when and why interest groups target allies or enemies.

Job market paper

Latest version (link)

*I am indebted to Mark Fey for his continuous feedback, grateful for many helpful discussions with Peter Bils, Zuheir Desai, Gleason Judd, Tasos Kalandrakis, Jack Paine, Larry Rothenberg, and Randy Stone, and thank Scott Abramson, John Duggan, Michael Gibilisco, Doug Johnson, Mary Kroeger, Shichao Ma, Rabia Malik, Seda Ozturk, MaryClare Roche, Keith Schnakenberg, Maria Silfa, Brad Smith, Otto Swank, William Thomson, Bauke Visser, four anonymous reviewers, and audiences at the University of Rochester and the 2017 Midwest Political Science Association.

†Ph.D. Candidate, Department of Political Science, University of Rochester, Harkness Hall 336, Rochester, NY 14627 (emielawad@rochester.edu).

Lobbyists lobby their friends. This is the conclusion of a sizable empirical interest group literature in American politics (Ainsworth 1997; Kollman 1997; Hojnacki and Kimball 1998, 1999; Baumgartner and Mahoney 2002; Hall and Miler 2008) and international organizations (Beyers and Hanegraaff 2017*a*,*b*).[1] It is also the prescription suggested by "how to" lobbying manuals in the United States and European Union.[2] But why should lobbyists focus on their friends? After all, these allies presumably do not need convincing—it intuitively would seem that those more on the fence should get more attention.

One potential explanation for lobbying friends points to their role as intermediaries. After group contact, they can reach out to colleagues requiring assurance or ripe for change. For example, consider the case of tobacco policy in the Netherlands. In 2012, the Dutch government proposed a bill that would put further restrictions on the sale and consumption of tobacco products. In response, tobacco producer Philip Morris requested local parliamentarians in the city of Bergen op Zoom to sign and forward a letter to their colleagues in the national parliament. One of the letter's main arguments against the bill was that it would force Philip Morris to close its factory in the city due to a disproportionate consumer tax increase on tobacco products, leading to a significant loss in local employment. The letter was eventually leaked to the media, demonstrating Philip Morris's preference for private lobbying with aligned intermediaries.[3]

Still, it is not obvious why it is better for interest groups with superior information to lobby their friends if they can directly target those who are in need of information. And, indeed, this is exactly what some lobbyists do. For example, they engage in outside lobbying to mobilize the public, without using particular legislators as intermediaries (Kollman 1998;

[1] See also, Mian et al. (2013); Igan and Mishra (2014). Several studies, however, find that undecided or unfriendly legislators are targeted (Austen-Smith and Wright 1994; Gullberg 2008; Holyoke 2009; Marshall 2010).

[2] See for an example of a manual in the United States: "If the elected official was a "Yes" or longtime supporter of your issue, work to cultivate him/her as a champion. Champions are important in that they can assume a leadership role in influencing other legislators" (Center for Health and Gender Equity N.d.). A lobby manual for the European Union gives a similar recommendation (Burson Marsteller 2005).

[3] EenVandaag. 2012. "Philip Morris lobbyt agressief bij politiek." Retrieved 9/18/2017.

Wolton 2018).[4] Additionally, interest groups may combine access to specific legislators and public lobbying tactics. Put differently, while there may be a tendency to lobby one's friends, there is also observable heterogeneity in (i) whether groups lobby publicly or privately, and (ii) the nature of information they provide.

We study two main questions. First, what can intermediaries do for interest groups that these groups cannot do as well by themselves? And second, which legislators do interest groups target in their lobbying effort, and what type of information do they get?[5]

In pursuit of this aim, we analyze a series of models of persuasive lobbying in legislatures. An interest group has information and decides which coalition of legislators to approach and how much information to provide. The coalition then chooses whether to publicly endorse the interest group's most preferred policy. Finally, legislators collectively choose between a status quo and a proposal. This setup allows us to ascertain when and how the interest group selects particular intermediaries to aid in persuasion. In turn, we are able to isolate the effect of preferences on the value of legislators as intermediaries. The main difference with earlier work is that groups can combine public cheap talk and private disclosure of verifiable information to a strategically crafted coalition of intermediaries. The careful selection of intermediaries based on their ideology crucially determines how much influence interest groups have if public cheap talk fails.

We demonstrate that there are three main paths for group influence, only one of which involves intermediaries.

In the first two paths, the interest group lobbies in public without a role for intermediaries. First, the group can always fully disclose all of its information. This provides a lower bound of interest group influence.[6] Second, cheap talk is influential under certain conditions, allowing

[4]Note that the focus is on *legislators* as intermediaries, and not lobbying firms (Groll and Ellis 2014, 2017). Our model is also useful to discover the value of specialized lobbyists as intermediaries, as their value often stems from their connections to particular legislators, as suggested by a literature on the revolving door Blanes I Vidal, Draca and Fons-Rosen (2012); Bertrand, Bombardini and Trebbi (2014).

[5]Note that we focus on information rather than vote-buying or influence through money generally. For such models, see e.g., Denzau and Munger (1986); Groseclose and Snyder (1996); Battaglini and Patacchini (2016).

[6]However, unlike standard models with verifiable information and a single sender and receiver, it is not

the interest group to always obtain its most preferred policy. This provides an upper bound of interest group influence.

In the third path, interest groups provide hard information to a subset of legislators, intermediaries. This approach allows the group to improve upon full disclosure and occurs if the interest group can find sufficiently moderate allied intermediaries. Specifically, moderate allies allow the interest group to be influential without having to provide hard information publicly. Such intermediaries verify a received report and then give a public and unverifiable recommendation if they are convinced that the interest group's preferred policy should be implemented. Although legislators who do not obtain this report remain uncertain, a majority updates their belief sufficiently favorably and chooses to vote in favor.

When the interest groups decides which legislators to target, it faces a trade off. On the one hand, the interest group likes to target more ideologically similar legislators because they are more willing to endorse the group's preferred policy. But legislators who are too similar will lack the credibility to persuade a majority. We show that intermediate legislators strike the proper balance between alignment and credibility. Groups privately reveal substantial information to these legislators, anticipating how they will then act in their own interest. Thus, groups expand their persuasive power by using private signaling tools anticipating public signaling by intermediaries outside the group's control.

Beyond defining alternative paths to group influence, our analysis has a variety of other germane implications for the role and value of intermediaries. First, connections to certain legislators are not always valuable if there is no need for intermediaries. This is especially the case if the interest group can directly persuade a majority of legislators. Second, the value of information and connections should be seen as strategic complements. Information by itself is valuable, but connections allow the interest group to do better with its infor-

necessarily the case that the *unraveling principle* works in favor of full disclosure (Milgrom 1981; Grossman 1981). Informally, the unraveling principle means that an informed sender chooses to reveal all of its information because not doing so is a bad signal to the receiver. Besides there being multiple senders and receivers, another reason the principle does not apply in our model is that the legislature only has two possible choices.

mation through private disclosure (Blanes I Vidal, Draca and Fons-Rosen 2012; Bertrand, Bombardini and Trebbi 2014). Third, the value of these individual connections are not always independent of one another if access to multiple legislators is necessary for optimal information provision. That is, access to either legislator A *or* B could have no value if they are individually unable to persuade a majority. But the combined access to both A *and* B could be valuable to the interest group. This is more likely to occur if legislators care about different consequences (e.g., environmental or financial?) of a proposal. Finally, interest group competition decreases the value of intermediaries and forces groups to target more moderate allies (Holyoke 2009).

Our explanation for why interest groups prefer to target allies is substantively and fundamentally different from that in Schnakenberg (2017*b*). In the latter, interest groups provide unverifiable information to an allied legislator, who then forwards the message to the legislature. The group targets an ally instead of an enemy because only an ally is willing to forward the message. An ally is defined as a legislator who is willing to approve the proposal without further information. In addition, this result hinges on the fact that the interest group could directly persuade the legislature if communication was free, but a cost to communication forces her to use an intermediary. This cost is what drives the finding that the interest groups talks privately with an ally.

In addition, our explanation differs from the legislative subsidy approach proposed by Hall and Deardorff (2006). In their mechanism, interest groups do not lobby to change the minds of legislators, but to assist them in reaching their own goals. As legislator resources are scarce, interest groups can relax the budget constraints of legislators and allow them to reach their own aligned objectives. Interest groups are best off by providing a subsidy to their most aligned legislators, without having to worry about their ability to get a majority of other legislators on board. In a sense, the theory of Hall and Deardorff (2006) is 'budget-centered' and not 'preference-centered.'

In our model, instead, preferences are central and budgets are unrestricted.[7] Interest groups target their allies for a different reason than proposed in Schnakenberg (2017*b*). If the group can directly persuade a majority of legislators, then there is no need for allies. The advantage from meetings with allied legislators exists when the interest group *cannot* directly persuade a majority of legislators. The group then exploits legislator preference heterogeneity by privately revealing verifiable information to allied legislators. The cost of lobbying is irrelevant in generating this result. Interest groups benefit from privacy because it allows them to not having to reveal pieces of information that would, if provided publicly, lead to rejection of the interest group's preferred policy. As a result, the value of an ally stems not from his voting intention before lobbying or preference intensity in favor of the proposal but his behavior under full information, as that determines his ability to persuade his peers.

While our substantive focus is studying the occurrence of intermediary lobbying, our analysis' simultaneous use of multiple signaling instruments with multiple receivers also represents a distinct theoretical contribution to work on the persuasion of collective decision-making bodies. In our model, interest groups provide information through multiple channels in the presence of multiple receivers. In particular, they provide information in the form of cheap talk and hard evidence.[8] The value of intermediaries depends on the assumptions one makes about the available types of signaling instruments. If the interest group can commit to a particular strategy as is assumed in the *Bayesian persuasion* literature (Gentzkow and Kamenica 2011; Alonso and Câmara 2016), then there is no benefit derived from targeting intermediaries. Without the commitment assumption, intermediaries do not help in optimal persuasion with cheap talk either. The only possible benefit from intermediaries requires that an interest group has the possibility of sending verifiable information.

[7] That is, legislators face no cost in receiving and using information in decision-making, and in the main model, the interest group faces no cost in lobbying.

[8] In situations with a single sender and receiver, examples of related models with multiple signaling instruments include papers that study the combined use of cheap talk and burned money (Austen-Smith and Banks 2000; Kartik 2007; Karamychev and Visser 2016) and cheap talk and verifiable information (Eső and Galambos 2013).

Theoretically, our analysis is closest to two papers studying group persuasion. Caillaud and Tirole (2007) provide a model where information is verifiable, in which a sender attempts to maximize the probability that its most preferred decision is chosen.[9] However, one crucial difference from our model is that the sender is uninformed and can allow different group members to exert costly effort to discover the unknown state of the world. The sender is therefore not certain whether a receiver will agree about the desirability of a project. Also, the model only studies persuasion with a single sender, and only allows for a particular ordering in the preferences of members.[10] As discussed earlier, our analysis also has similarities with Schnakenberg's (2017*b*) study of public cheap talk. As in models of cheap talk, preference congruence affects how much information can be transmitted (Crawford and Sobel 1982), and the presence of multiple dimensions can be exploited to increase influence over a decision-maker (Chakraborty and Harbaugh 2007, 2010). However, our inclusion of verifiable information leads to several crucially different theoretical and empirical implications for the use of intermediaries.

The first half of the paper presents the full model. It studies optimal information provision from the perspective of an interest group and provides insights into when and how intermediaries help interest groups. The second half presents a more accessible model that generates the main results on the value of intermediaries in the lobbying process. Additionally, it includes extensions with costly information acquisition and interest group competition.

1 Model

Consider an informed interest group S and an uninformed legislature $N = \{1, \ldots, n\}$ that makes a collective decision. The setup is as follows.

First, Nature draws a state ω from a finite set $\Omega := (\omega)_{\omega \in \Omega}$.[11] Every player has a common

[9] See also Jackson and Tan (2013).

[10] This could be thought of as the presence of a single dimension. Caillaud and Tirole (2007) relax this assumption in the analysis of a case with two members.

[11] In what follows, we use brackets to denote a vector.

prior $p = (p(\omega))_{\omega\in\Omega}$ that puts positive probability on each state ω. Second, S observes the state and sends a signal $s = (m, g)$ that consists of two parts: (i) a cheap talk message $m \in M$,[12] and (ii) a report with verifiable information to group $g \subseteq N$. Further, define $\pi(s|\omega)$ as the probability that S sends s if the state is ω, and $\pi(s)$ as a vector such that $\pi(s) = (\pi(s|\omega))_{\omega\in\Omega}$. The interest group's strategy π^* can also be seen as an *information structure*. Third, every intermediary $j \in g$ observes the state ω and simultaneously chooses whether to endorse the proposal or not with $e_j \in \{0, 1\}$. Fourth and finally, every legislator $i \in N$ observes the signal s that S has sent and the endorsement of every group member $j \in g$, i.e., $(e_j)_{j\in g}$. They simultaneously choose whether to accept or reject a proposal. The proposal passes ($x = 1$) if at least k legislators accept the proposal. Otherwise, $x = 0$.

Every legislator $i \in N$ has a payoff vector $\delta^i = (\delta^i(\omega))_{\omega\in\Omega}$ that determines the legislator's payoff in each state ω, with

$$u_i(x, \omega) = \begin{cases} 0 & \text{if } x = 0, \\ \delta^i(\omega') & \text{if } x = 1 \text{ and } \omega = \omega'. \end{cases} \tag{1}$$

No legislator is ever indifferent between the status quo and proposal, i.e., for every state, $\delta^i(\omega) \neq 0$, where it should be noted that a legislator's payoff given the status quo equals 0. Further, define $D(\delta^i) = \{\omega : \delta^i(\omega) > 0\}$ as the set of states under which legislator i obtains a positive payoff if the proposal passes. S obtains a payoff that only depends on whether the proposal passes, i.e., $u_S(x) = x$. Thus, the interest group obtains a payoff of 1 if the proposal passes, and 0 otherwise.

Our main interest is in perfect Bayesian equilibria (PBE) that are subject to two constraints that guarantee sincere legislator behavior.[13] From now on, it should be understood that these constraints are implicitly added to the definition of a PBE, formalized in the appendix. First, intermediaries give sincere endorsements, which means that they recommend

[12] It is only necessary to assume that M is a sufficiently large set.

[13] The reason is that S can do better without these constraints if legislators use weakly dominated strategies.

that the proposal passes if and only if they prefer the proposal. Second, legislators vote sincerely given their beliefs q (which follows from Bayes' rule) and approve the proposal if they are indifferent. Define the set of beliefs under which a legislator obtains a non-negative payoff from the proposal as an *acceptance set* $A(\delta^i) = [q \in \Delta\Omega : \sum_{\omega\in\Omega} q(\omega)\delta^i(\omega) \geq 0]$, where $\Delta\Omega$ is the set of probability distributions over Ω.

Ultimately, although there are multiple PBE, the interest is in how well the interest group does in each one of them. A first result helps in defining the ex-ante welfare of the group.

Lemma 1. *Consider an arbitrary PBE. In every state, the proposal either passes with probability* 0 *or* 1*.*

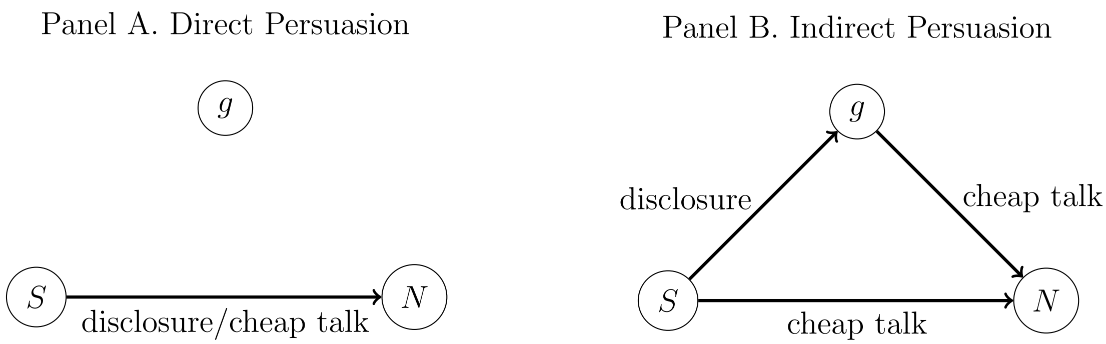
Define the equilibrium outcome function as $x^* : \Omega \to \{0, 1\}$, which equals $x^*(\omega) = 0$ if the status quo holds given a state ω, and $x^*(\omega) = 1$ if the proposal passes given the state. Given an equilibrium information structure π^* that leads to outcome function x^*, define the ex-ante welfare of S (or its *value of the game*) as

$$V^S(\pi^*) = \sum_{\omega'\in\Omega} p(\omega')x^*(\omega'). \tag{2}$$

Basically, the welfare of the interest group is determined by the set of states in which the proposal passes, weighted by their prior probability.

There are different paths to persuade the legislature as outlined in the introduction. On the one hand, it is possible to use a direct form of persuasion. This can either be done by fully disclosing all information to every legislator, or by sending cheap talk messages without a report. On the other hand, the interest group can selectively disclose its information to intermediaries while leaving others in the dark. Figure 1 illustrates these paths. Although the use of intermediaries is the main novelty, it is helpful to first analyze direct persuasion to understand when and why intermediaries help interest groups.

Figure 1: Strategic Use of Intermediaries



Note: Panel A shows forms of direct persuasion with full disclosure (Lemma 2) and cheap talk (Lemma 3). Panel B illustrates indirect persuasion and selective disclosure of verifiable information (Proposition 1), where S strategically selects groups g as a function of the state.

