Informational Lobbying and Agenda Distortion

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This article challenges the prevailing view that pure informational lobbying (in the absence of political contributions and evidence distortion or withholding) leads to better informed policymaking. In the absence of lobbying, the policymaker (PM) may prioritize more promising issues. Recognizing this, interest groups involved with other issues have a greater incentive to lobby in order to change the issues that the PM learns about and prioritizes. We show how informational lobbying can be detrimental, in the sense that it can lead to less informed PMs and worse policy. This is because informational lobbying can lead to the prioritization of less important issues with active lobbies, and can crowd out information collection by the PM on issues with more likely beneficial reforms. The analysis fully characterizes the set of detrimental lobbying equilibria under two alternative types of issue asymmetry. (*JEL* D72, D78, D83)

1. Introduction

Formal models of political lobbying tend to assume that interest groups (IGs) influence policymakers (PMs) through the provision of either money or information. First, special interests may provide political contributions to PMs in exchange for policy favors (e.g., Tullock 1980; Grossman and Helpman 1994). Second, special interests may collect and share policy relevant information in order to influence PMs' beliefs about the relative merits of alternative policy choices (e.g., Milgrom and Roberts 1986; Austen-Smith and Wright 1992). Influence through payments is widely viewed as corrupt, as it shifts policy away from the needs of constituents and toward the preferences of deep-pocketed special interests (see e.g., Grossman and Helpman 2001). Influence through information, on the other hand, is often seen as beneficial, as it leads to better informed policymaking (e.g., Austen-Smith and Wright 1992; Cotton 2009). Several accounts of the policymaking process in the United States (e.g., Bauer et

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The authors thank Marc-André Bodet, Micael Castanheira, Steve Coate, Philippe De Donder, Martin Gregor, Thomas Groll, Nicolas-Guillaume Martineau, Paolo Roberti and Zara Sharif, as well as participants at a number of seminars and workshops for their helpful comments.

The Journal of Law, Economics, and Organization, Vol. 32, No. 4
doi:10.1093/jleo/eww005
Advance Access published June 1, 2016

al. 1963; Hansen 1991; Hall 1996; Wright 1996) argue that special interests' activities typically consist of collecting and sharing information with PMs rather than the quid pro quo exchange of money for favors.[1] The observation has led some to conclude that special interests' activities actually help improve policymaking and are beneficial to constituents.[2]

Our analysis challenges the view that informational lobbying (henceforth IL), in the absence of political contributions and information distortion, is a beneficial type of IG activity. To develop our argument, we present a simple model of informational lobbying that does not include traditional channels through which lobbying distorts policymaking in favor of special interests. We assume that the only means of IG influence is through the collection of policy-relevant information. There are no political contributions or private information, which rules out corruption and deception as reasons for lobbying to be harmful. Even though we block the traditional channels for detrimental effects of lobbying, we still show that lobbying can lead to systematically worse policy. This is because IL has the potential to shift the PM's attention away from the issues constituents would like to see prioritized, and to focus it on issues on which special interests have greater incentives to lobby.

In our model, a PM, who shares policy preferences with his constituents, must decide whether to implement a proposed reform or keep the status quo on each of two issues. The PM can exert effort to learn about alternative reforms before deciding which reform, if either, to implement. Because the PM faces private costs of learning, an agency problem arises between the PM and his constituents, with the PM possibly choosing to remain less informed than his constituents prefer. We model lobbying as information collection: IGs advocating on behalf of separate reforms may collect evidence about the merits of their preferred reform (or subsidize the direct collection of information by the PM or his staff). There is strategic substitutability between IG and PM information acquisition, and information provided by IGs may reduce the PM's incentives to learn about other issues and change the order in which the PM prioritizes issues.

1. Additionally, Ansolabehere et al. (2002) presents evidence that groups which contribute do so to secure access rather than engage in bribery, and de Figueiredo and Cameron (2006) report that in the late 1990s, special interests in the United States spent five times more on lobbying than on campaign contributions, suggesting that the acquisition and communication of information makes up the majority of IG political spending.

2. As Baumgartner et al. (2009: 124) writes: "There is evidence that organizational advocates are often successful in getting Congress to make policy decisions that are informed by research and the technical expertise that they provide." As a US Senator in 1956, Kennedy (1956) wrote: "Lobbyists are in many cases expert technicians capable of examining complex and difficult subjects in clear, understandable fashion. They engage in personal discussion with members of Congress in which they explain in detail the reasons for the positions they advocate... The lobbyists who speak for the various economic, commercial and other functional interests of the country serve a useful purpose and have assumed an important role in the legislative process."

In the absence of lobbying, the PM may exert effort to learn about the more promising issue. (Depending on the situation, the more promising issue may refer to the more important issue, or to the issue where reform is more likely beneficial.) In our framework, lobbying may be beneficial if it increases the number of issues that the PM learns about, allowing him to better compare the merits of reforms on different issues. Lobbying may be detrimental, however, if it leads the PM to shift consideration away from more promising issues, and toward less promising issues with an active IG.

A necessary condition for informational lobbying to be detrimental is that only the IG involved with the less promising issue lobbies in equilibrium. This means that the IG on the less promising issue must prefer to lobby, which requires that in the absence of lobbying, the PM has a low probability of ever implementing reform on the less promising issue. This is the case when the more promising issue is promising enough that without lobbying, the PM implements reform on that issue without collecting evidence, or that the PM collects evidence on the more promising reform and his chances of getting favorable evidence are high. At the same time, the IG associated with the more promising issue must not have sufficient incentives to engage in counteractive lobbying in an effort to offset the lobbying efforts of the IG involved with the less promising issue. This is the case when the probability of getting favorable evidence in support of the less promising reform is low enough that the IG associated with the other, more promising issue refrains from lobbying, hoping that the other IG will fail in its efforts at getting favorable evidence and that the PM will proceed with the more promising issue just as the PM would do in the absence of lobbying. The analysis identifies conditions under which such behavior takes place in equilibrium and leads to worse policy outcomes.