1.1 Direct persuasion

There are two types of legislators. On the one hand, there are legislators who serve as intermediaries and accept the proposal based on their observation of the state ω. On the other, legislators who did not obtain a report base their decision on incomplete information, and have a common posterior belief q. Given that at least k legislators need to accept the proposal for it to pass, it is necessary that

$$\overbrace{|\{j \in g : \omega \in D(\delta^j)\}|}^{\text{no. of intermediaries who agree}} + \overbrace{|\{i \notin g : q \in A(\delta^i)\}|}^{\text{no. of others who agree}} \geq k. \tag{3}$$

This immediately implies that the proposal has to pass if at least k legislators prefer the proposal given complete information about the state. That is, if $\omega \in D_k = \{\omega : |\{i : \omega \in D(\delta^i)\}| \geq k\}$, then $x^*(\omega) = 1$ in every PBE. This provides a lower bound on the ex-ante welfare of S. In particular, define π^{FD} as a *full disclosure* information structure such that in every state, S provides a report to every legislator.[14] Then it follows that S's ex-ante welfare is at least as high as it could obtain through full disclosure of information.[15]

[14]Formally, for all $\omega \in \Omega$ $\pi^{FD}(m', N|\omega) = 1$.

[15]If $\omega \in D_k$, and $x^*(\omega) = 0$, then S could deviate by sending a report to every legislator who would approve the proposal. This deviation is profitable because there are at least k legislators who prefer the proposal

Lemma 2. *There exists a PBE with full disclosure π^{FD}. Furthermore, in every PBE, S's ex-ante welfare is at least as high as it can obtain through full disclosure, $V^S(\pi^*) \geq V^S(\pi^{FD})$.*

Hence, there is at least one PBE in which S reveals the state to every legislator. The open question is whether S can do better than full disclosure. Instead of studying every possible interest group strategy, the answer to this question can be more easily answered by studying the properties of induced posterior beliefs. That is, every information structure π^* ultimately leads to beliefs of legislators which determine whether the proposal is implemented. One relevant set is the *win-set* W_k, which contains all beliefs under which at least k legislators prefer the proposal. Formally, this set equals

$$W_k = \{q \in \Delta\Omega : |\{i : q \in A(\delta^i)\}| \geq k\}. \tag{4}$$

This set is immediately useful if every legislator has the same belief q. Then, if $q \in W_k$, the proposal passes, while it does not pass if $q \notin W_k$. Regardless of the path of play, players will have a posterior q that depends on which actions have been chosen beforehand. Summarizing every path of play, there exists a set of beliefs (q), where every posterior $q \in (q)$ is induced with positive probability.

The equilibrium analysis can to a large extent be condensed into an analysis of these beliefs (Aumann and Maschler 1995; Gentzkow and Kamenica 2011).[16] It is useful to think of the interest group as a player that controls these beliefs under a number of constraints. One comes from the laws of probability. A condition called *Bayes' plausibility* says that if $\tau[q] > 0$ is the probability that q is induced (with $\sum \tau[q] = 1$ for all $q \in (q)$), then the weighted sum of posteriors equals the prior, i.e.,

$$\sum \tau[q]q = p. \tag{5}$$

if the state is $\omega \in D_k$.

[16] One difference with models of Bayesian persuasion, besides the commitment assumption, is that there are information sets that are off the path of play.

Geometrically, this means that p must be expressed as a convex combination of all induced posteriors, i.e., $p \in co((q))$, where $co(Z)$ is the convex hull of a set Z.[17] An information structure π can induce any set of beliefs (q) with weights $(\tau[q])$ as long as it satisfies Bayes' plausibility. Some of these beliefs $q \in (q)$ lead to implementation of the proposal, while others do not. Call the set of beliefs that lead to the interest group's most preferred policy (q^+) and the remainder $(q^-) = (q) \setminus (q^+)$.

Our model is related to analyses of group persuasion in which S publicly provides information through cheap talk with and without commitment, in which S's payoff is unaffected by the state of the world.[18] Alonso and Câmara (2016) study the former case in a model of Bayesian persuasion in which S maximizes the probability that the proposal is implemented through committed information transmission. This means that the only relevant constraint is one imposed by the laws of probability. S's maximization problem is simply to maximize the probability that a set of beliefs (q^+) is induced such that for every $q \in (q^+)$, $q \in W_k$, and the proposal is implemented.

Schnakenberg (2017*b*) studies the latter case without commitment in the standard cheap talk setting. Besides a constraint imposed by the laws of probability, S faces an incentive compatibility constraint. That is, if on the path of play some belief q^- leads to $x = 0$ and another belief q^+ leads to $x = 1$, then S has a profitable deviation. Thus, for S to successfully persuade the legislature to implement $x = 1$, it needs that every induced belief $q \in (q)$ leads to $x = 1$. Schnakenberg (2017*b*) finds that $p \in co(W_k)$ (the prior is in the convex hull of the win-set) is a necessary and sufficient condition for successful cheap talk persuasion.

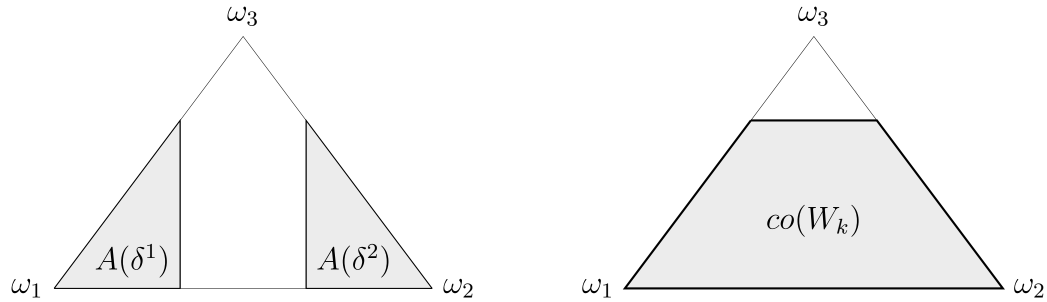
Although S has the ability to transmit verifiable information in our model, this result survives, and S could choose to solely rely on cheap talk under some prior beliefs.

Lemma 3. *There exists a PBE in which cheap talk without a report, i.e.,* $s = (m, \emptyset)$*, leads*

[17] See Gentzkow and Kamenica (2011), p. 2596.

[18] Relatedly, S can increase its influence if it also can communicate in private in models of cheap talk with commitment, but this requires that legislators do not share their information. See Chan et al. (2018); Bardhi and Guo (2018). In these models, private communication does, however, not involve the use of intermediaries.

Figure 2: Potential for Influential Cheap Talk



Note: The left panel illustrates the win-set $W_k = A(\delta^1) \cup A(\delta^2)$ *with two legislators and three states, and the right panel illustrates its convex hull* $co(W_k)$. *A PBE with only cheap talk and without intermediaries exists if and only if* $p \in co(W_k)$.

to $x = 1$ *if and only if* $p \in co(W_k)$. *In this PBE,* $V^S(\pi^*) = 1$.

Figure 2 illustrates the convex hull of the win-set in a situation with two legislators and three states of the world in which the proposal passes if at least one legislator votes in favor. It illustrates that there are parameters under which S does not need intermediaries to do better than full disclosure.

1.2 Indirect persuasion

There are, however, also prior beliefs under which the provision of a report is necessary to persuade the legislature to implement the proposal. Our focus from now on lies on these prior beliefs $p \notin co(W_k)$ in which Schnakenberg (2017*b*) predicts that the proposal never passes. In our model, however, this result does not hold. S can at least guarantee that the proposal passes if at least k legislators prefer it under full disclosure.

More generally, however, S does not necessarily need to fully disclose its information. This means that some legislators serve as intermediaries and observe the state, while other legislators do not. Thus, not every legislator has the same information.

For the purpose of exposition, it is helpful to introduce a condition on the information structure π^* that is chosen by S. Specifically, on the path of play, S only provides reports if it leads to $x = 1$, and to legislators who prefer the proposal given the state ω. Thus, if $g \neq \emptyset$, then the following condition holds in equilibrium.

Condition A. On the path of play, if S provides a report to group $g \neq \emptyset$,

(i) this leads to $x = 1$ ($\pi^*(m, g|\omega) > 0 \Rightarrow x^*(\omega) = 1$), and

(ii) every $j \in g$ prefers the proposal ($\pi^*(m, g|\omega) > 0 \Rightarrow \omega \in \cap_{i \in g} D(\delta^i)$).

Under condition A, after observing that some group g has received a report and that every member of g has given a positive endorsement, those who did not obtain a report have a belief that puts probability 0 on states after which this is impossible. Formally, define $D(g) = \cap_{i \in g} D(\delta^i)$ as the set of states for which every member of a group of intermediaries prefers the proposal. Then, on the path of play, if under some posterior belief the proposal is implemented after providing a report to group g, then $q^+ \in \Delta D(g)$.[19] The idea is that groups of intermediaries provide support to the beliefs that the interest group wishes to induce. The fact that their endorsements are necessary for successful persuasion means that S cannot profitably deviate and get it what it wants in states that are not acceptable to some group of intermediaries. This solves the aforementioned problem of the interest group's willingness to lie about its information.

Before stating our main result, we define the conditional probability of the state ω being in a non-empty set $\Omega' \subseteq \Omega$ as

$$r(\omega|\omega \in \Omega') = \begin{cases} \frac{p(\omega)}{\sum_{\omega' \in \Omega'} p(\omega')} & \text{if } \omega \in \Omega', \\ 0 & \text{otherwise,} \end{cases} \tag{6}$$

and we let $r(\Omega') = (r(\omega_1|\omega \in \Omega'), \ldots, r(\omega_T|\omega \in \Omega'))$ be the full conditional distribution.

The following proposition establishes existence of equilibrium in which S targets some set of groups of intermediaries $G = (g)$. The main result provides a geometric constraint that needs to be evaluated for S to be able to target intermediary-set G.

[19] Where $\Delta D(g)$ is the set of probability distributions that only put positive probability on states $\omega \in D(g)$.

Proposition 1. *Assume $p \notin co(W_k)$, so that cheap talk is not influential, and condition A. There exists a PBE with intermediary-set G if and only if*

(i) S does not do worse than full disclosure $\iff D_k \subseteq \cup_{g\in G} D(g)$,

(ii) S can induce beliefs such that a qualified majority of k legislators and all targeted intermediaries agree $\iff r(\cup_{g\in G} D(g)) \in co\Big(W_k \cap \big(\cup_{g\in G}\, \Delta D(g)\big)\Big)$.

The proposal passes if at least one targeted group of intermediaries agrees with S, which implies that the ex-ante welfare of S equals $V^S(\pi^*) = \sum_{\omega'\in\cup_{g\in G} D(g)} p(\omega')$.

The proposition has a number of elements. First, given condition A, the proposal passes whenever one targeted group $g \in G$ collectively prefers the proposal. This means that it passes if and only if the state is acceptable to eat least one set of intermediaries $g \in G$, i.e., $\omega \in \cup_{g\in G} D(g)$, which determines the ex-ante welfare of S. Upon observing that no group $g \in G$ has received a report, legislators have beliefs that are not in the win-set, which means that the proposal does not pass. Second, by earlier results, the proposal has to pass if at least k legislators would prefer the proposal under full information. Third and finally, after providing a report to g, every induced posterior q^+ that leads to $x = 1$ needs to have the support of the group of intermediaries g and a qualified majority. The proposition then summarizes these constraints and provides a condition that takes the laws of probability into account.

It is especially interesting how S optimally uses intermediaries. First, there always exists a PBE in which S chooses to fully disclose its information, as in Lemma 2. More interestingly, there exist cases in which S has to use intermediaries because direct cheap talk does not work ($p \notin co(W_k)$) and does better than full disclosure, i.e., $V^S(\pi^*) > V^S(\pi^{FD})$. The following example illustrates this in a simple setting with two legislators and unanimity rule in which S uses a single intermediary. The goal of S is to provide just enough information to ensure that the proposal passes. Thus, it has to ensure that the other legislator, upon observing that an intermediary agrees, expects to obtain a sufficiently high payoff. The example also illustrates that it does not matter what the intermediary would do without further information about the state, but only under which states of the world the intermediary prefers the proposal. That is, intermediaries are valuable because of their ability to persuade their peers, which stems from their behavior under full information.

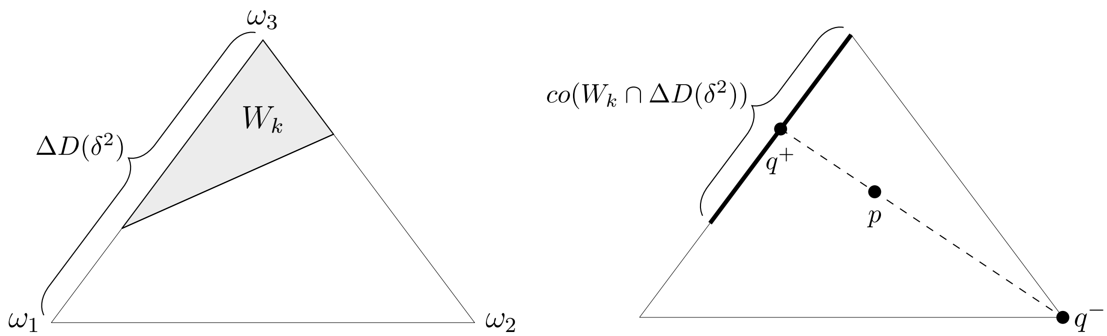
Example 1. *Assume two legislators ($n = 2$), unanimity rule ($k = 2$) and three states with $\Omega = \{\omega_1, \omega_2, \omega_3\}$. Payoff vectors are as follows: $\delta^1 = (-\frac{1}{2}, -2, 1)$ and $\delta^2 = (\frac{1}{3}, -\frac{2}{3}, 1)$, with $D(\delta^1) = \{\omega_3\}$ and $D(\delta_2) = \{\omega_1, \omega_3\}$. Note that with unanimity rule, $W_k = A(\delta^1) \cap A(\delta^2)$, and $D_k = \{\omega_3\}$. Consider a PBE with intermediary-set $G = (\{2\})$ in which S only provides a report to legislator 2. Note that $D(\delta^2) = \{\omega_1, \omega_3\}$. Now invoke proposition 1 to verify its conditions. First, $\cup_{g \in G} D(g) = D(\delta^2)$, and as a result, $D_k \subseteq D(\delta^2)$ and S does better than full disclosure. Second, conditional on legislator 2's endorsement, legislator 1 must be willing to approve the proposal, which requires*

$$r(\cup_{g \in G} D(g)) \in co\Big(W_k \cap \big(\cup_{g \in G} \Delta D(g)\big)\Big) \iff r(D(\delta^2)) \in co(W_k \cap \Delta D(\delta^2)).$$

Figure 3 illustrates this condition geometrically. In Panel B, the thick line displays the convex hull of the intersection of the win-set W_k and the set of all probability distributions over states that are acceptable to legislator 2, i.e., $\Delta D(\delta^2)$. Whenever $r(D(\delta^2))$ falls within this thick line, S can select $G = (\{2\})$ in equilibrium. Panel B also displays an example of a prior distribution p that satisfies this condition. □

Additionally, proposition 1 shows how in some equilibria S sends a report to different legislators as a function of the state of the world. This is illustrated in the next section that presents the extension of interest group competition. Moreover, S may need to target multiple legislators simultaneously to increase its ex-ante welfare compared to full disclosure. The reason is that lobbying a single legislator could be insufficiently persuasive while lobbying multiple legislators is more informative. The following example illustrates this.

Figure 3: Single Intermediary (Example 1)



Note: In Panel A, the dark gray shaded area contains the win-set W_k with $k = 2$, and the line from ω_1 to ω_3 illustrates $\Delta D(\delta^2) = \Delta\{\omega_1, \omega_3\}$ In Panel B, the thick line contains all distributions that satisfy $q^+ = r(D(\delta^2)) \in co(W_k \cap \Delta D(\delta^2))$. Panel B also gives an example of a prior belief p that would generate a conditional distribution $r(D(\delta^2))$ such that an equilibrium with $G = (\{2\})$ exists as in proposition 1.