Key to our analysis are three features of the policymaking process which we incorporate into our model. The first feature is that policymaking is restricted by time and budget constraints. PMs lack the time and resources to attend to all problems that deserve attention, and must therefore set their agenda, deciding which issues to prioritize.[3] The second feature is that PMs do not always need IGs and lobbying to learn about an issue and implement a policy. There are many instances where PMs can collect information on their own, for example, through their own staff or government agencies, by holding legislative hearings, or by spending time in their districts in order to better understand the needs of their constituents. Thus, even in the absence of lobbying, a PM may work to learn about and implement reforms that are sufficiently promising. The third feature is an agency problem between PMs and their constituents. PMs must bear

3. As Hansen (1991: 2) writes: "Limited in time, attention and resources, lawmakers cannot attend to all [problems], but they must attend to some. The decisive stage of IG influence, therefore, is the choice of the problems and pressures to which to respond." Hall (1996), Jones and Baumgartner (2005), and Bauer et al. (1963), among others, make similar observations.

private costs of learning about issues (e.g., opportunity costs of spending time in their districts to get a better sense of which policies would benefit their constituents), costs for which constituents cannot or are unwilling to compensate PMs.

In our framework, all three of these features are necessary for informational lobbying to lead to worse policy. This happens since IGs may collect information on different issues than a PM who would choose to learn about in the absence of lobbying, which can weaken the PM's incentives to learn on his own about the other issues, and can then alter the priority the PM gives to the different issues. In the absence of lobbying, a PM prefers to collect information on the more promising reform. With lobbying, he may become informed about the less promising reform, and may prefer to immediately implement that reform, rather than exert additional effort to also learn the merits about the more promising reform. In essence, informational lobbying provides an informational subsidy which can alter PMs' incentives to collect information on their own and induce them to shift their attention from issues with more promising reforms to issues with less promising reforms with active lobbies. This shift in PMs' attention away from issues with the most promising reforms can lead to worse policy decisions.

The analysis considers how detrimental lobbying differs in a case where issues differ in terms of their importance, and in a case where reforms differ in terms of their expected merits. For both cases, we characterize the necessary and sufficient conditions for IL to lead to worse policy compared to an alternative setting in which lobbying is not allowed. In the first case, lobbying is detrimental when it shifts priority from the issue with more promising reform to the issue with less promising reform. In this case, lobbying simultaneously increases how informed the PM expects to become, and decreases the expected quality of the policy outcome. In the second case, lobbying is detrimental when it crowds out the PM's own information collection efforts and leads to less informed policymaking, in expectation. Here, lobbying is detrimental precisely because it leads to a less informed PM. In both cases, necessary and sufficient conditions are identified such that informational lobbying leads to worse policy. Specifically, in each case: (1) IGs' information collection must induce a shift in the PM's attention resulting in the alignment of the policy agenda on the priorities of active lobbies; (2) among IGs, only those involved with the less promising issue have sufficiently strong incentives to collect information and lobby; and (3) the agenda distortion resulting from the shift in the PM's attention is harmful to constituents.

The analysis further considers (1) how the presence of informational lobbying affects the probability with which the PM makes the same policy choice he would make if he were fully informed; (2) the relationship between detrimental lobbying and reforming the more promising issue; (3) the IGs' motives for lobbying; and (4) the preference alignment between the PM and active lobbies. Of particular interest are the results that

informational lobbying can lead to better informed, but worse policy choices, and that even friendly lobbying (i.e., IGs lobbying a PM whose position is already biased in their favor) can lead to worse policy.

Our argument is consistent with empirical descriptions of the policy-making process. In our model, the policy agenda may not be aligned with the policy priorities of constituents, but rather with the "lobbying agenda" pushed by active IGs. This is consistent with Baumgartner et al. (2009), which presents evidence that the most active IGs are *not* involved with the issues where the public views reform as most promising. It is also consistent with, and Cohen-Eliya and Hammer (2011: 280), which describes how "lobbying distorts the democratic process by manipulating the over-crowded public agenda and prioritizing specific issues that are determined by lobbyists," helping IGs "jump the queue" on the policy agenda. Lessig (2011) provides an example of agenda distortion by IGs. In a related way, Caldeira and Wright (1988) provides evidence suggesting that IGs' activity, in the form of amicus curiae briefs, influences the US Supreme Court's decisions of which cases to review. These accounts are consistent with our argument that IGs involved with less promising reforms lobby in an effort to change PMs' priorities and alter the policy agenda. We make this point in a model of informational lobbying, although the logic at the foundation of our argument may apply to other types of lobbying as well.

The remainder of the article is organized as follows. Section 2 reviews the most relevant literature. Section 3 presents our baseline model. Sections 4 and 5 derive and discuss our main results. Section 6 concludes. All proofs are in the Appendix. An Online Appendix studies extensions to the model.

2. Related Literature

There is an extensive literature on informational lobbying and persuasion. Most closely related to our analysis are the papers in which IGs or a policymaker actively collect information.[4] Austen-Smith and Wright (1992), Dewatripont and Tirole (1999), Bennedsen and Feldmann (2002, 2006), and Dahm and Porteiro (2008a, 2008b) consider such models in

4. In other settings, IGs are endowed with information, which they try to communicate to a decision-maker. For example, in Potters and van Winden (1992), Austen-Smith (1995), and Lohmann (1995), IGs have private, non-verifiable information, which they may be able to convey to a PM through a combination of cheap talk and signaling through political contributions. In Milgrom and Roberts (1986), special interests with conflicting interests are endowed with verifiable information about the state of the world, and engage in a game of strategic information transmission. Additionally, Dessein (2002) considers whether a decision-maker is better off communicating with or delegating authority to a better informed expert; Argenziano et al. (forthcoming) models a similar setting when information by an expert is costly. Pei (2015) considers a related environment in which experts collect information before communicating with a decision-maker. The information structure in these papers differs from ours in that information is unverifiable, communication is cheap talk, and the decision-maker is unable to collect information on his own.

which IGs collect verifiable or public information (e.g., a signal realization that is correlated with the true state), which can influence a PM's beliefs about the best policy. These papers differ from ours in at least two fundamental ways: (1) they assume that the PM has no firsthand access to information; and (2) they consider a policy choice on a single issue, which eliminates the agenda setting considerations at the heart of our analysis. Lagerlöf (1997) also considers a model in which an IG chooses to collect verifiable information. As in our paper, informational lobbying can lead to inefficient policymaking. However, the source of inefficiency is different. First, in Lagerlöf (1997), the PM cannot collect information on his own. This contrasts with our setting where the inefficiency comes from the effect that IGs' information collection has on the PM's own information collection. Second, in Lagerlöf (1997), the inefficiency comes from the PM not directly observing the IG's information collection, resulting in the IG collecting too much information on average, as it searches for favorable evidence to show to the PM. By contrast, in our setting, IGs do not have private information, and their information collection is directly observed by the PM.[5]

Some papers consider the politician's choice of whether or how to acquire information. In Cotton and Li (2015), a PM chooses how informed to be on an issue ahead of a monetary lobbying game. There, the politician may prefer to remain uninformed, since a clueless politician expects higher payments from IGs. Unlike in the current paper, IGs can only provide payments (not information) in their efforts to influence policy. In other papers, a politician chooses how to allocate attention to different issues, where attention (e.g., giving access to an IG, reviewing verifiable information) is necessary for learning about optimal policy. These models focus on how a PM may restrict the set of issues he is willing to learn about in order to collect higher political contributions (e.g., Austen-Smith 1998; Cotton 2012), or how selling attention to the highest bidders can improve policy outcomes (e.g., Cotton 2009, forthcoming). The current article abstracts from monetary payments, and shows how even in the absence of monetary concerns, informational lobbying may be detrimental for policy.

Rasmusen (1993) studies strategic information transmission by IGs, and like us assumes that the PM can acquire firsthand information. However, Rasmusen considers a single issue and therefore cannot capture the agenda-setting considerations that are key to our analysis. He still finds that informational lobbying may lead to worse policy if IGs can sometimes deceive (i.e., tell lies to) the PM. Deception is absent from

5. Brocas and Carrillo (2007), Brocas et al. (2012), and Gul and Pesendorfer (2012) present models of persuasion in which agents decide how much public information to produce before a decision-maker takes an action. In addition to focusing on a different set of questions, these papers differ from ours in that they do not allow for firsthand evidence collection by the decision-maker and they consider a single (policy) decision.

our framework. Some scholars argue it rarely occurs in practice. This is because, as Berry (1997: 121) notes, "credibility comes first" for lobbyists, and Hansen (1991) describes how IGs must maintain a reputation for reliability in order to maintain access to PMs.[6]

More generally, our article is related to a vast literature in which a politician or other decision-maker chooses how to allocate scarce time or resources (e.g., Holmstrom and Milgrom 1991). Esteban and Ray (2006) study a lobbying game in which a PM must allocate a limited number of licenses to firms differing in their productivity and in their wealth. Wealth differences imply differences in firms' ability to lobby the PM. Like us, they consider a multidimensional policy space and introduce a constraint on the PM's agenda, and find that lobbying can lead to worse policy decisions. However, the driving force underlying the result is different in the two papers. In Esteban and Ray (2006), the inefficiency comes from the PM not observing firms' productivities and wealth, an information asymmetry which is not present in our setting. Moreover, the PM cannot collect information on his own, which in our framework is necessary for informational lobbying to be detrimental.

Additionally, Coviello et al. (2014) show how pressure from clients can lead to inefficient prioritizing of tasks by firms. Dellis (2009) shows how elections can induce a PM to address a different set of issues in an effort at changing the issues on which citizens will base their voting decisions. Daley and Snowberg (2011) show how politicians may prioritize fundraising rather than legislating when they are concerned about signaling their competence to voters. In this way, a similar agency problem exists between constituents and a PM, with the PM spending less time or effort learning about or implementing policy than constituents would prefer. However, their model does not include either IGs or lobbying. While Daley and Snowberg focus on implications for campaign finance reform, there are no political contributions and thus no role for campaign finance reform in our framework. Our results suggest that even in the absence of campaign contributions, informational lobbying can distort policy. Thus, unlike in Daley and Snowberg, banning contributions in our model does not ensure that the PM takes the action preferred by voters.

Finally, our article is related to a series of models in which informational lobbying is intended to mobilize friendly legislators, rather than to change their policy preferences. Hall (1996) argues that legislators lack time and that IGs offer political contributions to friendly legislators in exchange for them investing time on the IG's issue. In a similar spirit, in Hall and Deardorff (2006), IGs act as "service bureaus" for friendly

6. See also Ainsworth (2002: 132), Rosenthal (1993: 121), and Ornstein and Elder (1978: 77).

legislators with the purpose of relaxing the time and resource constraints they face.[7] Like in these papers, we consider IGs subsidizing a PM, through information provision in our framework. However, these papers differ from ours in an important way. While they seek to explain IGs lobbying friendly legislators, we look at the implications of IGs' information provision on constituent welfare.

3. A Model of Informational Lobbying

We develop our argument using a simple model of IL, which we generalize along several dimensions in the Online Appendix.

A risk-neutral PM has to take action on two issues, indexed by $n = 1, 2$. An issue can be interpreted literally (e.g., abortion, same-sex marriage, or gun control) or as a public investment project (e.g., a new bridge or a sports arena). We denote a policy by $p = (p_1, p_2)$, where $p_n \in \{R_n, S_n\}$ is the policy on issue n. Policy $p_n = R_n$ corresponds to the adoption of a policy reform or the funding of a public investment project. Policy $p_n = S_n$ corresponds to keeping the status quo. Given time and budget constraints, the PM is able to implement at most one reform or public investment project.

The state of the world on issue n is given by $\theta_n \in \{r_n, s_n\}$. State r_n corresponds to circumstances in which the electorate benefits from reforming issue n, and state s_n corresponds to circumstances in which the electorate benefits from keeping the status quo. The state of the world on each issue is initially unknown to all players, although the distribution is common knowledge:

$$\theta_n = \begin{cases} r_n & \text{with prob.} \quad \pi_n \in (0, 1) \\ s_n & \text{with prob.} \quad 1 - \pi_n. \end{cases}$$

The PM and the electorate (a passive player in our model) share the same preferences over policy. Given policy $p = (p_1, p_2)$ and state of the world $\theta = (\theta_1, \theta_2)$, the electorate's payoff, or policy utility, is

$$u(p, \theta) = \alpha u_1(p_1, \theta_1) + u_2(p_2, \theta_2),$$

where $\alpha \geqslant 1$ represents the importance of issue 1 relative to issue 2, and

$$u_n(p_n, \theta_n) = \begin{cases} 1 & \text{if } (p_n, \theta_n) \in \{(R_n, r_n), (S_n, s_n)\} \\ 0 & \text{if } (p_n, \theta_n) \in \{(R_n, s_n), (S_n, r_n)\} \end{cases}$$

represents policy utility over issue n. Hence, for each issue, the PM and the electorate prefer the policy and the state of the world to coincide.