Example 2. *Assume three legislators ($n = 3$), unanimity rule ($k = 3$), and four states with $\Omega = \{\omega_1, \omega_2, \omega_3, \omega_4\}$. Furthermore, assume that the prior belief is uniform with $p = (1/4, 1/4, 1/4, 1/4)$. Preferences are as follows: $\delta^1 = (1, -1, -1, -1), \delta^2 = (1, 1, 1, -1)$, and $\delta^3 = (1, 1, -1, 1)$, which means that $D(\delta^1) = \{\omega_1\}$, $D(\delta^2) = \{\omega_1, \omega_2, \omega_3\}$, and $D(\delta^3) = \{\omega_1, \omega_2, \omega_4\}$. Note that $A(\delta^1) \subseteq A(\delta^2)$ and $A(\delta^1) \subseteq A(\delta^3)$. That is, whenever legislator 1 votes in favor, both legislator 2 and 3 also vote in favor. Thus, because unanimity rule implies that $W_k = \cap_{i \in N} A(\delta^i)$, we have that $W_k = A(\delta^1)$. Note also that $D_k = D(\delta^1) = \{\omega_1\}$, $D(\delta^2) = \{\omega_1, \omega_2, \omega_3\}$, and $D(\delta^3) = \{\omega_1, \omega_2, \omega_4\}$. The interest is in PBE in which the proposal also passes in states that are not in D_k such that S does better than full disclosure. First, we check whether there is a PBE in which S selects $G = (\{2\})$:*

$$r(D(\delta^2)) \in co(W_k \cap \Delta D(\delta^2)) \iff (1/3, 1/3, 1/3, 0) \in W_k \cap \Delta D(\delta^2).$$

Note, however, that $(1/3, 1/3, 1/3, 0) \notin W_k = A(\delta^1)$, as

$$\sum_{\omega} r(\omega|\omega \in D(\delta^2))\delta^1(\omega) = 1/3(1) + 1/3(-1) + 1/3(-1) + 0(-1) = -1/3 < 0,$$

which means that the proposal fails to pass. By symmetry, a similar conclusion follows if S *were to only select legislator* 3 *as an intermediary with* $G = (\{3\})$*.*

The preliminary conclusion is that S *cannot do better than full disclosure if it were to target only a single intermediary. Suppose, instead, that it targets multiple intermediaries simultaneously. Specifically, suppose that* $G = (\{2, 3\})$*. Both jointly agree that the proposal should pass in fewer states, with* $D(\delta^2) \cap D(\delta^3) = \{\omega_1, \omega_2\}$*. Then it follows that* $\cup_{g \in G} D(g) = D(\delta^2) \cap D(\delta^3) = \{\omega_1, \omega_2\}$*, and* $r(D(\delta^2) \cap D(\delta^3)) = (1/2, 1/2, 0, 0)$*. Now it can be verified that the conditions of proposition 1 are met, as* $r(D(\delta^2) \cap D(\delta^3)) \in co(W_k \cap (\Delta D(\delta^2) \cup \Delta D(\delta^3)))$ *simplifies to*

$$\sum_{\omega} r(\omega | \omega \in D(\delta^2) \cap D(\delta^3)) \delta^1(\omega) = 1/2(1) + 1/2(-1) + 0(-1) + 0(-1) = 0 \geq 0. \quad (7)$$

This means that legislator 1 *accepts the proposal after observing that both* 2 *and* 3 *have received a report and given a positive endorsement, and the proposal passes.* □

This possibility also has implications for the value of intermediaries. Access to a single intermediary might yield no value to the interest group while combined access to multiple intermediaries allows the group to do better than full disclosure.

A third and final possibility is that S combines public and private tools of persuasion. One part of S's strategy is to provide a report to an intermediary. That by itself may, however, not be sufficient to successfully persuade a k-majority of legislators. Thus, it also engages in public cheap talk to aid in persuasion.[20] The following example illustrates this.

Example 3. *Assume three legislators* ($n = 3$)*, simple majority rule* ($k = 2$)*, four states with* $\Omega = \{\omega_1, \omega_2, \omega_3, \omega_4\}$*, and a uniform prior* $p = (1/4, 1/4, 1/4, 1/4)$*. Preferences are as follows:* $\delta^1 = (1, -1, -1, -1), \delta^2 = (-1, 1, -1, -1)$*, and* $\delta^3 = (1, 1, 1, -1)$*, which means that* $D(\delta^1) = \{\omega_1\}$*,* $D(\delta^2) = \{\omega_2\}$*, and* $D(\delta^3) = \{\omega_1, \omega_2, \omega_3\}$*. Note that* $A(\delta^1) \subseteq A(\delta^3)$ *and*

[20] An alternative model could allow intermediaries to send cheap talk messages that target different winning coalitions instead of sending binary endorsements, as in the appendix of Alonso and Câmara (2016).

$A(\delta^2) \subseteq A(\delta^3)$. Thus, with $k = 2$, $W_k = A(\delta^1) \cup A(\delta^2)$ and $D_k = \{\omega_1, \omega_2\}$. The interest is in equilibria in which S uses intermediaries and does better than full disclosure.

An obvious candidate is to select legislator 3 as an intermediary (although there are multiple PBE). Suppose first that S does not use different cheap talk messages besides sending a report to 3. Then the strategy of S is as follows, with $\pi(m', \{3\}) = (1, 1, 1, 0)$ and $\pi(m', \emptyset) = (0, 0, 0, 1)$. By Bayes' rule and after observing $(m', \{3\})$, the posterior belief is $q(m', \{3\}) = (1/3, 1/3, 1/3, 0)$. Note, however, that $q(m', \{3\}) \notin W_k = A(\delta^1) \cup A(\delta^2)$ and neither legislator 1 nor 2 would approve the proposal, which implies that it is not implemented. This is because legislator 1 and 2 respectively have an expected payoff of

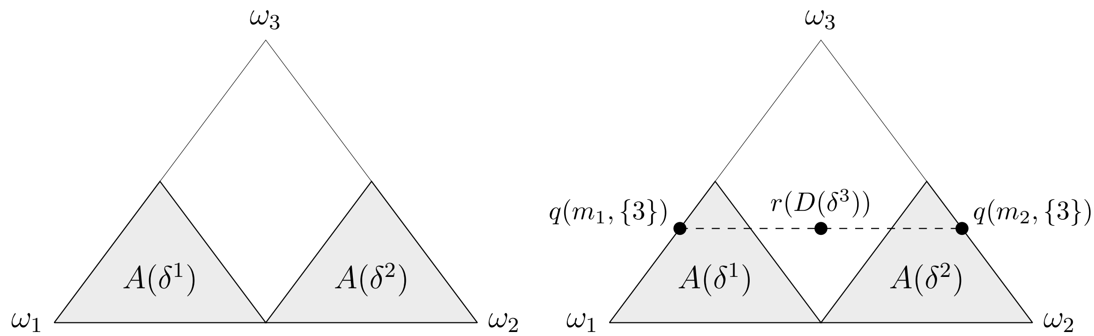
$$\sum_{\omega} q(\omega|m', \{3\})\delta^1(\omega) = 1/3(1) + 1/3(-1) + 1/3(-1) + 0(-1) = -1/3 < 0,$$
$$\sum_{\omega} q(\omega|m', \{3\})\delta^2(\omega) = 1/3(-1) + 1/3(1) + 1/3(-1) + 0(-1) = -1/3 < 0.$$

Suppose now that S does use different cheap talk messages besides sending a report to legislator 3. For example, consider the following strategy for S, with $\pi(m_1, \{3\}) = (1, 0, 1/2, 0)$, $\pi(m_2, \{3\}) = (0, 1, 1/2, 0)$, and $\pi(m_0, \emptyset) = (0, 0, 0, 1)$. By Bayes' rule, this induces the following beliefs after observing $(m_1, \{3\})$ and $(m_2, \{3\})$ respectively, with $q(m_1, \{3\}) = (2/3, 0, 1/3, 0)$, and $q(m_2, \{3\}) = (0, 2/3, 1/3, 0)$. Finally, it follows that legislator 1 votes in favor after observing $(m_1, \{3\})$ and legislator 2 votes in favor after $(m_2, \{3\})$ as respectively $q(m_1, \{3\}) \in A(\delta^1)$ and $q(m_2, \{3\}) \in A(\delta^2)$:

$$\sum_{\omega} q(\omega|m_1, \{3\})\delta^1(\omega) = 2/3(1) + 0(-1) + 1/3(-1) + 0(-1) = 1/3 \geq 0,$$
$$\sum_{\omega} q(\omega|m_2, \{3\})\delta^2(\omega) = 0(-1) + 2/3(1) + 1/3(-1) + 0(-1) = 1/3 \geq 0.$$

As a result, the fact that S can also send a cheap talk message can help her in situations in which providing a report by itself is not persuasive. This stems from the fact that cheap talk gives S more freedom in inducing beliefs. Figure 4 illustrates this example. □

Figure 4: Disclosure and Cheap Talk (Example 3)



Note: As $D(\delta^3) = \{\omega_1, \omega_2, \omega_3\}$, conditional on $\omega \neq \omega_4$, in the figure $W_k \cap \Delta D(\delta^3) = W_k$. Furthermore, the condition of proposition 1 can be verified as $r(D(\delta^3)) \in co(W_k)$.

1.3 Sender-optimal persuasion

The aforementioned PBE can be ranked in how much they are preferred by the interest group.[21] Comparing equilibria that are optimal for the interest group generates sharper predictions on its use of intermediaries.[22] If $p \in co(W_k)$, then public cheap talk ensures that the proposal always passes, without the use of intermediaries. The interest group cannot do better than that. Otherwise, if $p \notin co(W_k)$, then the interest group's ability to do better than full disclosure relies on the presence of ideologically similar intermediaries who are able to persuade a majority. An immediate corollary of our main result is a trade-off in the interest group's most preferred equilibrium if S cannot directly persuade the legislature through public cheap talk. S trades off selecting intermediaries to maximize the probability that at least one group of intermediaries supports S, under the constraint of getting a sufficient number of other legislators on board.

Corollary 1. *Assume $p \notin co(W_k)$ and condition A. In the PBE that is optimal for S*

[21] The focus on sender-optimal equilibria is in line with a literature in information economics and political science. See, for example, Karamychev and Visser (2016); Schnakenberg (2017*b*), and the Bayesian persuasion literature starting from Gentzkow and Kamenica (2011) which generates unique equilibria that are optimal from the sender's perspective.

[22] But it is not necessarily the equilibrium that is played. The next section provides a possible rationale for why S's more preferred equilibria are played if information acquisition is costly and endogenous in the lobbying process.

and satisfies condition A, it selects set of intermediaries G to maximize the probability that at least one group of intermediaries agrees, i.e., $V^S(\pi^*) = \sum_{\omega \in \cup_{g\in G} D(g)} p(\omega)$*, subject to* $r(\cup_{g\in G} D(g)) \in co\Big(W_k \cap \big(\cup_{g\in G}\, \Delta D(g)\big)\Big)$.

Here lies also the main difference with Schnakenberg (2017*b*). He finds that the interest group uses an intermediary because access is costly. That is, there is no available link between the interest group S and legislature N that allows for direct persuasion through cheap talk. As a result, to save costs, S targets a single ally who would be willing to forward a message that is provided by S. The result disappears if S were to have direct and free access to every legislator. Because S is not better able to persuade legislators through the intermediary, there is no need to use access to him. In our model, the mechanism is different. There is always a link available between the interest group and every legislator. However, the interest group uses intermediaries because she is strategically unable to be persuasive. This stems from its willingness to lie. To counter this incentive to misrepresent information, the interest group targets intermediaries who find out what information the group has and serve as a filter. As a result, other legislators are kept in the dark, but are made more certain that implementing the proposal is the right decision. The group's desire to only use access to certain legislators does not stem from the presence of an exogenous cost, but from its desire to optimally reveal information.

2 Competition

Interest groups typically do not lobby in a vacuum but face competition from other groups. How does this affect the use of intermediaries and the revelation of information in the lobbying process? Besides the introduction of a competing interest group, the model looks at costly information acquisition.[23] That is, both interest groups are initially uninformed but

[23]If a competing interest group were to be added in the original model without costly information acquisition, then the legislature always makes decisions that outcome equivalent to the PBE with full disclosure. That is, neither interest group can be made better off by targeting intermediaries, and the legislature takes decisions in line with complete information.

can discover the state and reveal it to the legislature. This extension generates two additional insights, (i) that competition reduces the value of intermediaries, and (ii) that higher costs of information acquisition require an interest group to get more influence through intermediaries for it to be willing to acquire information.

Consider two interest groups S_1 and S_2 and a legislature $N = \{1, 2, \ldots, n\}$ that consists of $n \geq 2$ legislators. S_1 and S_2 can acquire information at a cost and provide it to legislators. These legislators can share this information before choosing whether to collectively implement a proposal ($x = 1$) or not ($x = 0$). The main focus lies on how interest group S_1 selects intermediaries and values them.

In the first stage, Nature draws a state of the world $\omega \in \Omega := \{\omega_1, \ldots, \omega_n, \bar{\omega}, \underline{\omega}\}$ from a set with $n+2$ elements. These states determine the payoffs from implementation of the proposal, which is clarified below. The state $\bar{\omega}$ can be seen as a state in which every legislator gains from the proposal, while $\underline{\omega}$ as a state in which every legislator loses. In each state ω_i, only legislator i benefits from the proposal. The prior probability that a state ω is drawn equals $p(\omega) \geq 0$. Let the vector $p = \big(p(\omega_1), \ldots, p(\omega_n), p(\bar{\omega}), p(\underline{\omega})\big)$ denote a probability distribution with $\sum_{\omega' \in \Omega} p(\omega') = 1$, $p(\underline{\omega}) > 0$, and $p(\bar{\omega}) > 0$. Assume that states are ordered such that $p(\omega_1) \geq \cdots \geq p(\omega_n)$ and that players have a common prior.

In the second stage, S_1 chooses whether to discover the state of the world at cost $\kappa_1 \geq 0$. If S_1 chooses to observe the state ($d_1 = 1$), then she has a report with verifiable information. S_1 can choose to not reveal this report ($r_1 = \emptyset$), fully reveal it to every legislator ($r_1 = F$), or reveal it to legislator $j \in N$ ($r_1 = j$). Given a state of the world ω, let $\pi(r_1|\omega) \in [0, 1]$ be the probability that S_1 chooses r_1. If S_1 chooses not to discover the state ($d_1 = 0$), provides no report ($r_1 = \emptyset$), or provides a report to every legislator ($r_1 = F$), then the game moves to the fourth stage.

If S_1 sends a report to legislator $j \in N$, the game moves to the third stage in which intermediary j can communicate with his peers. This legislator observes the state of the world and is thus as well informed as S_1. Each j can be seen as an intermediary in the lobbying process and can give a public cheap talk endorsement against ($e_j(\omega) = 0$) or in favor ($e_j(\omega) = 1$) of the proposal.

In the fourth stage, S_2 observes everything that has transpired, except for which state has been discovered, and chooses whether to discover the state ($d_2 = 1$) at cost $\kappa_2 \geq 0$. If S_2 chooses to incur this cost and observes the state, it can be withheld ($r_2 = \emptyset$) or fully revealed to every legislator ($r_2 = F$).[24] If she does not discover the state ($d_2 = 0$), the game simply moves to the next stage.

In the fifth and final stage, the legislature takes a collective decision. Every legislator observes whether S_1 has discovered the state and provided a report to j, the endorsement e_j made by the intermediary, whether S_2 has discovered the state, and the state ω itself if S_1 or S_2 has revealed it. Every legislator then simultaneously votes against the proposal ($a_i = 0$) or in favor ($a_i = 1$). If the total number of votes that is in favor of the proposal is at least equal to k (with $k > n/2$) then it is implemented ($x = 1$). Otherwise, the status quo is maintained ($x = 0$).

Finally, payoffs are realized. S_1's payoff is not affected by the state of the world, and always wants that its most preferred policy is implemented. In addition, it pays a cost if it chooses to discover the state. Its payoff is simply $u_{S_1}(x) = x - \mathbb{1}(d_1 = 1)\kappa_1$, where $\mathbb{1}(\cdot)$ is the indicator function. The other interest group S_2 has opposite preferences over policy and is also unaffected by the state. S_2 also pays a cost $\kappa_2 \geq 0$ if it chooses to discover the state, with $u_{S_2}(x) = -x - \mathbb{1}(d_2 = 1)\kappa_2$.

Each legislator cares about both the policy and the state, and formally,

$$u_i(x, \omega) = \begin{cases} 0 & \text{if } x = 0, \\ 1 & \text{if } x = 1 \text{ and } \omega \in \{\bar{\omega}, \omega_i\}, \\ -1 & \text{if } x = 1 \text{ and } \omega \notin \{\bar{\omega}, \omega_i\}. \end{cases} \tag{8}$$

[24]The results demonstrate that it is unnecessary to give S_1 or S_2 a richer action-space.

The solution concept is perfect Bayesian equilibrium (PBE). There are a number of additional assumptions on parameters and equilibrium behavior. Again, they are implicitly added to the definition of a PBE in the results. First, I assume that legislators do not implement the proposal given their prior belief. Thus, interest group S_2 is in an advantaged position. Assumption (A1) formally means that

$$\big|\{\sum_{\omega} p(\omega)[u_i(1,\omega) - u_i(0,\omega)] \geq 0\}\big| < k \iff p(\bar{\omega}) + p(\omega_k) < \frac{1}{2}. \tag{A1}$$

Second, although it is free to provide report, S_1 only does so if it is persuasive. Every equilibrium path that starts from a state ω and S_1's selection of either $r_1 = j \in N$ or $r_1 = F$ needs to lead to implementation of the proposal. Formally define these paths as $y^*(j,\omega)$, with $y^*(j,\omega) = 1$ if $x = 1$ and the proposal is implemented after j is targeted, and $y^*(j,\omega) = 0$ if the status quo holds. Define the set of intermediaries that receive a report with positive probability in equilibrium as $G := \{1,\ldots,J\} \subseteq N$. The second assumption (A2) formally means that for all intermediaries $j \in G$ (or if S_1 fully discloses information with $r_1 = F$),

$$\pi^*(j|\omega) > 0 \iff y^*(j,\omega) = 1, \tag{A2}$$

while S_1 chooses not to send a report, i.e., $\pi^*(\emptyset|\omega) = 1$, otherwise.

Third and finally, legislators vote sincerely given their posterior belief q and accept the proposal if they are indifferent.

2.1 Analysis

The main interest is in how interest groups increase their influence through the use of intermediaries. As a result, the focus lies on equilibria in which S_1 chooses to discover and selectively reveal the state to an intermediary. In doing so, it may resolve some uncertainty about the state, but not all. That is, upon observing that an intermediary j has been lobbied and has provided an endorsement of the proposal, other legislators know that the intermediary likes the proposal. They will then know that the state is either $\bar{\omega}$, in which every legislator gains from the proposal, or ω_j, in which only legislator j gains from the proposal. S_1 needs to persuade other legislators that the probability of $\bar{\omega}$ is sufficiently high.

One of the key elements is that S_1 could target different intermediaries as a function of the state. Assume that S_1 wishes to select a set of intermediaries G. By assumption, every intermediary $j \in G$ receives a report with positive probability. Specifically, assumption (A2) implies that S_1 needs to be certain that the proposal is implemented after providing a report. Thus, it has to ensure that on the equilibrium path, a needed majority of legislators has beliefs about the state of the world that warrant implementation of the proposal. The first proposition establishes the conditions for the existence of such an equilibrium.

Proposition 2. *There exists a PBE in which S_1 discovers the state and targets intermediary-set G on the path of play if and only if* $\min\{p(\bar{\omega}), \frac{\kappa_2}{1-\kappa_2}p(\bar{\omega})\} \geq \sum_{j \in G} p(\omega_j)$ *and* $\kappa_1 \leq p(\bar{\omega}) + \sum_{j \in G} p(\omega_j)$.

S_1 faces three main constraints in selecting intermediaries. First, S_1 needs to ensure that after providing a report to some intermediary $j \in G$, a qualified majority of k legislators approves the proposal. In equilibrium, intermediary j is only shown the state if j would benefit from the proposal. Each legislator who does not observe the state makes its decision under uncertainty. In particular, if $p(\omega_j) > 0$, they have a posterior belief that only puts positive probability on both states ω_j and $\bar{\omega}$, i.e., $q(\omega_j) > 0$ and $q(\bar{\omega}) > 0$. By assumption, legislators vote sincerely, which means that if they accept the proposal, their posterior belief has to put a sufficiently high probability on the state being $\bar{\omega}$, i.e.,

$$q(\bar{\omega})[1] + q(\omega_j)[-1] \geq 0 \iff q(\bar{\omega}) \geq \frac{1}{2}. \tag{9}$$

Second, if S_1 chooses to send a report to intermediary j, it needs to prevent that S_2 chooses to discover the state. Otherwise, there is some probability that S_2 discovers that the state is ω_j, and the proposal is not implemented. This would render the intermediary unpersuasive, while assumption (A2) requires that the proposal is implemented on the path of play after S_1 provides a report to intermediary j. S_2 makes a simple comparison based on the same posterior belief as legislators. If it chooses not to discover the state, then it knows that the legislature chooses to implement the proposal. Thus, S_2's equilibrium payoff equals -1 in that case. Otherwise, if S_2 chooses to discover the state, then with probability $q(\bar{\omega})$ it discovers that the state is $\bar{\omega}$, after which the proposal is also guaranteed to be implemented. With the remaining probability $q(\omega_j) = 1 - q(\bar{\omega})$, S_2 discovers that the state is ω_j, and if chooses to reveal it, S_2 can ensure that the proposal is not implemented. Doing so, however, has a cost of κ_2. The second constraint, which says that S_2 does not discover the state, simplifies to

$$-1 \geq q(\bar{\omega})[-1] + q(\omega_j)[0] - \kappa_2 \iff q(\bar{\omega}) \geq 1 - \kappa_2. \tag{10}$$

Notice that S_2 only chooses not to discover the state if the posterior probability of the state not being $\bar{\omega}$ offsets the cost of discovering the state κ_2. The higher is κ_2, the less likely it is that S_2 chooses to discover the state. Notice also that if $\kappa_2 \geq \frac{1}{2}$, S_2 provides no additional constraint on S_1, as other legislators require $q(\bar{\omega}) \geq \frac{1}{2}$ to vote in favor.

Third and finally, discovering the state must not be too costly for S_1. In equilibrium, the proposal is implemented in every state in which an intermediary $j \in G$ would be in favor. Thus, given that S_1 chooses to discover the state and selects a set of intermediaries $G \subseteq N$, the proposal is implemented in states $\bar{\omega}$ and $\{\omega_j\}_{j \in G}$. This implies that S_1's equilibrium payoff from an ex-ante perspective equals

$$V^{S_1}(G) = p(\bar{\omega}) + \sum_{j \in G} p(\omega_j) - \kappa_1. \tag{11}$$

Note, however, that S_1 must be prevented from having a profitable deviation to choose to not discover the state. If S_1 chooses $d_1 = 0$, then S_2 gets to make a move. Because it knows that by assumption (A1), the legislature does not implement the proposal given the prior belief, S_2 has no reason to discover the state either. Thus, finally, the proposal is not implemented, and S_1 earns an equilibrium payoff of 0 given $x = 0$. This implies that the cost of discovering the state must not be too high, i.e.,

$$\kappa_1 \leq p(\bar{\omega}) + \sum_{j \in G} p(\omega_j), \tag{12}$$

where the right hand side is the probability that the proposal is implemented.

S_1's cost of information acquisition κ_1 can be seen as a factor that narrows down the set of possible equilibria. That is, in deciding whether to collect information, S_1 needs to be sure that its benefit in doing so outweighs its cost. In particular, the value of information depends on how likely it is that the proposal is implemented, which in turn is determined by which set of intermediaries is selected. If κ_1 is sufficiently low, then proposition 2 shows that it is trivially satisfied. If it is too high, then S_1 chooses not to collect information. If the cost falls within an intermediary range, then S_1 must be able to use intermediaries to profitably acquire information. This is due to the fact that if S_1 is forced to fully reveal its information, incentives to acquire it are insufficiently strong. This provides a potential rationale for why, even though there exist multiple equilibria in the sub-game after which S_1 has acquired information, a cost of information acquisition guarantees S_1 from being able to target its preferred intermediaries.

2.2 The value of intermediaries

In selecting intermediaries, S_1 benefits from the endorsements provided by intermediaries who are likely to agree. But these intermediaries cannot be too extreme. A corollary is that S_1 cannot select an intermediary who prefers the proposal too often. This result follows because S_1 cannot ensure that other legislators have posterior beliefs that put sufficiently high probability on the state being $\bar{\omega}$ compared to ω_j. As a result, other legislators would not vote in favor of the proposal or S_2 would step in and choose to discover the state if κ_2 is sufficiently small. This makes it not worthwhile to send reports to too extreme legislators.

Corollary 2. *In every equilibrium, if legislator* $j \in N$ *is too allied such that* $p(\omega_j) > \min\{p(\bar{\omega}), \frac{\kappa_2}{1-\kappa_2} p(\bar{\omega})\}$*, then* j *receives a report with zero probability.*

In addition, to ensure that S_1 can do better than full disclosure it needs to find a sufficiently moderate ally. Thus, another corollary is that there has to be some potential intermediary $j \in N$ with sufficiently small $p(\omega_j) > 0$. The latter follows from the fact that other legislators need to vote in favor and S_2 must be prevented from discovering the state.

Corollary 3. *There exists an equilibrium in which* S_1 *discovers the state, provides a report to at least one intermediary, and ensures implementation of the proposal with probability higher than* $p(\bar{\omega})$*, if there exists* $j \in N$ *such that* $0 < p(\omega_j) < \min\{p(\bar{\omega}), \frac{\kappa_2}{1-\kappa_2} p(\bar{\omega})\}$*.*

What is the value of each intermediary in the lobbying process? Put differently, suppose that S_1 would need to buy access from a legislator to be able to provide information to a single intermediary, while the public provision of report is free. Given an equilibrium in which S_1 targets a set of intermediaries G, how much would S_1 be willing to pay for access to each intermediary?

It is important to note that intermediaries are not necessarily valuable if the state is $\bar{\omega}$. This is because S_1 is always able to directly provide a report to every legislator and ensure that the proposal is implemented. Instead, intermediaries are valuable if the state is good for them, but not good for a majority of legislators. That is, if some set of intermediaries G is targeted, then the value of each intermediary $j \in G$ equals $p(\omega_j)$. Thus, each legislator j who only prefers the proposal if the state is $\bar{\omega}$ (with $p(\omega_j) = 0$) are not useful as intermediaries. These legislators can also be seen as 'enemies' of S_1. Thus, proposition 2 and the following corollaries point to the usefulness of *moderate* allies as intermediaries in the lobbying process.

Intermediaries are thus valuable because they allow interest groups to do better than full disclosure. Although the first interest group S_1 is biased and would never be willing to admit that the status quo should be implemented, intermediaries give additional credibility to an interest group's lobbying attempt to pass the proposal. Even if S_1 lies and says that the proposal should be implemented, other legislators do not follow this advice without the endorsement of intermediaries. Note also that it is insufficient that a report is sent to an intermediary. The receiver of the report needs to read it, and subsequently say whether he agrees with implementing the proposal. Although other legislators do not know the content of the report, the fact that a moderate intermediary endorses the proposal persuades them to follow this endorsement.

3 Additional Extensions

The appendix contains several extensions that relate to the generality of preferences and the use of different signaling instruments. It also provides additional results on the presence of interest group competition and the legislature's welfare. Moreover, it provides more examples of the mechanism through which intermediaries help interest groups in multiple dimensions.

One extension analyzes more general preferences. If the interest group's payoff is affected by the state of the world, then nothing changes in our main results as long as the group always prefers the proposal over the status quo. Otherwise, if the group sometimes does not prefer the proposal, then legislators are able to learn an additional piece of information, namely whether the group prefers the proposal. As in Crawford and Sobel (1982), when the interest group becomes more aligned to the legislature, cheap talk may become easier, decreasing the need for intermediaries.

Another extension gives the interest group more leeway in providing verifiable information. In our main model, the interest group could only fully reveal the state to a particular intermediary or not. In other settings, it is more natural to think about interest groups that partially prove what information they have (Mathis 2008). That is, they can allow legislators to verify some, but not all information. In that case, the interest group has more freedom in manipulating beliefs, which removes the value of intermediaries.

Empirically, trying to meet with legislators can be a costly endeavor. Thus, legislators can be persuaded by the mere fact that the interest group is willing to incur costs to get what it wants. This process can be seen as a form of money burning (Austen-Smith and Banks 2000). One extension of the model deals with this form of persuasion. Similar to models with multiple signaling instruments, the interest group may combine costly and costless signaling tools to maximize its influence over the legislature. Note, however, that this mechanism is different than the one analyzed in the main model. What matters to legislators is that the interest group is willing to incur a cost, and not that intermediaries give additional credibility to the interest group's lobbying attempt.

It is natural to ask how, in more general settings, interest group competition affects the amount of information that is ultimately revealed to the legislature and whether it guarantees fully informed decision-making (Dewatripont and Tirole 1999; Krishna and Morgan 2001). An extension deals with the case in which access is unrestricted and in which both groups are extreme. That is, one group always prefers the proposal, while the other is always better off under the status quo. Full revelation of information is not guaranteed if opposed interest groups compete with cheap talk. It is, however, guaranteed if interest groups can disclose their information through verifiable information. In the presence of money burning, the application of an equilibrium refinement and a condition on preferences guarantees fully informed decisions. More generally, however, full information revelation is not guaranteed if groups use costly signals. This is especially problematic when neither interest group's preferences is in line with the legislature's.

Finally, although it may seem that the interest group's use of intermediaries is necessarily disadvantageous for the legislature as a whole, this is incorrect. One extension considers the welfare implications of lobbying with intermediaries, and provides two examples. As in Schnakenberg (2017*b*),[25] more information is not always better, and legislators may prefer that no information is revealed if the alternative is full disclosure. Similarly, they may not

[25] See also Schnakenberg (2017*a*).

be worse off if the interest group targets intermediaries if the alternative is full disclosure.

4 Discussion and Conclusion

The empirical regularity that interest groups target their allies is consistent with models of information transmission. As in our leading example, although Philip Morris could have directly lobbied members of the Dutch parliament, the tobacco company first sought the endorsements of local politicians. Philip Morris drafted a letter that outlined the negative effects of a proposed regulation on tobacco products and requested these local politicians to sign it. Furthermore, they were asked to subsequently forward the letter to their colleagues in the national parliament. This is in line with our theoretical mechanism in which interest groups may use intermediaries to increase their influence.[26]

Although interest groups often cooperate with allied intermediaries, they may also lobby politicians directly. This heterogeneity is also consistent with our findings. The results illustrate when and why intermediaries are lobbied, and why in fact, interest groups target friendly legislators instead of moderate or unfriendly legislators. As for when, groups only target intermediaries if they cannot be persuasive without them. If intermediaries are needed, then the interest group's optimal strategy trades off alignment and credibility. First, interest groups would prefer not to disclose negative information to those in need of information by targeting allied legislators. However, lobbying those too aligned would lack credibility, as they would prefer the proposal even with a great deal of negative information. Thus, the interest group focuses on allies who are sufficiently moderate in terms of preferences alignment to ensure that they can be persuasive legislators for the majority. Otherwise, if sufficiently moderate and aligned intermediaries are unavailable, interest groups directly

[26] Our proposed mechanism through which intermediaries help lobbyists is, however, not unique. For example, Ainsworth (1997) notes that undecided legislators have a harder time turning away another legislator than a lobbyist, even if both present the same message (p. 520). Also, if access is the key variable, it may be that allies are used because although they have access to other legislators, lobbyists do not. Allied legislators also have something more to offer to undecideds by logrolling votes (p. 529). That is, allies have a greater strategic flexibility than lobbyists.

target those in need of information.

Our model also demonstrates how competition puts a bound on how much better interest groups can do by targeting their allies. In the extreme case, when information acquisition is free, sufficient competition between interest groups ensures that the legislature always makes fully informed decisions. If acquisition is costly, however, then competition could force interest groups to target their allies as long as they are more moderate. This is to prevent a competing interest group from stepping in and providing information. Such results also contrast with cheap talk communication, where under certain conditions, competition still allows interest groups to target their allies (Schnakenberg 2017*b*).

The results have implications for the value of connections to legislators in their role as intermediaries. The value of a connection increases in preference congruence with interest groups, provided that the legislator is sufficiently moderate. With interest group competition, the legislator has to be even more moderate to prevent the competing group from stepping in and providing information. Thus, competition puts a bound on the value of connections. In addition, the results highlight that the value of information that lobbyists have is also dependent on their connections to particular legislators. This helps lobbyists to do better with their information. Thus, there are reasons to expect that a lobbyist's premium is both affected by who he knows and what he knows, but not independently.

A Model

The game is as follows. There is a single interest group S and a legislature $N = \{1, \ldots, n\}$. S observes the state of the world $\omega \in \Omega = \{\omega_1, \ldots, \omega_T\}$, drawn according to probability distribution $p = (p(\omega_1), \ldots, p(\omega_T))$. S then chooses (m, g), where $m \in M$ is a public cheap talk message, and $g \subseteq N$ is a subset of the legislature that receives a report with verifiable information. Let $s = (m, g)$ be a signal, and let $\pi(s|\omega) \in [0, 1]$ be the probability that S sends s given ω, where $\pi(s) = (\pi(s|\omega_1), \ldots, \pi(s|\omega_T))$ be the full vector of probabilities in which S sends s given every state. Every legislator $j \in g$ then observes (m, g) and ω, and simultaneously chooses whether to endorse the proposal ($e_j = 1$) or not ($e_j = 0$). Finally, every intermediary $j \in g$ observes (m, g), ω, and the vector of endorsements $(e_j)_{j \in g}$, and every other legislator $i \in N \setminus g$ observes (m, g) and $(e_j)_{j \in g}$. Every legislator $i \in N$ then accepts the proposal ($a_i = 1$) or rejects it ($a_i = 0$). If $\sum_{i \in N} a_i \geq k$, then the proposal passes ($x = 1$), otherwise, it the status quo holds ($x = 0$).

Payoffs are as follows. Every legislator $i \in N$ has a preference profile $\delta^i = (\delta^i(\omega_1), \ldots, \delta^i(\omega_T))$, and

$$u_i(x, \omega) = \begin{cases} 0 & \text{if } x = 0, \\ \delta^i(\omega') & \text{if } x = 0 \text{ and } \omega = \omega', \end{cases} \tag{13}$$

where $\delta^i(\omega) \neq 0$ for all ω and all $i \in N$. For S, payoffs are as follows:

$$u_S(x) = x. \tag{14}$$

A.1 PBE and selection criteria

I look for PBE, which require sequential rationality and bayesian updating on-path, subject to a number of additional constraints.

The first constraint is that every intermediary $j \in g$ gives sincere recommendations.

Define $D(\delta^j) = \{\omega : \delta^j(\omega) > 0\}$ as the set of states in which intermediary j receives a positive payoff from the proposal. Then, each j gives a positive endorsement if and only if $\omega \in D(\delta^j)$, which means that the intermediary receives a positive payoff from implementation of the proposal given a state ω, i.e.,

$$e_j(\omega) = \begin{cases} 1 & \text{if } \omega \in D(\delta^j), \\ 0 & \text{if } \omega \notin D(\delta^j). \end{cases} \tag{15}$$

The second constraint is that legislators vote sincerely. This means that every intermediary $j \in g$ votes in favor of the proposal whenever they prefer it given a state ω. Thus, equilibrium votes are in line with the endorsements that were given before voting, i.e., $a_j(\omega) = e_j(\omega)$. Other legislators $i \in N \setminus g$ base their decisions on incomplete information about the state. In particular, on the path of play, they have a common posterior belief $q = (q(\omega_1), \ldots, q(\omega_T))$ that follows from Bayes' rule.[27] Define the acceptance set $A(\delta^i)$ of legislator i as $A(\delta^i) = [q \in \Delta\Omega : \sum_{\omega \in \Omega} q(\omega)\delta^i(\omega) \geq 0]$, which is the set of beliefs such that legislator i receives a non-negative payoff from the proposal. It is assumed that legislators vote in favor if they are indifferent. Sincere voting implies that the voting strategies for every $i \notin g$ are such that

$$a_i(s, (e_j)_{j \in g}) = \begin{cases} 1 & \text{if } q \in A(\delta^i), \\ 0 & \text{if } q \notin A(\delta^i), \end{cases} \tag{16}$$

where $q = (q(\omega_1|(m, g), (e_j)_{j \in g}), \ldots, q(\omega_T|(m, g), (e_j)_{j \in g}))$ follows from Bayes' rule.