Throughout the article, we adopt ex ante expected policy utility, $Eu(p, \theta)$, as the measure of policymaking effectiveness and electorate welfare.

7. This idea, and the term "service bureaus," is older than Hall and Deardorff (2006). The description of lobbyists and IGs as service bureaus goes back to at least Bauer et al. (1963). See also Wright (1996).

If the PM knew θ, then he could choose p to maximize $u(p, \theta)$. However, the PM is ex ante uncertain about θ. Before choosing policy p, the PM may observe information about θ, which may be collected by either the IGs or the PM.

3.1 Information Generation by IGs

There are two IG advocates, each representing a separate issue. The IG for issue n (hereafter IG_n) prefers the reform R_n to the status quo S_n, regardless of the state θ_n. IG_n's payoff from policy p is $v_n(p_n) = 1$ when $p_n = R_n$ and $v_n(p_n) = 0$ when $p_n = S_n$. It is worth mentioning that the important feature for our results is not that IGs are advocates, but rather that they are single-issue minded (i.e., that they care only about their own issue).[8]

There is no private information, and like the PM, IGs are ex ante uncertain about the state of the world θ. In the first stage of the game, IGs simultaneously decide whether to collect public information on the state of their issue. If it chooses to do so, IG_n pays cost $c > 0$ and θ_n becomes publicly observable. Information cannot be distorted or concealed from the PM.[9]

Each IG's strategy determines whether or not it lobbies. In our setting, lobbying corresponds to collecting information. IGs' pure strategies are given by $\ell = (\ell_1, \ell_2)$, where $\ell_n = 1$ if IG_n chooses to lobby and $\ell_n = 0$ otherwise. We denote by $m(\ell, \theta) = (m_1, m_2)$ the signals received by the IGs, with $m_n = \theta_n$ when IG_n collects information and $m_n = \emptyset$ when IG_n does not. Let γ_n denote the PM's interim belief that $\theta_n = r_n$ following any lobbying by IG_n. If IG_n collects information, $\gamma_n \in \{0, 1\}$. If IG_n does not collect information, $\gamma_n = \pi_n$.

3.2 Information Collection by the PM

Following lobbying by the IGs, the PM can collect firsthand information on the state of the world. His information collection involves a sequential decision. He decides which, if either, issue to collect information about first, and then after learning about that issue decides whether to also collect information about the second issue. If he collects information on issue n, the PM pays cost $d > 0$ and θ_n becomes publicly observed.

Let $\sigma = (\sigma_1, \sigma_2)$ denote the PM's information collection strategy, where $\sigma_1 \in \{1, 2, \emptyset\}$ specifies the issue the PM decides to investigate first, and $\sigma_2 \in \{1, 2, \emptyset\}$ the issue he decides to investigate second. If the PM chooses to not collect any information on his own, then $\sigma_1 = \sigma_2 = \emptyset$. The decision about whether to collect information on a first issue can condition on signals obtained by IGs, (m_1, m_2). The decision about whether to collect

8. Indeed, our results carry over to a setting in which IGs share the same policy preferences as the electorate on their own issue, that is, IG_n's payoff from policy p is $v_n(p_n, \theta_n) = u_n(p_n, \theta_n)$.

9. This setting is equivalent to one in which the PM observes IGs' decisions to collect verifiable information and IGs decide whether to reveal their information, as IGs will always choose to reveal favorable information in equilibrium.

information on a second issue can condition on (m_1, m_2) and on the signal obtained on the first issue the PM chooses to investigate. For example, the PM may choose to collect information on issue 1 first, and to collect information on issue 2 only if $\theta_1 = s_1$. Let $m^{PM} = (m_1^{PM}, m_2^{PM})$ denote the signals obtained by the PM, with $m_n^{PM} = \theta_n$ when the PM collects information about issue n and $m_n^{PM} = \emptyset$ when the PM does not.

3.3 Policy Selection

After the IGs and the PM have had the opportunity to collect information, the PM chooses policy. On each issue n, he chooses between keeping the status quo $p_n = S_n$ and adopting reform $p_n = R_n$. Denote the PM's policy strategy by p, which can condition on information about the state of the world revealed through IG lobbying and the PM's own information collection efforts (m, m^{PM}).

Let β_n denote the PM's posterior belief that $\theta_n = r_n$ following any lobbying by the IGs and any information collection on his own. If either the IG or the PM collected information on issue n, then $\beta_n \in \{0, 1\}$. If no one collected information on issue n, then $\beta_n = \pi_n$.

3.4 Payoffs

Given policy p, IG_n earns payoff $v_n(p_n) - c$ if it lobbied and $v_n(p_n)$ if it did not. The electorate gets policy utility $u(p, \theta)$. Finally, the PM earns payoff $U^{PM} = u(p, \theta) - 2d$ if he collected firsthand information on the two issues, $U^{PM} = u(p, \theta) - d$ if he collected firsthand information on only one issue, and $U^{PM} = u(p, \theta)$ if he collected no firsthand information. Given signals (m, m^{PM}), the PM chooses policy that maximizes expected policy utility given his posterior beliefs $\beta = (\beta_1, \beta_2)$ on θ, $E_\beta u(p, \theta)$. However, the PM faces costs of information collection which are not shared with the electorate. The PM may, therefore, choose to remain uninformed about an issue on which the electorate would prefer him to become informed. In this way, there exists an agency problem between the PM and the electorate.[10]

3.5 Timing

In stage 0, nature chooses the state θ_n for each issue n. States are drawn independently across issues. In stage 1, IGs decide simultaneously and non-cooperatively whether to collect information on their respective issues, that is, whether to lobby.[11] When IG_n collects information, θ_n is

10. There are issues setting up a contract or institution to ensure that the PM collects the information if the PM's efforts are unobservable, if the electorate is unwilling to cover the PM's information collection costs once an IG has provided information, if the electorate is unable to credibly commit to compensate the PM for his information collection costs, or if it is infeasible to compensate the PM for undertaking information collection.

11. The assumption that IGs move simultaneously is standard in the literature. This corresponds to circumstances in which the PM has a short time span to make his policy decision (e.g., because of a looming election) or to circumstances in which information collection takes time, so that an IG cannot wait to see the signal collected by other IGs before making its own

observed by the IG and the PM. In stage 2, the PM decides whether to collect information on his own. In stage 3, the PM chooses policy.