Additionally, there is a constraint on the interest group's strategy.

Condition A. On the path of play, if S provides a report to group g, (i.) this leads to $x = 1$ ($\pi^*(m, g|\omega) > 0 \Rightarrow x^*(m, g, (e_j)_{j \in g}|\omega) = 1$), and (ii.) every $j \in g$ prefers the proposal ($\pi^*(m, g|\omega) > 0 \Rightarrow \omega \in \cap_{i \in g} D(\delta^i)$).

[27] Off-path beliefs are formally defined in the proofs.

A.2 Proofs of main results

Lemma 1. Consider an arbitrary PBE. In every state of the world, the proposal is either implemented with probability 0 or 1.

Proof. Assume an arbitrary PBE. Now, suppose for a proof by contradiction that in some state ω', the proposal is not implemented with probability 0 or 1. Then it is implemented with probability $\alpha \in (0,1)$. As legislators are playing pure strategies, this means that S chooses a mixed strategy given ω'. Consider two signals s and s' with $\pi(s|\omega') > 0$ and $\pi(s'|\omega') > 0$ such that on the path of play (after ω' is drawn), s leads to $x = 0$ and s' leads to $x = 1$. Clearly, there is a profitable deviation to $\pi(s'|\omega') = 1$, as it guarantees $x = 1$. As a result, in every state $\omega \in \Omega$, the proposal is implemented with probability 0 or 1. □

Lemma 2 There exists a PBE with full disclosure π^{FD}. Furthermore, in every PBE, S's ex-ante welfare is at least as high as it can obtain through full disclosure. $V^S(\pi^*) \geq V^S(\pi^{FD})$.

Proof. First, to show there exists a PBE with full disclosure, let $\pi^* = \pi^{FD}$. By sincere voting, the proposal passes if and only if $\omega \in D_k$. Obviously, legislators have no incentives to deviate. Consider, however, a potentially profitable deviation from S. S can only profit from deviating if $\omega' \notin D_k$, as the proposal is not implemented. Consider a deviation to arbitrary $s = (m, g)$ given arbitrary $\omega' \notin D_k$. Because intermediaries behave sincerely, every $j \in g$ endorses and approves the proposal if and only if $\omega \in D(\delta^j)$. For other legislators, they approve the proposal if and only if their posterior belief following this deviation is such that $q \in A(\delta^i)$. However, q is off-path. Thus, we can choose q such that $q(\omega'') = 1$ for some $\omega'' \notin D_k$. This means that the proposal does not pass after this deviation. Thus, S has no profitable deviation, and a PBE with full disclosure exists.

Second, to show that S cannot do worse than full disclosure, suppose for a proof by contradiction that there exists a PBE and information structure π^* such that $V^S(\pi^*) < V^S(\pi^{FD})$. Note first that if S were to select π^{FD}, then for arbitrary $\omega \in D_k$, S chooses (m', N). By sincere voting, every $i \in N$ chooses $a_i(\omega) = 1$ if and only if $\omega \in D(\delta^i)$. As

$\omega \in D_k$, this means that $|\{i \in N : \omega \in D(\delta^i)\}| \geq k$, and $x = 1$. Otherwise, if $\omega \notin D_k$, then $|\{i \in N : \omega \in D(\delta^i)\}| < k$, and $x = 0$. This means the equilibrium outcome function equals

$$x^*(\omega) = \begin{cases} 0 & \text{if } \omega \notin D_k, \\ 1 & \text{if } \omega \in D_k. \end{cases} \tag{17}$$

Thus, S's ex-ante welfare equals

$$V^S(\pi^{FD}) = \sum_{\omega' \in \Omega} p(\omega')x^*(\omega') = \sum_{\omega' \in D_k} p(\omega'). \tag{18}$$

Now consider π^*. As $V^S(\pi^*) < V^S(\pi^{FD})$, this means there exists some $\omega' \in D_k$ such that $x = 0$ given that state. This means that S has a profitable deviation to $\pi(m', N|\omega') = 1$, which leads to $x = 1$. This is a contradiction. Hence, we have that in every PBE and for every information structure π^*, $V^S(\pi^*) \geq V^S(\pi^{FD})$. □

Lemma 3. There exists a PBE in which cheap talk without a report, i.e., $s = (m, \emptyset)$, leads to $x = 1$ if and only if $p \in co(W_k)$. In this PBE, $V^S(\pi^*) = 1$.

Proof. The proof follows from Schnakenberg (2017*b*), Lemma 2. The only open question is whether the availability of the provision of a report by S makes a difference. Note, however, that if $p \in co(W_k)$, the PBE with cheap talk exists and the proposal passes in every state, then S's payoff is at its maximum in every state of the world. Thus, S cannot profitably deviate because it can never do better. The other direction follows similarly as well. □

Proposition 1. Assume $p \notin co(W_k)$. There exists a PBE with intermediary-set G that satisfies condition A if and only if $D_k \subseteq \cup_{g \in G} D(g)$ and $r(\cup_{g \in G} D(g)) \in co\Big(W_k \cap \big(\cup_{g \in G} \Delta D(g)\big)\Big)$. The ex-ante welfare of S equals $V^S(\pi^*) = \sum_{\omega' \in \cup_{g \in G} D(g)} p(\omega')$.

Proof. Let $p \notin co(W_k)$ and assume condition A throughout. Recall that $G = (g)$ is the set of groups that receive a report with positive probability on the equilibrium path. By condition

A and $p \notin co(W_k)$, it immediately follows that if a PBE with intermediary-set G exists, the proposal is implemented if and only if $\omega \in \cup_{g\in G} D(g)$. This implies that the ex-ante welfare of S equals $V^S(\pi^*) = \sum_{\omega' \in \cup_{g\in G} D(g)} p(\omega')$. The following two steps provide a necessary and sufficient condition for a PBE under condition A. The proofs rely on arguments based on Caratheodory's theorem of the convex hull as in Lemma 2 in Alonso and Câmara (2016), Proposition 1 in Gentzkow and Kamenica (2011) and Lemma 2 in Schnakenberg (2017*b*).

Step 1. First, assume that $D_k \subseteq \cup_{g\in G} D(g)$ and $r(\cup_{g\in G} D(g)) \in co\Big(W_k \cap \big(\cup_{g\in G} \Delta D(g)\big)\Big)$. We construct a PBE under condition A in which G is targeted. Condition A implies that if $\omega \in \cup_{g\in G} D(g)$, then $x^*(\omega) = 1$. The fact that $r(\cup_{g\in G} D(g)) \in co\Big(W_k \cap \big(\cup_{g\in G} \Delta D(g)\big)\Big)$ implies that there exists a set of posteriors (q^+) and weights $(\tau[q^+])$ such that for every $q^+ \in (q^+) : q^+ \in W_k \cap (\cup_{g\in G} \Delta D(g))$, and

$$\sum_{q^+ \in (q^+)} \tau[q^+] q^+ = r(\cup_{g\in G} D(g)), \tag{19}$$

$$\sum_{q^+ \in (q^+)} \tau[q^+] = \sum_{\omega' \in \cup_{g\in G} \Delta D(g)} p(\omega'), \tag{20}$$

where $\tau[q^-] = 1 - \sum_{q^+ \in (q^+)} \tau[q^+]$ receives the remaining weight.

This means that for every $q^+ \in (q^+)$, we have that $q^+ \in W_k$, and we have that there exists at least one $g \in G$ such that $q^+ \in \Delta D(g)$. Relabel these posteriors in (q^+) to $(q^1, \ldots, q^H)$. For each $q^h \in (q^1, \ldots, q^H)$, we have that there exists a group $g' \in (G)$ such that $q^h \in \Delta D(g')$. For every q^h, relabel this group g' to g^h. Furthermore, relabel each $\tau[q^+]$ that was attached to some q^+ and number them $(\tau[q^1], \ldots, \tau[q^H])$.

Strategies

Then, we construct the following interest group strategy. For every $\omega \notin \cup_{g\in G} D(g)$:

$$\pi^*(m^0, \emptyset | \omega) = 1. \tag{21}$$

On the other hand, for every $\omega \in \cup_{g \in G} D(g)$ and $h = 1, \ldots, H$:

$$\pi^*(m^h, g^h|\omega) = q^h(\omega)\tau[q^h]/p(\omega). \tag{22}$$

Sincere behavior pins down the equilibrium strategies of intermediaries. Consider now the voting strategies of non-intermediaries who did not receive a report. Their strategies are constructed as follows after S chooses g, for every $i \notin N \setminus g$:

$$a_i^*(m, g, (e_j)_{j \in g}) = \begin{cases} 1 & \text{if } s = (m^h, g^h) \text{ for some } h = \{1, \ldots, H\} \text{ and } e_j = 1 \text{ for all } j \in g^h, \\ 0 & \text{otherwise.} \end{cases} \tag{23}$$

Beliefs

On-the-path beliefs are determined by Bayes' rule. Let $P[(e_j)_{j \in g}]$ be the probability that $(e_j)_{j \in g}$ is chosen by every intermediary. Notice that because reports are only sent to intermediaries who prefer the proposal given the state, the observation that every endorsement is positive is only consistent with $\omega \in D(g)$. Thus, on the path of play, $P[(1)_{j \in g}] = 1$, and it drops out of Bayes' rule.

After some simple algebra, for every $h = 1, \ldots, H$, $q^h(\omega|m^h, g^h, (e_j)_{j \in g^h})$ follows after

$s = (m^h, g^h)$ and $e_j(\omega) = 1$ for all $j \in g^h$:

$$
\begin{aligned}
q^h(\omega | m^h, g^h, (e_j)_{j \in g^h}) &= \frac{\pi(m^h, g^h|\omega) P[(1)_{j \in g}] p(\omega)}{\sum_{\omega' \in \Omega} \pi(m^h, g^h|\omega') P[(1)_{j \in g}] p(\omega')}, && (24)\\
&= \frac{\pi(m^h, g^h|\omega) p(\omega)}{\sum_{\omega' \in \Omega} \pi(m^h, g^h|\omega') p(\omega')}, && (25)\\
&= \frac{(q^h(\omega)\tau[q^h]/p(\omega)) p(\omega)}{\sum_{\omega' \in \Omega} (q^h(\omega')\tau[q^h]/p(\omega')) p(\omega')}, && (26)\\
&= \frac{q^h(\omega)\tau[q^h]}{\sum_{\omega' \in \Omega} q^h(\omega')\tau[q^h]} && (27)\\
&= \frac{q^h(\omega)\tau[q^h]}{\tau[q^h]}, && (28)\\
&= q^h(\omega). && (29)
\end{aligned}
$$

Similarly, S's information structure π^* also induces the weights of posteriors, as the probability that q^h is induced equals

$$
\tau[q^h] = \sum_{\omega' \in \Omega} \pi^*(m^h, g^h|\omega') p(\omega'), \tag{30}
$$

which is true as $\pi^*(m^h, g^h|\omega) = q^h(\omega)\tau[q^h]/p(\omega)$ for all ω.

Beliefs after some off-path s' and $(e_j)_{j \in g}$ are chosen such that $q(\omega'|s', (e_j)_{j \in g}) = 1$ for some $\omega' \notin D_k$.

Sequential rationality

Then, we verify whether any player has a profitable deviation. Consider the final stage. Naturally, each intermediary's $i \in g$ strategy satisfies sincere voting and thus has no profitable deviation. Any deviation could either have no effect if i is not pivotal, or if i is pivotal, a deviation leads to a less preferred decision.

For non-intermediaries, there are several information-sets. There are two types of on-path information sets. First, consider the information set following $(m^0, \emptyset)$. Because $p \notin co(W_k)$, we have that $q(m^0, \emptyset) \notin W_k$ by Bayes' plausibility. Thus, there are fewer than k legislators who have a belief q such that $q \in A(\delta^i)$, which implies that the proposal does not pass. By sincere voting, no legislator has a profitable deviation.

Then, consider the information set following arbitrary on-path (m^h, g^h) and $(e_j)_{j \in g^h} = (1)_{j \in g_h}$. As above, we know that (m^h, g^h) together with $(1)_{j \in g_h}$ induces q^h. Because $q^h \in \Delta D(g^h) \cap W_k$, this first means that $q^h \in \Delta D(g^h)$, and by condition A, every $j \in g^h$ has $q^h \in \Delta D(\delta^j) \subseteq A(\delta^j)$. As $q^h \in W_k$, this means that there at least $k - |g^h|$ other legislators who have $q^h \in A(\delta^i)$, which means that they approve the proposal, and have no profitable deviation by sincere voting. Thus, the proposal passes.

Third, after off-path $(s', (e_j)_{j \in g})$, they have a belief q' that puts probability 1 on a state $\omega' \notin D_k$. Even if some members of a targeted $g' \subseteq g$ agree, there are fewer than $k - |g'|$ other legislator that have $q' \in A(\delta^i)$, which means that the proposal does not pass.

Now consider the strategies of intermediaries when they give endorsements. On the path, after (m^h, g^h), we have that $q^h \in \Delta D(g^h)$, which means that for all $\omega \in \text{supp } q^h : \omega \in D(\delta^j)$ for all $j \in g^h$. In equilibrium, each j is supposed to choose $e_j(\omega) = 1$ after $\omega \in D(\delta^j)$. If j deviates, then we reach an off-path information set, after which the proposal does not pass. But j prefers that the proposal is implemented because $\omega \in D(\delta^j)$, which means that this deviation is not profitable. Vice versa, if S were to deviate for some $\omega \notin \text{supp } q^h$, then if S chooses on-path (m^h, g^h), then $\omega \notin D(\delta^j)$ for some $j \in g^h$, who does not prefer the proposal, which means that an off-path information set is reached, and the proposal does not pass. Naturally, there is no profitable deviation. Finally, if S were to deviate to some off-path (m', g') and $j \in g'$, then j's endorsement is irrelevant, because the proposal never passes. Thus no j ever has a profitable deviation.

Finally, consider whether S has a profitable deviation. In equilibrium, S's payoff is at its maximum if $\omega \in \cup_{g \in G} D(g)$, which means that S does not have a profitable deviation in those states. Thus, consider $\omega \notin \cup_{g \in G} D(g)$. First, if S were to deviate to any (m', g') off-path, then the proposal does not pass. Thus, this deviation is not profitable. Second, consider a deviation to on-path (m^h, g^h) for some $h = 1, \ldots, H$. Because $\omega \notin \cup_{g \in G}$, there exists at least one $j \in g^h$ such that $\omega \notin D(g^h)$. This legislator gives a negative endorsement $e_j(\omega) = 0$. Thus, this deviation leads to an off-path information set, and the proposal does not pass. As a result, S has no profitable deviation.

Step 2. Second, assume that it is not the case that $D_k \subseteq \cup_{g\in G} D(g)$ and $r(\cup_{g\in G} D(g)) \in co\Big(W_k \cap \big(\cup_{g\in G} \Delta D(g)\big)\Big)$, but that, by contradiction, a PBE exists under condition A with intermediary-set G. Suppose first that it is not the case that $D_k \subseteq \cup_{g\in G} D(g)$. By condition A, the proposal is implemented if $\omega \in \cup_{g\in G} D(g)$. As $p \notin co(W_k)$, this means that there exists at least one $q \notin W_k$ after which the proposal does not pass, which means that after some $(m, \emptyset)$, the proposal does not pass in any PBE. Thus, there exists some $\omega \in D_k$ after which the proposal does not pass. But that means that S can deviate to (m', N), and ensure that at least k legislators prefer the proposal with $\omega \in D(\delta^j)$, which means that the proposal passes and S's deviation is profitable. This implies that $D_k \subseteq \cup_{g\in G} D(g)$.

Now consider $r(\cup_{g\in G} D(g)) \notin co\Big(W_k \cap \big(\cup_{g\in G} \Delta D(g)\big)\Big)$, but that a PBE under condition A exists. Label S's actions in which some group $g \in G$ is targeted as (m^h, g^h) for $h = 1, \ldots, H$. By condition A, for every on-path combination of (m^h, g^h) and $(e_j)_{j\in g^h}$, the proposal is implemented. Also, by condition A, the report is only sent to intermediaries who prefer the proposal given the state. This implies that for every $\omega \in \text{supp } q^h : \omega \in D(g)$. Thus every $q^h \in \Delta D(g^h)$. This implies that $r(\cup_{g\in G} D(g)) \in co\big(\cup_{g\in G} \Delta D(g)\big)$. But recall that $r(\cup_{g\in G} D(g)) \notin co\Big(W_k \cap \big(\cup_{g\in G} \Delta D(g)\big)\Big)$. This means there exists at least one $q^h \notin W_k$. But then fewer than k legislators have belief $q^h \in A(\delta^i)$, and the proposal does not pass, a contradiction. $\square$

B Competition

Proposition 2. There exists a PBE in which S_1 discovers the state and targets intermediary-set G on the path of play if and only if $\min\{p(\bar{\omega}), \frac{\kappa_2}{1-\kappa_2} p(\bar{\omega})\} \geq \sum_{j\in G} p(\omega_j)$ and $\kappa_1 \leq p(\bar{\omega}) + \sum_{j\in G} p(\omega_j)$.