3.6 Equilibrium

We consider pure strategy perfect Bayesian equilibria. Loosely speaking, an equilibrium consists of strategies ℓ^*, $\sigma^*(.)$ and $p^*(.)$, and beliefs $\gamma^*(.)$ and $\beta^*(.)$ such that (1) at every decision stage each player takes an action that maximizes his expected payoff given his beliefs and others' behavior, and (2) beliefs are derived using Bayes' rule and are consistent with equilibrium strategies and the priors. In case of indifference between collecting and not collecting information on an issue, we assume that the PM or an IG chooses to collect information. Likewise, in case of indifference between adopting and not adopting a reform, the PM chooses to adopt the reform.

3.7 Detrimental IL

We have described above a model in which IGs are present, and where lobbying involves the collection of information about the merits of one's preferred reform. Our analysis involves comparing the above game to one in which there are no IGs, or in which IL is not feasible or allowed. This game is similar to the one described above except that IGs are removed as players. We refer to this game as the game without IGs and to the game described above as the game with IGs.

To study the implications of IL, we compare these two games. Throughout the article, we use electorate's equilibrium ex ante expected policy utility $Eu(p, \theta)$ as our measure of policymaking efficiency, and focus on determining conditions under which this measure is lower in the presence of IGs. We say that IL is *detrimental,* if $Eu(p^{IL}, \theta) < Eu(p, \theta)$, where p is the equilibrium policy in the game without IGs and p^{IL} is the equilibrium policy in the game with IGs.

3.8 Extensions

In the baseline model, we make several assumptions that simplify the exposition of our argument. In an Online Appendix, we generalize our argument along several dimensions and investigate the robustness of our conclusions. First, we consider a setting in which the PM is limited on the number of issues he can investigate on his own. Second, we consider a situation in which the PM collects information simultaneously instead of sequentially. Third, we reverse the sequence of information collection, the

information collection decision. Having said this, there are other circumstances in which IGs may be able to make information collection decisions sequentially. All our results are robust to having the IG involved with the more promising issue collecting information first. Moreover, the result stated in Proposition 2 is robust to having the IG involved with the issue with lower priors moving first. However, the result stated in Proposition 1 is not robust to having the IG involved with the less promising issue moving first.

PM moving first and the IGs second. Fourth, we introduce asymmetries in information collection costs and asymmetries in signal precision across issues. Fifth, we consider a setting in which for each issue there are two IG advocates with conflicting interests, one IG in favor of the reform and another IG in favor of the status quo. Finally, we discuss the robustness of our results to measures of policymaking effectiveness other than ex ante expected policy utility.

4. Detrimental Informational Lobbying

This section identifies situations in which IL is detrimental in equilibrium. First, we present an example in order to build intuition for the more formal analysis. Then we present a necessary condition for IL to be detrimental, before fully characterizing detrimental IL in two polar cases: one in which issues differ only in their relative importance (i.e., $\alpha > 1$ and $\pi_1 = \pi_2$) and another in which issues differ only in priors (i.e., $\alpha = 1$ and $\pi_1 > \pi_2$). In each of these two cases, we identify regions of the parameter space in which IL is detrimental.

4.1 An Example

We begin with an illustrative example showing how the presence of IL can distort the policy agenda and be detrimental. Consider a situation in which issues differ only in their relative importance. We choose specific parameter values to make the example straightforward. Assume

- $\alpha = 3$, i.e., issue 1 is three times as important as issue 2;
- $\pi_1 = \pi_2 = 2/5$, that is, the status quo is ex ante more preferable than implementing a reform; and
- $c = 1/3$ and $d = 1$.[12]

Consider first the equilibrium in the game without IGs. Given our parameter values, the PM prefers to collect information on issue 1, and then implement policy $p = (R_1, S_2)$ when $\theta_1 = r_1$ and $p = (S_1, S_2)$ when $\theta_1 = s_1$. This strategy gives the PM an expected payoff of $U^{PM} = \alpha + (1 - \pi_2) - d = 13/5$, which is higher than his expected payoff of alternative information collection strategies. Indeed, collecting no information before acting on his priors and implementing $p = (S_1, S_2)$ yields $U^{PM} = (1 - \pi_1)\alpha + (1 - \pi_2) = 12/5 < 13/5$, and collecting information on issue 2 is never optimal since the information collection costs d are larger than the expected gain, equal to π_2. In equilibrium, the PM considers reforming the most important issue, but ignores the less important

12. Notice that c and d give the cost of information collection for a player *relative* to that player's potential policy benefit. Therefore, $c \neq d$ does not mean that IGs have access to a different information collection technology than the PM. They may both face the same monetary costs of information collection; however, it is also possible that IGs face lower costs of collecting information on their issue.

issue. The PM always implements the best policy on issue 1, and keeps the status quo on issue 2 regardless of θ_2. Electorate welfare in this case is $Eu(p, \theta) = \alpha + (1 - \pi_2) = 18/5$.

Consider next the game with IGs. In equilibrium, only IG_2 lobbies. When IG_2 gets favorable information (i.e., $m_2 = r_2$), the PM chooses $p = (S_1, R_2)$ without collecting any information on issue 1. When IG_2 gets unfavorable information (i.e., $m_2 = s_2$), the PM responds by collecting information on issue 1 and then implementing either $p = (R_1, S_2)$ or $p = (S_1, S_2)$ depending on θ_1. We now verify that these are indeed the strategies in the equilibrium of the game with IGs.

First, we establish that IG_2 prefers to lobby. This is because in the absence of lobbying, the PM ignores issue 2 (as we established above). For IG_2, lobbying yields an expected payoff of $\pi_2 - c = 1/15$, which is higher than the payoff of 0 from not lobbying.

Second, consider the PM's action in response to lobbying in which he learns that the reform on issue 2 is beneficial (i.e., $m_2 = r_2$). Even though the PM cares more about issue 1 than issue 2, he is not sure which policy is better on issue 1, contrary to issue 2. Furthermore, even if the PM were to collect information on issue 1 and learn that reform on issue 1 is beneficial (i.e., $m_1^{PM} = r_1$), implementing the reform on issue 1 would involve forgoing the reform on issue 2, which he already knows to be preferable to the status quo; this reduces the expected gain from collecting information on issue 1 compared to the case where the PM is not informed about issue 2 and, a fortiori, to the case where the PM knows the status quo to be preferable on issue 2. In equilibrium, following the revelation that $m_2 = r_2$, the PM chooses not to collect information on issue 1 (earning $U^{PM} = (1 - \pi_1)\alpha + 1 = 14/5$) rather than collecting information on issue 1 before choosing policy (alternatively earning $U^{PM} = \alpha + (1 - \pi_1) - d = 13/5 < 14/5$).

Third, consider the PM's action when he learns that the reform on issue 2 is not beneficial (i.e., $m_2 = s_2$). In this case, the PM chooses to learn about issue 1 prior to choosing policy (earning $U^{PM} = \alpha + 1 - d = 3$) over not collecting information on issue 1 and keeping the status quo on both issues (alternatively earning $U^{PM} = (1 - \pi_1)\alpha + 1 = 14/5 < 3$). The key difference between the case where $m_2 = s_2$ and $m_2 = r_2$ is that when $m_2 = s_2$, the gain of adopting the reform on issue 1 following signal $m_1^{PM} = r_1$ is higher, as it does not involve forgoing a reform on issue 2 which is already known to be beneficial.

Fourth, it remains to consider the decision of IG_1 not to lobby. It is essential that IG_1 does not engage in counteractive lobbying in order to offset the lobbying efforts of IG_2, as lobbying by both IGs would lead to a fully informed PM who can always choose the policy that maximizes $u(p, \theta)$. In the absence of lobbying by IG_2, IG_1 would never have an incentive to lobby because the PM will himself collect information on issue 1 (as we established in the game without IGs). When IG_2 lobbies, however, there is a positive probability that IG_2 succeeds in its lobbying efforts, and

the PM implements the reform on issue 2 without first learning about issue 1. By lobbying, IG_1 can maintain priority on the PM's agenda, and expects payoff $\pi_1 - c = 1/15$. By not lobbying, on the other hand, IG_1 loses priority, but also saves lobbying costs, expecting payoff $(1 - \pi_2)\pi_1 = 6/25 > 1/15$. Thus, IG_1 prefers not to lobby, hoping that IG_2 fails to get favorable information, in which case the PM will collect his own information on issue 1.

In the equilibrium of the game with IGs, the PM always implements the best policy on issue 2, and implements the best policy on issue 1 only if $\theta_1 = s_1$ or IG_2's lobbying efforts are unsuccessful (i.e., $\theta_2 = s_2$). Electorate welfare in this case is $Eu(p^{IL}, \theta) = \alpha(1 - \pi_2\pi_1)+1 = 88/25(< 18/5 = Eu(p, \theta))$. Comparing $Eu(p, \theta)$ with $Eu(p^{IL}, \theta)$ establishes that IL is detrimental. This happens because equilibrium lobbying by IG_2 changes the PM's incentives to collect information on his own, inducing the PM to change his priorities and triggering a distortion in the policy agenda.

To summarize, if there were no lobbying, the PM would take it upon himself to learn about the more important issue before choosing policy. Because the PM never considers reforming the less important issue, it is conceivable that IL would improve policymaking if it resulted in the PM becoming informed about the two issues. In that case, the PM would still prioritize issue 1, but would not ignore issue 2 if he discovers unfavorable information on the more important issue. But, the analysis shows that this is not the case. Instead, only the IG involved with the less important issue chooses to lobby, and when it gets favorable information, the PM no longer finds it worthwhile to devote resources towards reviewing the reform on the more important issue, and instead chooses to adopt the reform on the less important issue. Only when IG_2's efforts reveal that the reform on the less important issue is not beneficial does the PM go on to review the more important issue. This means that the presence of IGs leads the PM to be more often informed about the less important issue, and less often informed about the more important issue. Comparing expected equilibrium policy utility in the two scenarios establishes that IL results in worse policy compared to the case without IL.

4.2 Necessary Conditions

Our argument relies on two fundamental assumptions that are incorporated into our model. First, our argument requires that the PM is able to implement at most one reform. The PM must, therefore, set his agenda, deciding which issue to prioritize. This introduces the possibility that lobbying changes the priorities of the PM. Second, our argument requires that the PM can collect information on his own, and therefore may become informed about policy even in the absence of lobbying. This introduces the possibility that lobbying changes the issues on which the PM becomes informed. If the PM is not constrained on the number of issues he

can reform, or if he cannot learn about issues on his own, then in no equilibrium is IL detrimental.[13]

The following lemma identifies an additional requirement for IL to be detrimental.

Lemma 1 For $Eu(p^{IL}, \theta) < Eu(p, \theta)$, it must be that $\alpha \neq 1$ and/or $\pi_1 \neq \pi_2$, i.e., issues differ in their relative importance and/or their priors.

The lemma rules out the case where issues are equally important ($\alpha = 1$) and their reform proposals are equally likely to be beneficial ($\pi_1 = \pi_2$). Essentially, this condition means that the PM must value information on one issue more than he values information on the other issue. The intuition underlying this condition relies on the fact that when $\alpha = 1$ and $\pi_1 = \pi_2$, IL can lead to worse policy only if the expected number of issues on which the PM gets informed is smaller in the game with IGs than in the game without IGs. For this to be true, it would have to be that (1) in the game without IGs, the PM collects information on both issues with a positive probability, and (2) in the game with IGs, information collection by one IG deters the PM from collecting information on the other issue. This cannot be true if the PM values equally the information on each issue.

4.3 Detrimental IL When Issues Differ in their Relative Importance

We now analyze the polar case in which issues differ only in their relative importance. Specifically, we assume $\pi_1 = \pi_2$ and $\alpha > 1$. We refer to this case as the α-case.

In the game without IGs, the PM will choose either to learn about neither issue ($\sigma_1 = \sigma_2 = \emptyset$), or to learn about the more important issue during the first step of his information collection ($\sigma_1 = 1$). Because the two reforms are equally likely to be beneficial, the PM prefers to prioritize information collection on the more important issue. If he chooses to learn about neither issue, then IL cannot be detrimental, as it can only expand the set of issues on which the PM becomes informed before choosing policy. Therefore, for lobbying to be detrimental, the PM must begin by learning about issue 1 on his own in the absence of lobbying. If this information search on issue 1 yields favorable evidence ($m_1^{PM} = r_1$), then the PM will implement the reform on issue 1 and will keep the status quo on issue 2. In this way, the PM gives priority to the more important issue, choosing to rule out reform on issue 1 before considering reform on issue 2.