Proof. The proof follows in two steps, providing a necessary and sufficient condition for the proposed statement.

First, assume that $\min\{p(\bar{\omega}), \frac{\kappa_2}{1-\kappa_2}p(\bar{\omega})\} \geq \sum_{j\in G} p(\omega_j)$ and $\kappa_1 \leq p(\bar{\omega}) + \sum_{j\in G} p(\omega_j)$. Suppose that S selects intermediaries $G = \{1, \ldots, J\} \subseteq N$. Assume that S only provides a report if it leads to $x = 1$. Formally, if $\pi^*(j|\omega) > 0$, then $x^*(j|\omega) = 1$. First assume that $\kappa_2 \geq 1/2$. We construct the following PBE.

Strategies

Consider the following strategy for S_1. For all $j \in G$:

$$\pi(j|\omega) = \begin{cases} 1 & \text{if } \omega = \omega_j \\ \frac{p(\omega_j)}{p(\bar{\omega})} & \text{if } \omega = \bar{\omega}. \end{cases} \tag{31}$$

If $\omega = \bar{\omega}$, then $\pi(F|\omega) = 1 - \sum_{j:j\in G} \frac{p(\omega_j)}{p(\bar{\omega})}$. Finally, for all $\omega \notin \{\bar{\omega}, (\omega)_{j\in G}\}$, we have that $\pi(\emptyset|\omega) = 1$.

In addition, consider the following strategy for each j after S_1 has chosen j

$$e_j(\omega) = \begin{cases} 1 & \text{if } \omega = \{\bar{\omega}, \omega_j\} \\ 0 & \text{otherwise.} \end{cases} \tag{32}$$

The other interest group, S_2, never discovers the state.

Finally, consider the following voting strategies for each legislator $i \neq j$ that is not an intermediary,

$$a_i(j, r_j) = \begin{cases} 1 & \text{if } j \in G \text{ and } r_j = 1, \\ 0 & \text{otherwise,} \end{cases} \tag{33}$$

and the voting strategies for each intermediary that observes the state.

$$a_i(\omega) = \begin{cases} 1 & \text{if } \omega \in \{\omega_i, \bar{\omega}\}, \\ 0 & \text{otherwise.} \end{cases} \tag{34}$$

Beliefs

On the path of play, due to the strategy of S_1 and j, every $i \neq j$ observes S_1 choosing $\{j\}$ and j choosing $r_j = 1$. Thus, after these observations, Bayes' rule simplifies and implies that for $j \in G$,

$$q(\bar{\omega}|j, e_j) = \frac{\pi(j|\bar{\omega})r_j(\bar{\omega})p(\bar{\omega})}{\pi(j|\bar{\omega})r_j(\bar{\omega})p(\bar{\omega}) + \pi(j|\omega_j)r_j(\omega_j)p(\omega_j)}, \tag{35}$$

$$= \frac{\frac{p(\omega_j)}{p(\bar{\omega})}p(\bar{\omega})}{\frac{p(\omega_j)}{p(\bar{\omega})}p(\bar{\omega}) + p(\omega_j)}, \tag{36}$$

$$= \frac{1}{2}, \tag{37}$$

while $q(\omega_j|j, e_j) = 1 - q(\bar{\omega}|j, e_j)$ and for all other $\omega \neq \{\bar{\omega}, \omega_j\}$, we have that $q(\omega|j, e_j) = 0$.

Furthermore, $q(\omega_j|j, e_j) = 1 - q(\bar{\omega}|j, e_j)$ and $q(\omega|j, e_j) = 0$ for all $\omega \neq \{\bar{\omega}, \omega_j\}$. After the path of play of $r_1 = \emptyset$ and S_2 not discovering the state, we have that $q(\omega|r_1 = \emptyset, d_2 = 0) = 0$ for all $\omega \in \{\bar{\omega}, (\omega)_{j\in G}\}$. For all other $\omega \notin \{\bar{\omega}, (\omega)_{j\in G}\}$, we have that $q(\omega|r_1 = \emptyset, d_2 = 0) = \frac{p(\omega)}{\sum_{\omega' \notin \{\bar{\omega}, (\omega)_{j\in G}\}} p(\omega')}$. Assume that beliefs off the path of play satisfy $q(\underline{\omega}) = 1$.

Sequential rationality

First, consider voting strategies. It is obvious that every legislator who observes the state is voting sincerely. Consider a legislator who did not observe the state. After observing that j has received a report, and j has given a positive endorsement, they have a belief that puts probability $\frac{1}{2}$ on $\bar{\omega}$ and $\frac{1}{2}$ on ω_j. This means that in expectation, they are indifferent between the status quo and the proposal, after which they accept.

Otherwise, after observing $r_1 = \emptyset$, they have the following belief for all $\omega \notin \{\bar{\omega}, (\omega_j)_{j\in G}\}$:

$$q(\omega|r_1 = \emptyset, d_2 = 0) = \frac{p(\omega)}{\sum_{\omega' \notin \{\bar{\omega},(\omega)_{j\in G}\}} p(\omega')}. \tag{38}$$

Under sincere voting, they are supposed to collectively reject the proposal, which they do in equilibrium. Consider legislator i. The payoff if the proposal is implemented equals

$$\sum_{\omega\in\Omega} q(\omega|r_1 = \emptyset, d_2 = 0) u_i(1, \omega) \tag{39}$$

$$= p(\omega_i) - (1 - p(\omega_i)) \tag{40}$$

$$= 2p(\omega_i) - 1. \tag{41}$$

Now recall Assumption (A1), which says that $p(\bar{\omega}) + p(\omega_k) < \frac{1}{2}$. This implies that $p(\omega_k) < \frac{1}{2}$. Thus the number of legislators who prefer the proposal is smaller than k, which means that the proposal does not pass.

Similarly, consider all off-path information sets. Then, beliefs put probability 1 on $\underline{\omega}$, after which every legislator rejects.

Now consider S_2. S_2 only possibly has a profitable deviation if it knows that the proposal passes. S_2 has the same posterior beliefs as legislators, and compares the payoff of -1 if the proposal passes, and the expected payoff if S_2 chooses to discover the state. This comparison simplifies to

$$-1 \geq q(\bar{\omega})[-1] + (1 - q(\bar{\omega}))[0] - \kappa_2, \tag{42}$$

$$\kappa_2 \geq 1 - q(\bar{\omega}) = \frac{1}{2}, \tag{43}$$

which holds. Thus S_2 has no profitable deviation.

Consider j after S_1 has chosen to provide a report j. If $j \in G$, then the eventual policy is in line with j's preference. If $j \notin G$, then the information-set is off path, and the proposal does not pass, regardless of j's endorsement.

Consider finally S_1. The proposal is implemented if and only if $\omega \in \{\bar{\omega}, (\omega_j)_{j\in G}\}$. In those states, S_1 has no profitable deviation. Consider other states. Then, all deviations lead to off-path information sets (or S_1 fully reveals the states), after which the proposal does not pass. Also consider a possible deviation to not discovering the state. By assumption (A1), the proposal does not pass after S_1 does not discover the state (as S_2 will also not choose to discover the state). Then, S_1's payoff equals 0. In equilibrium, S_1's payoff equals

$$\sum_{\omega' \in \{\bar{\omega}, (\omega)_{j\in G}\}} p(\omega') - \kappa_1 \geq 0, \tag{44}$$

which means that S_1 has no profitable deviation.

One can do the same exercise if $0 < \kappa_2 < \frac{1}{2}$.[28] In that case, strategies are as follows. For all $j \in G$:

$$\pi(j|\omega) = \begin{cases} 1 & \text{if } \omega = \omega_j, \\ \frac{p(\omega_j)(1-\kappa_2)}{p(\bar{\omega})\kappa_2} & \text{if } \omega = \bar{\omega} \end{cases} \tag{45}$$

If $\omega = \bar{\omega}$, then $\pi(F|\omega) = 1 - \sum_{j\in G} \frac{p(\omega_j)(1-\kappa_2)}{p(\bar{\omega})\kappa_2}$, while if $\omega \neq \{\bar{\omega}, (\omega_j)_{j\in G}\}$, then $\pi(\emptyset|\omega) = 1$. The results follow as above, the only thing that differs is S_2's incentive compatibility constraint

[28] If $\kappa_2 = 0$, then S_1 necessarily fully reveals its information.

that requires it to not discover the state, which is satisfies because

$$-1 \geq q(\bar{\omega})[-1] + (1 - q(\bar{\omega}))[0] - \kappa_2 \tag{46}$$

$$\kappa_2 \geq 1 - q(\bar{\omega}) \tag{47}$$

$$= 1 - \frac{\frac{p(\omega_j)(1-\kappa_2)}{p(\bar{\omega})\kappa_2} p(\bar{\omega})}{\frac{p(\omega_j)(1-\kappa_2)}{p(\bar{\omega})\kappa_2} p(\bar{\omega}) + p(\omega_j)}, \tag{48}$$

$$= 1 - \frac{\frac{p(\omega_j)(1-\kappa_2)}{\kappa_2}}{\frac{p(\omega_j)(1-\kappa_2)}{\kappa_2} + p(\omega_j)}, \tag{49}$$

$$= \frac{p(\omega_j)}{\frac{p(\omega_j)(1-\kappa_2)}{\kappa_2} + p(\omega_j)} \tag{50}$$

It follows then that,

$$\kappa_2 \left(\frac{p(\omega_j)(1-\kappa_2)}{\kappa_2} + p(\omega_j)\right) = p(\omega_j), \tag{51}$$

$$p(\omega_j)(1-\kappa_2) = p(\omega_j)(1-\kappa_2), \tag{52}$$

which means that S_2 has no profitable deviation. This concludes the first part of the proof.

Now consider the other direction. Suppose, for a proof by contradiction, that there exists a PBE in which S_1 discovers the state and targets intermediary-set G on the path of play, but that it is not the case that $\min\{p(\bar{\omega}), \frac{\kappa_2}{1-\kappa_2} p(\bar{\omega})\} \geq \sum_{j \in G} p(\omega_j)$ and $\kappa_1 \leq p(\bar{\omega}) + \sum_{j \in G} p(\omega_j)$. In this PBE, S_1's expected utility from discovering the state equals $p(\bar{\omega}) + \sum_{j \in G} p(\omega_j) - \kappa_1$. Note that endorsement strategies must be as specified above in the proof of existence, otherwise, if regardless of j's recommendation, a majority votes in favor, then S_1 has a profitable deviation in states other than $\bar{\omega}$ and $(\omega_j)_{j \in G}$. This implies that $\kappa_1 \leq p(\bar{\omega}) + \sum_{j \in G} p(\omega_j)$, otherwise S_1 would have a profitable deviation and choose not to discover the state. This implies that $\min\{p(\bar{\omega}), \frac{\kappa_2}{1-\kappa_2} p(\bar{\omega})\} < \sum_{j \in G} p(\omega_j)$.

Suppose first that $\kappa_2 \geq \frac{1}{2}$. This means that $\min\{p(\bar{\omega}), \frac{\kappa_2}{1-\kappa_2} p(\bar{\omega})\} = p(\bar{\omega})$. In the PBE with intermediary-set G, the problem is implemented whenever some $j \in G$ is targeted. This means that for all posteriors on the path of play after which S_1 has provided a report to some $j \in G$, a k-majority accepts the proposal. First, note that if G is empty, the statement is false, thus G is non-empty. Then for all $j \in G$:

$$q(\bar{\omega}|r_1 = j) \geq \frac{1}{2}, \tag{53}$$

$$\frac{\pi(j|\bar{\omega})p(\bar{\omega})}{\pi(j|\bar{\omega})p(\bar{\omega}) + p(\omega_j)} \geq \frac{1}{2}, \tag{54}$$

$$2\pi(j|\bar{\omega})p(\bar{\omega}) \geq \pi(j|\bar{\omega})p(\bar{\omega}) + p(\omega_j), \tag{55}$$

$$\pi(j|\bar{\omega})p(\bar{\omega}) \geq p(\omega_j), \tag{56}$$

Since this is true for all $j \in G$, it is also true when summed across all $j \in G$, i.e.,

$$\sum_{j \in G} \pi(j|\bar{\omega})p(\bar{\omega}) \geq \sum_{j \in G} p(\omega_j), \tag{57}$$

$$\alpha p(\bar{\omega}) \geq \sum_{j \in G} p(\omega_j), \tag{58}$$

where $\alpha \in (0, 1]$ (because S_1 could also choose to fully reveal in state $\bar{\omega}$). This is a contradiction.

Now suppose that $\kappa_2 < \frac{1}{2}$. Then $\min\{p(\bar{\omega}), \frac{\kappa_2}{1-\kappa_2}p(\bar{\omega})\} = \frac{\kappa_2}{1-\kappa_2}p(\bar{\omega})$. To prevent S_2 from choosing to discover the state after observing $r_1 = j$, we need for all $j \in G$

$$\kappa_2 \geq \frac{p(\omega_j)}{p(\omega_j) + \pi(j|\bar{\omega})p(\bar{\omega})}, \tag{59}$$

$$\kappa_2(p(\omega_j) + \pi(j|\bar{\omega})p(\bar{\omega})) \geq p(\omega_j), \tag{60}$$

$$\frac{\kappa_2}{1 - \kappa_2}\pi(j|\bar{\omega})p(\bar{\omega}) \geq p(\omega_j). \tag{61}$$

Similar to before, we can sum across $j \in G$, and obtain the following inequality,

$$\frac{\kappa_2}{1 - \kappa_2}\alpha p(\bar{\omega}) \geq \sum_{j \in G} p(\omega_j), \tag{62}$$

a contradiction. This concludes the proof. □

C Additional Extensions

In this section, we return to the original model, and study several extensions. Section C.1 studies persuasion with more general interest group preferences. Section C.2 analyzes a model with partial verifiable information transmission. Section C.3 studies a model of money-burning because meeting legislators could be costly and a signal by itself. Section C.4 studies competition more generally. Section C.5 gives examples of cases in which legislators may prefer that the interest group uses intermediaries. Section C.6 looks at the use of intermediaries in two dimensions.

C.1 General preferences

In the original model, the payoff of the interest group was simply $u_S(x) = x$. Now suppose that S has a preference profile $\delta^S = (\delta^S(\omega_1), \ldots, \delta^S(\omega_T))$, where $\delta^S(\omega) \neq 0$ for all $\omega \in \Omega$. As alluded to in the main text, the fact that S prefers the proposal may contain information by itself. The main focus in this section is on sender-optimal PBE, that maximize the interest group's ex-ante welfare $V^S(\pi)$. Define the set of states under which S prefers the proposal as $D(\delta^S) = \{\omega : \delta^S(\omega) > 0\}$, and let $R(\delta^S) = \Omega \setminus D(\delta^S)$ be its complement, in which S prefers the status quo. The interesting part arises when S's payoff is sometimes higher if the proposal does not pass, and sometimes when it does pass. Furthermore, define $R_k = \Delta\Omega \backslash W_k$ as the set of probability distributions under which no majority of k legislators prefers the proposal. Define $A(\delta^S)$ as the set of beliefs under which S prefers the proposal. Consider the case where S only uses cheap talk.

Proposition A1. Cheap Talk with State-Dependent Interest Group Payoffs Let $D(\delta^S) \neq \Omega$ and $D(\delta^S) \neq \emptyset$. In all sender-optimal PBE:

- If $r(D(\delta^S)) \in co(W_k)$ and $r(R(\delta^S)) \in co(R_k)$, then $x = 1$ if and only if $\omega \in D(\delta^S)$.
- Otherwise:

   1. If $p \in co(W_k)$ and $p \notin co(R_k)$, then $x = 1$ in all states.

2. If $p \in co(R_k)$ and $p \notin co(W_k)$, then $x = 0$ in all states.

3. If $p \in co(W_k)$ and $p \in co(R_k)$, then if (a) $p \in A(\delta^S)$, the proposal is implemented in all states, and if (b) $p \notin A(\delta^S)$, the proposal is never implemented.

Proof. Consider an arbitrary sender-optimal PBE. Consider each case separately.

Let $r(D(\delta^S)) \in co(W_k)$ and $r(R(\delta^L)) \in co(R_k)$. Obviously, the interest group's ex-ante welfare is maximized if the proposal is implemented if and only if $\omega \in D(\delta^S)$ because S always gets its most preferred policy for free. Since $r(D(\delta^L)) \in co(W_k)$, S can send messages whenever $\omega \in D(\delta^S)$ that induce beliefs (that are Bayes-plausible with mean $r(D(\delta^S))$) that are always in the win set. Similarly, since $r(R(\delta^S)) \in co(R_k)$, the interest group can induce beliefs that are never in the win set for all $\omega \in R(\delta^L)$, and then the status quo is maintained.

In the other cases (case 1, 2, and 3), S cannot achieve that her ex-ante welfare is maximized through only getting implementation of the proposal if $\omega \in D(\delta^L)$. Hence, the proposal is either never or always implemented. Otherwise the lobbyist would have a profitable deviation to messages that induce $x = 0$ if $\omega \in R(\delta^S)$ and $x = 1$ if $\omega \in D(\delta^S)$.

1. If $p \in co(W_k)$ and $p \notin co(R_k)$, this implies that there exists no set of beliefs such that each belief is *not* in the win set. But then the proposal is implemented in some states, a contradiction.

2. If $p \in co(R_k)$ and $p \notin co(W_k)$, there exists no set of beliefs such that each belief is in the win set. But then the proposal is not implemented in some states, a contradiction.