For lobbying to be detrimental, it must shift the PM's priority away from the more important issue and to the less important issue. For this to be the case, only IG_2 can lobby in equilibrium of the game with IGs, and when successful in showing $m_2 = r_2$ this lobbying must cause the PM to implement the reform on issue 2 without collecting his own information

13. The Online Appendix contains a formal proof of this claim.

on issue 1. IL cannot be detrimental if the PM still always becomes informed about issue 1 before choosing policy. This is the case if the PM always collects information himself about issue 1 before choosing policy, or if IG_1 engages in 'counteractive lobbying' to prevent the priority shift to the other issue. In each of these two situations, IL will not be detrimental as the PM will still prioritize issue 1, implementing the reform on issue 1 whenever it is beneficial. The following lemma establishes this formally.

Lemma 2 For IL to be detrimental in the α-case, the two following conditions must each be satisfied:

(L2.1) In the game without IGs, the PM prioritizes issue 1, learning about it first (i.e., $\sigma_1 = 1$), and implementing the reform on issue 1 whenever it is beneficial (i.e., $m_1^{PM} = r_1$).
(L2.2) In the game with IGs, the PM prioritizes issue 2. This requires that only IG_2 lobbies (i.e., $\ell_1 = 0$ and $\ell_2 = 1$), and that the PM implements the reform on issue 2 whenever IG_2 gets favorable information (i.e., $m_2 = r_2$).

Proposition 1 identifies the regions of the parameter space in which IL is detrimental. For each of the parameter configurations satisfying the conditions in the proposition, equilibrium behavior satisfies the necessary conditions of Lemma 2 for IL to be detrimental.

Proposition 1 Let $\pi_1 = \pi_2 \equiv \pi$ and $\alpha > 1$. $Eu(p^{IL}, \theta) < Eu(p, \theta)$ if and only if each of the following four conditions holds:

(P1.1) $\pi < 1/2$,
(P1.2) $\pi(\alpha - 1) < d \leqslant \pi\alpha$,
(P1.3) $\pi^2 < c \leqslant \pi$, and
(P1.4) $1/\pi < \alpha$.

As the example in Section 4.1 makes clear, the region identified by conditions (P1.1)–(P1.4) is non-empty. One can also show that for the required range of parameter values, the equilibrium is unique.

To understand the conditions in Proposition 1, it is helpful to start by distinguishing the two types of motive that an IG may have to lobby. We say that IG_n exercises an *agenda motive* if it seeks to induce the PM to prioritize issue n. We say that IG_n exercises a *persuasion motive* if it seeks to persuade the PM that $\theta_n = r_n$. The latter motive is the standard one studied in the literature. The agenda motive is more specific to our analysis where the PM is constrained on the number of issues he can reform.

Whenever IL is detrimental, lobbying by IG_2 switches priority away from issue 1 and to issue 2. As discussed above, this switch requires that only IG_2 lobbies. Given $\pi_1 = \pi_2$, the agenda motive for IG_2 to lobby is the same as the agenda motive for IG_1 to "lobby counteractively" and prevent

the priority shift to issue 2. When $\pi \geqslant 1/2$, there is no persuasion motive for an IG to lobby, and the benefit that IG_2 has to lobby is as large as the benefit that IG_1 has to lobby counteractively. Hence, condition P1.1, which is necessary for IGs to have a persuasion motive to lobby.

When $\pi < 1/2$, in contrast, there exists a range of parameter values in which IG_2 has a larger benefit from lobbying than IG_1 has from counteractive lobbying. This is because when the priors favor the status quo, IGs may have not only an agenda motive for lobbying, but also a persuasion motive since the PM needs to get favorable information on a reform before he considers adopting it. This persuasion motive is stronger for IG_2 than for IG_1 if the PM chooses to learn on his own about issue 1 when IG_2 fails in its persuasion attempt (i.e., $m_2 = s_2$), but would never choose to collect information on issue 2. For the PM to collect information on issue 1 when he knows that $\theta_2 = s_2$, his expected gain $\pi\alpha$ must be at least as large as his information collection costs d. Hence, the upper bound in condition P1.2.

Lemma 2 implies that IL can be detrimental only if the PM prioritizes issue 2 whenever IG_2's persuasion attempt is successful and the PM knows $\theta_2 = r_2$. The PM must then forgo learning about issue 1 when he knows that $\theta_2 = r_2$, which happens when his expected gain from doing so, $\pi(\alpha - 1)$, is smaller than his information collection costs d. Hence, the lower bound in condition P1.2.

Condition P1.3 guarantees that IGs' information collection costs are small enough that IG_2's persuasion motive is sufficient for this IG to lobby, but are nonetheless big enough that IG_1's agenda motive is not sufficient for this IG to lobby.

To summarize, whenever IL is detrimental, the equilibrium outcome of the game without IGs is:

- The PM collects information on issue 1, and only on issue 1: $\sigma_1 = 1$ and $\sigma_2 = \emptyset$.
- The PM chooses policy

$$p = \begin{cases} (R_1, S_2) & \text{if } m_1^{PM} = r_1 \\ (S_1, S_2) & \text{if } m_1^{PM} = s_1. \end{cases}$$

- Ex ante expected policy utility is $Eu(p, \theta) = \alpha + (1 - \pi)$.

The equilibrium outcome of the game with IGs is:

- IG_2, and Only, IG_2, lobbies: $(\ell_1, \ell_2) = (0, 1)$.
- The PM collects information on issue 1 if and only if $m_2 = s_2$:

$$\sigma_1 = \begin{cases} 1 & \text{if } m_2 = s_2 \\ \emptyset & \text{if } m_2 = r_2 \end{cases} \quad \text{and} \quad \sigma_2 = \emptyset.$$

- The PM chooses policy

$$p^{IL} = \begin{cases} (S_1, R_2) & \text{if } m_2 = r_2 \\ (R_1, S_2) & \text{if } m_2 = s_2 \text{ and } m_1^{PM} = r_1 \\ (S_1, S_2) & \text{if } m_2 = s_2 \text{ and } m_1^{PM} = s_1. \end{cases}$$

- Ex ante expected policy utility is $Eu(p^{IL}, \theta) = [\pi(1-\pi) + (1-\pi)]\alpha + 1 = (1-\pi^2)\alpha + 1$.