3. If $p \in co(W_k)$ and $p \in co(R_k)$, then there exists sets of beliefs such that either the proposal is implemented given every state, or given no state. Recall that the interest group's expected payoff from the proposal if it is always implemented is $\sum_{\omega \in \Omega} \delta^S(\omega) p(\omega)$. If $p \in A(\delta^S)$, then this expected utility is positive, and a lobbyist's expected utility is maximized in a sender-optimal PBE, which implies that the proposal is always implemented. If it is negative, then never implementing the proposal yields an expected utility of 0, which implies that in a sender-optimal PBE the proposal is never implemented.

Note that it is not possible that both $p \notin co(R_k)$ and $p \notin co(W_k)$, since $W_k = \Delta\Omega \setminus R_k$, where recall that R_k is the set of beliefs under which no k-majority prefers the proposal. $\square$

C.2 Partial Verifiability

Here I borrow from Mathis (2008)'s model and notation, and consider state-independent payoffs of S as in the main model. I allow S to send a broader set of messages than the absolute truth or an unverifiable message. That is, S can send a message such that when legislators observe this, they know that the state is in some sub-set of the state-space. The sets of messages that are available to the lobbyist are thus dependent on the state. Formally, let $M(\omega)$ be the non-empty set of available messages to the lobbyist if the state is ω. Let $M(\Omega) = \cup_{\omega \in \Omega} M(\omega)$ be the whole set of messages with generic element m. Then, let $T(m) = \{\omega \in \Omega | m \in M(\omega)\}$ be the set of states for which the message m is available. Hence, if S sends $m' \in T$, then S proves that $\omega \in T$.

The following proposition shows how the lobbyist optimally reveals information with this signaling technology. The focus is on sender-optimal PBE. In essence, S likes to prove that the state is in the largest possible sub-set of the state-space (the sub-set has the highest probability of being drawn), while simultaneously being able to always persuade a qualified majority to implement the proposal. Here, S does not rely on allies to obfuscate information, since she is perfectly able to optimally garble information individually.

Proposition A2. Partially Verifiable Information Let $p \notin co(W_k)$. In all sender-optimal PBE, the proposal is implemented if and only if $\omega \in \Omega^*$, where $\Omega^* \subset \Omega$ maximizes $\sum_{\omega' \in \Omega^*} p(\omega')$ such that $p(\Omega^*) \in co(W_k)$.

Proof. Consider an arbitrary sender-optimal PBE. By a similar argument as before, in each state ω, the probability of implementation is either 0 or 1. Define $\Omega' \subseteq \Omega$ as the set of states such that $\omega \in \Omega' \iff x^*(\theta) = 1$. Bayes' plausibility and sincere voting imply that we need

$p(\Omega') \in co(W_k)$. Then, a sender-optimal PBE maximizes S's ex-ante expected utility

$$V^S(\pi^*) = \sum_{\omega' \in \Omega} p(\omega') x^*(\omega') \tag{63}$$

$$= \sum_{\omega' \in \Omega'} p(\omega'), \tag{64}$$

subject to $p(\Omega') \in co(W_k)$, as required.

S naturally has no profitable deviation if $\omega \in \Omega'$, as her payoff is at its maximum. To prevent profitable deviations for S, we need that if $\omega \notin \Omega'$, that S cannot deviate to a message that induces $x = 1$. This can be established by letting S send messages $m \in M(\Omega')$ if and only if $\omega \in \Omega'$, which are not available if $\omega \notin \Omega'$. □

C.3 Money Burning

The following proposition again takes the case of general interest group preferences, and allows S to burn money.[29] After nature draws the state, which is observed by the interest group, the group's action is now (m, y) where $m \in M$ is a cheap talk message, and $y \in \mathbb{R}_+$ is a non-negative amount of burned money. Afterwards, legislators vote as in the main model. The result shows how S may either burn money to signal that she prefers $x = 0$ or that she prefers $x = 1$. She burns the same amount of money to do this in all states in which it is worth to burn it. Because a sender-optimal PBE maximizes the interest group's ex-ante welfare, this is done by burning the least amount such that S is still able to influence the legislature's decision. Interestingly, when S burns money, she can still send different cheap talk messages to target different groups of k-majorities. That is, both burned money and cheap talk are simultaneously influential.

Proposition A3. Cheap Talk and Burned Money with State-Dependent Payoffs Let $\delta^S(\omega_1) < \ldots < \delta^S(\omega_T)$ and $p \notin co(W_k)$. In every sender-optimal PBE, if $r(D(\delta^L)) \in$

[29]For the case of state-independent preferences and burned money, see Lipnowski and Ravid (2017). In that case, the availability of money burning cannot make S better off from an ex-ante perspective.

$co(W_k)$ and $r(R(\delta^L)) \in co(R_k)$, then the proposition on *cheap talk with state-dependent interest group payoffs* applies. Otherwise:

- If $\sum_{\omega' \in Y^-} p(\omega')(-y^*_-) + \sum_{\omega \notin Y^-} p(\omega')\delta^S(\omega') < \sum_{\omega' \in Y^+} p(\omega')(\delta^S(\omega') - y^+)$, then S burns the minimal $y = y^*_+ > 0$ in all $\omega \in Y^+$, where $Y^+ = \{\omega : \delta^S(\omega) > y^*_+\} = \{\omega_h, \ldots, \omega_T\}$ and $y^*_+ = \delta^S(\omega(\theta_{h-1})$ such that $r(Y^+) \in co(W_k)$. If such an y^+ does not exist, then this type of PBE does not exist.

- If $\sum_{\omega' \in Y^-} p(\omega')(-y^*_-) + \sum_{\omega \notin Y^-} p(\omega')\delta^S(\omega') > \sum_{\omega' \in Y^+} p(\omega')(\delta^S(\omega') - y^+)$, then S burns the minimal $y = y^*_-$ in all $\omega \in Y^-$, where $Y^- = \{\omega : y^*_- > -\delta^S(\omega)\} = \{\omega_1, \ldots, \omega_g\}$ and $y^*_- = -\delta^S(\omega_{g+1})$ such that $r(Y^-) \in co(R_k)$ and $r(\Theta \setminus Y^-) \in co(W_k)$.

Proof. Assume a sender-optimal PBE where $\delta^S(\omega_1) < \ldots < \delta^S(\omega_T)$ and $p \notin co(W_k)$, and where it is not the case that $p(D(\delta^L)) \in co(W_k)$ and $p(R(\delta^L)) \in co(R_k)$. First, note that a message absent money burning, i.e., $(m', 0)$ either always induces $x = 0$ or always $x = 1$ by Proposition C.1.

Case 1. Suppose first it induces $x = 0$. Then for all $\omega \notin D(\delta^S)$, S sends $s = (m', 0)$ for some $m' \in M$, which is feasible if and only if $r(R(\delta^L)) \in co(R_k)$. Otherwise, with positive money burning, S would have a profitable deviation to $(m', 0)$.

Now consider $\omega \in D(\delta^S)$, where S prefers $x = 1$. As $r(D(\delta^L)) \notin co(W_k)$, there exists no $m'' \in M$ such that $(m'', 0)$ leads to $x = 1$. Money has to be burned to induce a set of posteriors that all lead to $x = 1$. This is feasible if and only money is burned in some set Y^+ such that $r(Y^+) \in co(W_k)$. Suppose that S chooses $s(\omega) = (m, y')$ for some ω with $y' > 0$. Let y^+ be the minimal y' such that at some state, $\pi(m, y^+|\omega) > 0$. Then, in a sender-optimal PBE it has to lead to $x = 1$, otherwise there is a profitable deviation to $(m', 0)$. By incentive compatibility, for all $\delta^S(\omega) > y^+$, S can always deviate to (m, y^+) if she is burning more in some other state, or if no money is burned and $x = 0$. Thus, a sender-optimal PBE can be defined by a minimal amount of burned money y^+. Let $Y^+ = \{\omega : \delta^S(\omega) > y^+\}$. Because a sender-optimal PBE maximizes the interest group's ex-ante welfare, we need to find the optimal y^+. S's ex-ante welfare can be written as follows, where $x = 1$ is implemented if and only if $\omega \in Y^+$:

$$V^S(y^+) = \sum_{\omega \notin Y^+} p(\omega) * 0 + \sum_{\omega \in Y^+} p(\omega)(\delta^S(\omega) - y^+), \tag{65}$$

$$= \sum_{\omega \in Y^+} p(\omega)(\delta^S(\omega) - y^+). \tag{66}$$

Note that, because $\delta^S(\omega) > y^+ > 0$ for all $\omega \in Y^+$, $V^S(y^+)$ increases in the number of elements of Y^+ which is a weakly decreasing function of y^+. Therefore, we want to find the minimal y^+ such that in equilibrium, S can be persuasive with money burning. This happens if $r(Y^+) \in co(W_k)$, where $Y^+ = \{\omega_h, \ldots, \omega_T\}$. S must burn at least $y^+ = \omega_{h-1}$, otherwise, $Y^+ = \{\omega_{h-1}, \omega_h, \ldots, \omega_T\}$. Messages without burned money remain persuasive (in favor of $x = 0$) for all $\omega \notin Y^+$, because $r(Y^+) \in co(W_k)$ and $p \notin co(W_k)$ imply that $r(\Omega \setminus Y^+) \notin co(W_k)$. This concludes the first case.

Case 2. Now assume messages absent money burning always induce $x = 1$ in equilibrium. Then for all $\omega \in D(\delta^S)$, $s(\omega) = (m', 0)$ for some $m' \in M$, which leads to $x = 1$. Without repeating the same steps again, note that S burns money to influence the legislature in favor of $x_=0$. Then S burns the same amount of money y^*_- in some set $Y^- = \{\omega : y^*_- > -\delta^S(\omega)\}$. S's ex-ante welfare can be written as follows, as a function of y^-.

$$V^S(y^-) = \sum_{\omega \in Y^-} p(\omega)(-y^*_-) + \sum_{\omega \notin Y^-} p(\omega)\delta^S(\omega). \tag{67}$$

Again, S benefits for lower y^-, where it both has to be the case money burning is persuasive in favor of $x = 0$, i.e., $r(Y^-) \in co(R_k)$, while keeping persuasiveness of the messages that are supposed to lead to equilibrium implementation, which implies that we need $r(\Theta \setminus Y^-) \in co(W_k)$, as required. Finally, note that the two ex-ante welfare functions $V^S(y^+)$ and $V^S(y^-)$ are the two cases described in the proposition. A sender-optimal PBE simply selects the greater value of the two. □

C.4 General Competition

With two interest groups, the open question is whether how competition affects persuasion and policy-making. The interesting case is where both interest groups S_1 and S_2 have opposite preferences, where S_1 always prefers $x = 1$ and S_2 always prefers $x = 0$. The appendix of Schnakenberg (2017*b*) studies the case with cheap talk, and finds that only interest group can be influential. The case with verifiable information is simple, the legislature always takes decisions that are in line with full information. Consider the case with money burning. I analyze the case where two interest groups can both send cheap talk messages and burn money. The timing is as follows.

1. Nature draws $\omega \in \Omega$ according to p
2. S_1 and S_2 observe ω, simultaneously burn $s_1 = (m_1, y_1)$ and $s_2 = (m_2, y_2)$.
3. Every $i \in N$ observes $(m_1, y_1) \times (m_2, y_2)$, accepts or rejects the proposal. Proposal passes with at least k accept-votes.

To be able to get somewhat sharp results, I impose a restriction on the preference profiles of every player, who rank the states in the same way. In addition, I only consider situations in which each interest group (S_1 and S_2) are on different sides of a qualified majority. The following proposition shows how competitive money burning, with the application of the D1 refinement on off-path beliefs, always leads to fully informed decisions.[30] That is, with competitive money burning, the legislature implements the proposal if and only if the state is majority acceptable, i.e., $\omega \in D_k$.

Proposition A4. Competitive money burning Let for all $i \in N \cup \{S_1, S_2\}$: $\delta^i(\omega_1) < \ldots < \delta^i(\omega_T)$ and let $D(\delta^{S_2}) \subset D_k \subset D(\delta^{S_1})$. In every PBE that satisfies D1 with sincere voting the proposal is implemented if and only if $\omega \in D_k$.

[30] Without explicitly formalizing D1, the application of this refinement in my model means that if an off-path deviation is observed, legislators believe that the deviation happens in the state ω in which S_1 or S_2 has the most to gain from a deviation compared to her equilibrium payoff.

Proof. Assume a PBE that satisfies D1 with sincere voting, and let for all $i \in N \cup \{S_1, S_2\}$: $\delta^i(\omega_1) < \ldots < \delta^i(\omega_T)$ and let $D(\delta^{S_2}) \subset D_k \subset D(\delta^{S_1})$.

Assume for a proof by contradiction, and without loss of generality (one can do a similar case where S_2 would have a profitable deviation), that there exists $\omega' \in D_k$ such that $x^*(\omega') = 0$. Then, q' is induced, where $q' \notin W_k$. Because of this, there exists $\omega'' \notin D_k$ such that $q'(\omega'') > 0$. Let $\Omega' = supp(q') = \{\omega \in \Omega : q'(\omega) > 0\}$. This posterior is induced by a profile of lobbying actions $\sigma^*_{S_2} \times \sigma^*_{S_1}$. As $x = 0$ is implemented, it must be that at ω', $s^*_1(\omega') = (m', 0)$ for some $m' \in M$, because $\omega' \in D_k \subseteq D(\delta^{S_1})$. Consider a deviation to $s_1 = (m', \epsilon)$, where $\epsilon > 0$ is small and off-path. Then this induces an off-path belief q'', which, by D1, puts probability 1 on $\bar{\theta} = \max\{\Omega'\} \in D_k$, which implies that $q'' \in W_k$. As a result, $x = 1$ is implemented, and S_1's deviation is profitable, a contradiction. $\square$

Full revelation of information is not guaranteed if both interest groups are on the same side of a qualified majority, for example if $D(\delta^{S_2}) \subset D(\delta^{S_1}) \subset D_k$. In addition, it is also not guaranteed if players do not rank the states in the same order. Therefore, even if both interest groups are completely opposite to each other in terms of preferred policies, money burning does not lead to full disclosure, but verifiable information does.

C.5 Intermediaries and Welfare

I return to our original model with state-independent preferences. This section has two purposes. To provide examples in which full revelation of information can be worse for every legislator than not providing information at all (example 1). And similarly, that although full disclosure is better than no information, every legislator can be at least as well off if the interest group uses intermediaries (example 2).[31]

Example 4. *Suppose there are two legislators, unanimity rule, two states, and a prior* $p = (1/2, 1/2)$ *that puts equal probability on both states. The legislators have the following*

[31] Schnakenberg (2017*a*) provides a more general analysis of the potential downsides of persuasion for voting bodies.

preferences $\delta^1 = (2, -1)$ *and* $\delta^2 = (-1, 2)$*. Compare two interest group strategies, one in which no information is revealed* (π^0)*, and one in which all information is fully disclosed* (π^{FD})*. If no information is revealed, then legislators' beliefs are equal to their prior belief with* $q = p = (1/2, 1/2)$*. It is straightforward to see that the expected payoff for legislator* δ^1 *and* δ^2 *of implementing the proposal is equal to* $U_1(x = 1|q) = U_2(x = 1|q) = 1/2 \geq 0$*, which means that the proposal is implemented in both states with* $x^*(\omega_1) = x^*(\omega_2) = 1$*. The value for each legislator equals*

$$V^1(\pi^0) = V^2(\pi^0) = (1/2)(2)(1) + (1/2)(-1)(1) = 1/2. \tag{68}$$

Now suppose that the interest group fully discloses all information. If the state is ω_1*, then legislator* δ^2 *rejects the proposal, while if the state is* ω_2*, then legislator* δ^1 *rejects it. As a result, the proposal is implemented with zero probability, i.e.,* $x^*(\omega_1) = x^*(\omega_2) = 0$*. Trivially, the value for each legislator equals*

$$V^1(\pi^{FD}) = V^2(\pi^{FD}) = 0 < 1/2 = V^1(\pi^0) = V^2(\pi^0), \tag{69}$$

i.e., both legislators are worse off with full information than no information. □

Example 5. *Suppose there are two legislators, four states* $\Omega = \{\omega_1, \omega_2, \omega_3, \omega_4\}$*, and unanimity rule* ($k = 2$)*. The prior belief is* $p = (1/8, 1/8, 1/4, 1/2)$*. Preference profiles are* $\delta^1 = (1, -1, 1, -1)$ *and* $\delta^2 = (-1, 1, 1, -1)$*. These parameters are listed in Table 1. Note that* $D(\delta^1) = \{\omega_1, \omega_3\}$ *and* $D(\delta^2) = \{\omega_2, \omega_3\}$*. One can check that* $p \notin co(W_k)$*, which means that cheap talk cannot be persuasive, with* $V^S(\pi^{CT}) = 0$*. With full disclosure the proposal is only implemented if the state is in* $D_k = D(\delta^1) \cap D(\delta^2) = \{\omega_3\}$*, which means that S's value is* $V^S(\pi^{FD}) = p(\omega_3) = 1/4$*.*

Now suppose that S chooses a selective disclosure strategy π^{SD} *as listed in Table 1. If the state is* ω_1*, then only legislator 1 receives a report. If the state is* ω_2*, then only legislator 2 receives one. If the state is* ω_3*, then either legislator 1 or 2 obtains a report with equal prob-*

Table 1: Preferences and Strategies

	$p(\cdot)$	$\delta^1(\cdot)$	$\delta^2(\cdot)$	$\pi(m,\{1\}\|\cdot)$	$\pi(m,\{2\}\|\cdot)$	$\pi(m,\emptyset\|\cdot)$
ω_1	$1/8$	1	-1	1	0	0
ω_2	$1/8$	-1	1	0	1	0
ω_3	$1/4$	1	1	$1/2$	$1/2$	0
ω_4	$1/2$	-1	-1	0	0	1

ability. If the state is ω_4, then neither legislator prefers the proposal under full information, and nobody gets a report. By assumption, intermediaries $j \in g$ give public endorsements in favor of the proposal whenever $\omega \in D(\delta^j)$. This means that employing this selective disclosure strategy, either legislator would give a positive recommendation whenever they are an intermediary. Consider posterior beliefs of the legislator who did not obtain a report. First consider the case where legislator 1 obtains a report, when S chooses $(m, \{1\})$. Legislator 2 then knows that $\omega \in D(\delta^1) = \{\omega_1, \omega_3\}$. Bayes' rule yields

$$q(\omega|m,\{1\}) = \begin{cases} 1/2 & \text{if } \omega = \omega_1, \omega_3 \\ 0 & \text{if } \omega = \omega_2, \omega_4. \end{cases} \tag{70}$$

It is straightforward to see that legislator 1 approves the proposal because he observes the state. Legislator 2, however, makes his decision under uncertainty about the state, and has belief $q(\omega|m,\{1\})$ about each state ω. He also approves the proposal, as

$$U_2(x=1|q) = (1/2)(1) + (1/2)(-1) = 0. \tag{71}$$

By symmetry, legislator 1 also approves the proposal after he observes that legislator 2 obtains a report and gives a positive recommendation. If neither obtain a report, however, both know that the state is ω_4, after which neither approves the proposal. Therefore, the proposal is implemented if and only if $\omega \in D(\delta^1) \cup D(\delta^2) = \{\omega_1, \omega_2, \omega_3\}$. S therefore does better by selectively disclosing information than fully disclosing it, and doubles the probability that the *proposal is implemented.*

$$V^S(\pi^{SD}) = {}^1\!/\!_2 > {}^1\!/\!_4 = V^S(\pi^{FD}). \tag{72}$$

S could only have a profitable deviation if $\omega = \omega_4$, but other messages without a report are off-the path of play and can trivially lead to the status quo, while sending a report trivially leads to rejection of the proposal as well because the intermediary would vote against it. One can also check that in this example, legislators are equally well off under selective and full disclosure of information. Note that $V^1(\pi^{SD}) = V^1(\pi^{FD}) = V^2(\pi^{SD}) = V^2(\pi^{FD}) = {}^1\!/\!_4$. $\square$

C.6 Multidimensional Persuasion

The following example illustrates that, unlike Schnakenberg's (2017*b*) model with costly access, the lobbyist requires multiple endorsers to be influential. This is easier to grasp in a two-dimensional spatial setting. Lobbying a single legislator only provides positive information about one dimension, which does not persuade legislators who care about the second dimension, and vice versa. Selectively lobbying allies that care about both dimensions will ensure that a qualified majority of legislators is persuaded in favor of the proposal. This example is similar to the second one in the main text.

Example 6. *Let there be four legislators with unanimity rule. Let the state of the world $\omega = (\omega^1, \omega^2)$ be two-dimensional, and let p be the uniform distribution with support $[0,1]^2$. The expected state of the world is $\mathbb{E}[\omega|p] = (\frac{1}{2}, \frac{1}{2})$. One can think of ω^1 being information about the uncertain financial aspects of the proposal, and ω^2 the uncertain environmental aspects. The proposal is located at $x_1 = (x_1^1, x_1^2) = (1,1)$ and the status quo is $x_0 = (x_0^1, x_0^2) = (0,0)$. Utility functions of legislators 1 and 2 have the standard quadratic form, which only place weight on the first dimension: $u_i(x,\omega) = -(x^1 - (\omega^1 + b_i^1))^2$; and legislators 3 and 4 only places weight on the second dimension: $u_i(x,\theta) = -(x^2 - (\omega^2 + b_i^2))^2$. In the standard sense, b_i is a legislator's bias parameter (Crawford and Sobel 1982), where b_i^1 and b_i^2 are* *a legislator's bias over dimensions* 1 *and* 2 *respectively. I set these parameters equal to* $(b_1^1, b_2^1, b_3^2, b_4^2) = (-\frac{1}{10}, -\frac{3}{10}, -\frac{1}{10}, -\frac{3}{10})$. *The interest group's payoff is still the same as before, who can be thought of having an extremely high positive bias on both dimensions.*

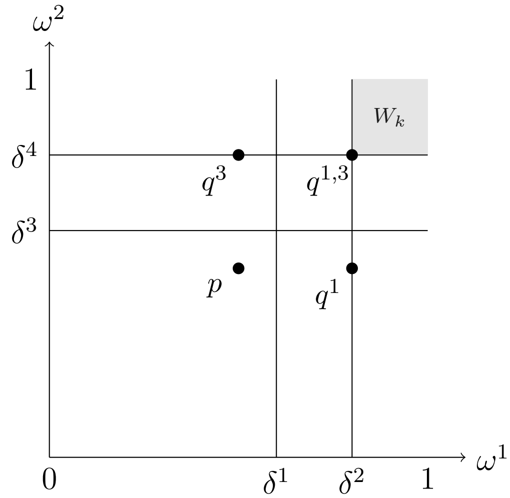
It is straightforward that with quadratic preferences, if legislators compare two expected utilities under the same belief q, *they only care about the expected state of the world under* q, *i.e.,* $\mathbb{E}[\omega|q]$. *For example, if legislator* 1 *has belief* q, *then he is willing to approve the proposal if* $E_\omega[u_1(x_1|q)] \geq E_\omega[u_1(x_0|q)]$, *which simplifies to:*

$$-\big(1 - (\mathbb{E}[\omega^1, q] - \frac{1}{10})\big)^2 \geq -\big(0 - (\mathbb{E}[\omega^1, q] - \frac{1}{10})\big)^2,$$
$$\mathbb{E}[\omega^1|q] \geq \frac{3}{5}.$$

Similarly, one can show that 2 *approves if* $\mathbb{E}[\omega^1|q] \geq \frac{4}{5}$, 3 *if* $\mathbb{E}[\omega^2|q] \geq \frac{3}{5}$, *and* 4 *if* $\mathbb{E}[\omega^2|q] \geq \frac{4}{5}$. *These cutoffs are shown in Figure 5, which are straight lines indicated by a legislator's preference profile* δ^i. *That is, legislators* 1 *and* 2 *prefer the proposal for any expected state to the right of* δ^1 *and* δ^2, *while* 3 *and* 4 *prefer it above* δ^3 *and* δ^4. *The win set is defined by the set of states such that all players have a belief that leads to unanimous agreement, i.e.,* $W_k = [\omega|\omega^1 \geq 4/5$ *and* $\omega^2 \geq 4/5]$.

Invoking proposition 1, if a lobbyist selects groups of endorsers, she has to ensure that the proposal is implemented whenever one group agrees. Note that legislator 1 *is more allied to the lobbyist than* 2, *and* 3 *is more allied than* 4. *Is it sufficient to lobby either ally? Suppose the interest group selects legislator* 1. *Then she sends a report to* 1 *whenever* $\omega \in D(\delta^1)$, *i.e., if* $\theta^1 \geq 3/5$. *For all other legislators, this induces posterior belief* q *with* $q^1 = \mathbb{E}[\omega|q] = (4/5, 1/2) \notin W_k$. *As can be seen in Figure 5, this does not persuade legislators* 3 *and* 4 *to approve the proposal. Although they observe positive information about the proposal under the first dimension, they only care about the second. Hence, they will reject the proposal if* 1 *is lobbied. Likewise, a similar result follows if* 3 *receives a report, which induces* $q^3 = \mathbb{E}[\omega|q] = (1/2, 4/5) \notin W_k$. *Legislators* 1 *and* 2 *care about the first dimension and will reject*

Figure 5: Multidimensional Persuasion



Note: This figure shows spatial preferences over a two-dimensional policy space and informational environment. The cut-off lines denoted by δ^i are states of the world for which legislators are indifferent between the proposal and the status quo. The win set is the gray area, where all legislators have beliefs such that they are in favor of the proposal. The dots denote the expected value of (θ_1, θ_2) under the prior belief, and posterior beliefs after lobbying only 1, only 3, and 1 and 3 simultaneously, which are $p = (\frac{1}{2}, \frac{1}{2}), q^1 = (\frac{4}{5}, \frac{1}{2}), q^3 = (\frac{1}{2}, \frac{4}{5})$, and $q^{1,3} = (\frac{4}{5}, \frac{4}{5})$ respectively.

the proposal.

Suppose, however, that the interest groups sends both a report to 1 *and* 3 *simultaneously. This implies that she sends a report whenever both agree, i.e., whenever* $\omega^1 \geq 3/5$ *and* $\omega^2 \geq 3/5$*. For legislators who did not get a report, they will update their beliefs to* $q^{1,3} = \mathbb{E}[\omega|q] = (\frac{4}{5}, \frac{4}{5}) \in W_k$*, which is persuasive. As a result, by selectively providing reports to both a financial and an environmental ally, the interest group can do better than publicly revealing all information. That is, the proposal is implemented if* ω^1 *and* ω^2 *are both greater than* $3/5$*, instead of if both are greater than* $4/5$*.* $\square$

References

Ainsworth, Scott H. 1997. "The Role of Legislators in the Determination of Interest Group Influence." *Legislative Studies Quarterly* 22:4:517–533.

Alonso, Ricardo and Odilon Câmara. 2016. "Persuading Voters." *American Economic Review* 106:11:3590–3605.

Aumann, Robert J and Michael Maschler. 1995. *Repeated Games with Incomplete Information*. MIT press.

Austen-Smith, David and Jeffrey S. Banks. 2000. "Cheap Talk and Burned Money." *Journal of Economic Theory* 91:1:1–16.

Austen-Smith, David and John R Wright. 1994. "Counteractive Lobbying." *American Journal of Political Science* 38(1):25–44.

Bardhi, Arjada and Yingni Guo. 2018. "Modes of Persuasion toward Unanimous Consent." *Unpublished manuscript.* .
URL: *https://www.researchgate.net/profile/Yingni_Guo/publication/315551165_Modes_of_Persuasion_Toward_Unanimous_Consent/links/58d41ac3aca2727e5e9ae2b2/Modes-of-Persuasion-Toward-Unanimous-Consent.pdf Retrieved 8/1/2018*

Battaglini, Marco and Eleonora Patacchini. 2016. Influencing Connected Legislators. Technical report National Bureau of Economic Research.
URL: *http://www.nber.org/papers/w22739 Retrieved on 8/1/2018*

Baumgartner, Frank R and Christine Mahoney. 2002. Gaining Government Allies: groups, officials, and alliance behavior. In *Prepared for delivery at the annual meeting of the Midwest Political Science Association, Chicago, Illinois.*
URL: *http://www.unc.edu/~fbaum/books/lobby/_documentation/midwest_2002.pdf*

Bertrand, Marianne, Matilde Bombardini and Francesco Trebbi. 2014. "Is It Whom You Know or What You Know? An empirical assessment of the lobbying process." *The American Economic Review* 104(12):3885–3920.

Beyers, Jan and Marcel Hanegraaff. 2017*a*. "Balancing Friends and Foes." *The Review of International Organizations* 12(3):461–484.

Beyers, Jan and Marcel Hanegraaff. 2017*b*. "Lobbying Opponents or Allies? On the Importance of Issue-Context, Group Type and Institutional Environment." *Review of International Organisations* .

Blanes I Vidal, Jordi, Mirko Draca and Christian Fons-Rosen. 2012. "Revolving Door Lobbyists." *The American Economic Review* 102(7):3731–3748.

Burson Marsteller. 2005. "The Definitive Guide to Lobbying the European Institutions.". Retrieved October 24th, 2017.
URL: *http://www.eapn.ie/eapn/wp-content/uploads/2009/10/definitive-guide-to-lobbying-eu-institutions-training.pdf*

Caillaud, Bernard and Jean Tirole. 2007. "Consensus Building: How to Persuade a Group." *American Economic Review* 97(5):1877–1900.

Center for Health and Gender Equity. N.d. "The Lobbying Process: Basics and How-To Guide.". Retrieved 10-24-2017.
URL: *http://genderhealth.org/files/uploads/change/Tools_for_Advocacy/The_Lobbying_Process.pdf*

Chakraborty, Archishman and Rick Harbaugh. 2007. "Comparative Cheap Talk." *Journal of Economic Theory* 132(1):70–94.

Chakraborty, Archishman and Rick Harbaugh. 2010. "Persuasion by Cheap Talk." *American Economic Review* 100(5):2361–2382.

Chan, Jimmy, Seher Gupta, Fei Li and Yun Wang. 2018. "Pivotal Persuasion." *Unpublished manuscript* .
URL: *https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2688044 Retrieved 8/1/2018*

Crawford, Vincent P. and Joel Sobel. 1982. "Strategic Information Transmission." *Econometrica* pp. 1431–1451.

Denzau, Arthur T and Michael C Munger. 1986. "Legislators and Interest Groups: How unorganized interests get represented." *American Political Science Review* 80(1):89–106.

Dewatripont, Mathias and Jean Tirole. 1999. "Advocates." *Journal of Political Economy* 107(1):1–39.

Eső, Péter and Ádám Galambos. 2013. "Disagreement and Evidence Production in Strategic Information Transmission." *International Journal of Game Theory* 42(1):263–282.

Gentzkow, Matthew and Emir Kamenica. 2011. "Bayesian Persuasion." *American Economic Review* 101(6):2590–2615.

Groll, Thomas and Christopher J Ellis. 2014. "A Simple Model of the Commercial Lobbying Industry." *European Economic Review* 70:299–316.

Groll, Thomas and Christopher J Ellis. 2017. "Repeated Lobbying by Commercial Lobbyists and Special Interests." *Economic Inquiry* 55(4):1868–1897.

Groseclose, Tim and James M Snyder. 1996. "Buying Supermajorities." *American Political Science Review* 90(2):303–315.

Grossman, Sanford J. 1981. "The Informational Role of Warranties and Private Disclosure about Product Quality." *The Journal of Law & Economics* 24(3):461–483.

Gullberg, Anne Therese. 2008. "Lobbying Friends and Foes in Climate Policy: The case of business and environmental interest groups in the European Union." *Energy Policy* 36(8):2964–2972.

Hall, Richard L and Alan V Deardorff. 2006. "Lobbying as Legislative Subsidy." *American Political Science Review* 100(1):69–84.

Hall, Richard L and Kristina C Miler. 2008. "What Happens After the Alarm? Interest group subsidies to legislative overseers." *The Journal of Politics* 70(4):990–1005.

Hojnacki, Marie and David C Kimball. 1998. "Organized Interests and the Decision of Whom to Lobby in Congress." *American Political Science Review* 92(04):775–790.

Hojnacki, Marie and David C Kimball. 1999. "The Who and How of Organizations' Lobbying Strategies in Committee." *The Journal of Politics* 61(4):999–1024.

Holyoke, Thomas T. 2009. "Institutional Constraints on Legislative Lobbying: The case of Indian casino advocacy in New York." *The Social Science Journal* 46(4):756–775.

Igan, Deniz and Prachi Mishra. 2014. "Wall Street, Capitol Hill, and K Street: Political influence and financial regulation." *The Journal of Law and Economics* 57(4):1063–1084.

Jackson, Matthew O and Xu Tan. 2013. "Deliberation, Disclosure of Information, and Voting." *Journal of Economic Theory* 148(1):2–30.

Karamychev, Vladimir and Bauke Visser. 2016. "Optimal Signaling with Cheap Talk and Money Burning." *International Journal of Game Theory* 46(3):1–38.

Kartik, Navin. 2007. "A Note on Cheap Talk and Burned Money." *Journal of Economic Theory* 136(1):749–758.

Kollman, Ken. 1997. "Inviting Friends to Lobby: Interest groups, ideological bias, and congressional committees." *American Journal of Political Science* 41(2):519–544.

Kollman, Ken. 1998. *Outside Lobbying: Public opinion and interest group strategies*. Princeton University Press.

Krishna, Vijay and John Morgan. 2001. "A Model of Expertise." *The Quarterly Journal of Economics* 116(2):747–775.

Lipnowski, Elliot and Doron Ravid. 2017. "Cheap Talk with Transparent Motives.".
URL: *https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2941601 Retrieved on 7/5/2018*

Marshall, David. 2010. "Who to Lobby and When: Institutional determinants of interest group strategies in European Parliament committees." *European Union Politics* 11(4):553–575.

Mathis, Jérôme. 2008. "Full Revelation of Information in Sender–Receiver Games of Persuasion." *Journal of Economic Theory* 143(1):571–584.

Mian, Atif, Amir Sufi, Francesco Trebbi et al. 2013. "The Political Economy of the Subprime Mortgage Credit Expansion." *Quarterly Journal of Political Science* 8(4):373–408.

Milgrom, Paul R. 1981. "Good News and Bad News: Representation theorems and applications." *The Bell Journal of Economics* 12(2):380–391.

Schnakenberg, Keith E. 2017*a*. "The Downsides of Information Transmission and Voting." *Public Choice* 173(1-2):43–59.

Schnakenberg, Keith E. 2017*b*. "Informational Lobbying and Legislative Voting." *American Journal of Political Science* 61(1):129–145.

Wolton, Stephane. 2018. "Lobbying, Inside and Out: How special interest groups influence policy choices." *Unpublished manuscript.* .
URL: *https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2190685* *Retrieved on 8/1/2018.*