IL is detrimental when the priority shift yields $Eu(p^{IL}, \theta) < Eu(p, \theta)$. In the game without IGs, the PM implements the reform on issue 1 whenever it is beneficial and ignores issue 2. He implements the best policy in all cases except where $\theta = (s_1, r_2)$, when the best policy involves reforming issue 2. The expected cost of this mistake to the electorate is $1 \cdot (1-\pi)\pi$. In the game with IGs, the PM no longer ignores issue 2, which is beneficial for policy. At the same time, priority shifts to the less important issue, which is harmful for policy. With IGs, the PM implements the best policy in all cases except where $\theta = (r_1, r_2)$. The expected cost of this mistake to the electorate is $(\alpha - 1)\pi^2$. The expected cost is smaller in the game without IGs than in the game with IGs, when $(1-\pi)\pi < (\alpha - 1)\pi^2$ or $1/\pi < \alpha$. Hence, condition P1.4. Intuitively, this condition requires that issue 1 is sufficiently more important than issue 2.

To summarize, IL is detrimental whenever the conditions in Proposition 1 hold. These conditions require that the priors support status quo policies, so that the costs of information collection are moderate for both the IGs and the PM, and that one of the issues is sufficiently more important than the other.

4.4 Detrimental IL When Issues Differ in Priors

This section considers the other polar case, where issues differ only in priors. Specifically, we assume $\pi_1 > \pi_2$ and $\alpha = 1$. We refer to this case as the π-case.

In the previous section, IL was detrimental when it shifted priority from a more important issue to a less important issue. In this section, the two issues are equally important, but the probability of reform being beneficial differs across issues. Here, IL can be detrimental if it crowds out information collection by the PM, resulting in policy decisions that are less informed, in expectation.

For lobbying to be detrimental, the PM must, in the absence of lobbying, learn about the more likely beneficial reform (in this case, the issue with higher π). If this information search on issue 1 yields favorable evidence ($m_1^{PM} = r_1$), then the PM will implement the reform on issue 1 and will keep the status quo on issue 2. In this way, the PM gives priority to the issue where reform is more likely beneficial, choosing to rule out reform on issue 1 before considering reform on issue 2. Moreover, for lobbying to

crowd out information collection by the PM, it must be that when the PM observes $m_1^{PM} = s_1$, he collects information on issue 2 before choosing policy. In this way, the expected number of issues on which the PM will be informed in the absence of lobbying exceeds one.

For IL to be detrimental, it must also be the case that only IG_2 lobbies in equilibrium of the game with IGs. When IG_2 receives signal $m_2 = r_2$, the PM implements reform on issue 2. In this way, the PM gives priority to the issue with the less likely beneficial reform, ruling out reform on issue 2 before considering reform on issue 1. For IL to crowd out information collection by the PM, it must also be that when IG_2 receives signal $m_2 = s_2$, the PM prefers *not* to collect information on issue 1.[14] In this way, the PM will be informed on only one issue in the presence of lobbying, which is smaller than the expected number of issues on which the PM would be informed in the absence of lobbying. If the PM were to collect information on issue 1 following $m_2 = s_2$, the expected number of issues on which he would be informed in the presence of lobbying (equal to $2 - \pi_2$) would exceed the corresponding number in the absence of lobbying (equal to $2 - \pi_1$). In this case, IL would *not* lead to less informed policy decisions, and could *not* be detrimental.

From this discussion, we can see that the conditions in Lemma 2 carry over to this environment.

Lemma 3 For IL to be detrimental in the π-case, conditions (L2.1) and (L2.2) from lemma 2 must each be satisfied.

The following proposition identifies the region of the parameter space in which IL is detrimental.

Proposition 2 Let $\pi_1 > \pi_2$ and $\alpha = 1$. $Eu(p^{IL}, \theta) < Eu(p, \theta)$ if and only if each of the following two conditions holds:

(P2.1) $1 - \pi_1 < d \leqslant min\ \{\pi_2, 1 - \pi_2, (1 - \pi_1)(1+\pi_2)/(2 - \pi_1)\}$, and
(P2.2) $c \leqslant \pi_1 \pi_2$.

The region of the parameter space identified by P2.1 and P2.2 is non-empty. One can also show that for the required range of parameter values, the equilibrium is unique.

The upper bound in condition P2.1 ensures that the costs of information collection for the PM are sufficiently low that in the absence of lobbying, the PM prefers to collect information on issue 1, followed by issue 2 if he learns $m_1^{PM} = s_1$. The three possible upper bounds correspond to different outside options, depending on whether the next best strategy involves

14. Notice that detrimental IL requires that the PM collects information on issue 1 when he doesn't know the quality of the reform on issue 2, but does not collect the same information when he knows for sure that reform on issue 2 is bad. Such incentives are feasible because knowing $\theta_2 = s_2$ decreases the opportunity cost of implementing the reform on issue 1 (since the PM knows then that the agenda constraint is not binding), which increases the PM's incentives to implement the reform on issue 1 without investigating this issue on his own.

forgoing information collection all together, or forgoing information collection on issue 2. In this latter case, the upper bound also depends on whether π_2 is greater than or less than 1/2.

The lower bound in condition P2.1 ensures that the costs of information collection for the PM are sufficiently high that the PM prefers to forgo information collection on issue 1 if he learns about issue 2 first. Given that $1 - \pi_1 < d \leqslant \pi_2$ and $\pi_2 < \pi_1$ together imply $|1/2 - \pi_2| < |1/2 - \pi_1|$ and, therefore, $\pi_1 > 1/2$, this involves implementing the reform on issue 1 based on the priors rather than collecting information on issue 1 when lobbying provides $m_2 = s_2$.[15]

Condition P2.2 ensures that the costs of information collection for the IGs are low enough that IG_2 prefers to lobby in an attempt at switching the priorities of the PM from issue 1 (in the absence of lobbying) to issue 2. Even for very low c, IG_1 prefers not to lobby if in any case the PM implements the reform on issue 2 following $m_2 = r_2$, and always implements the reform on issue 1 following $m_2 = s_2$.

To summarize, whenever IL is detrimental, the equilibrium outcome of the game without IGs is:

- The PM starts by collecting information on issue 1, and continues by collecting information on issue 2 if and only if $m_1^{PM} = s_1$: $\sigma_1 = 1$, $\sigma_2 = \emptyset$ if $m_1^{PM} = r_1$, and $\sigma_2 = 2$ if $m_1^{PM} = s_1$.
- The PM chooses policy

$$p = \begin{cases} (R_1, S_2) & \text{if } m_1^{PM} = r_1 \\ (S_1, R_2) & \text{if } m_1^{PM} = s_1 \text{ and } m_2^{PM} = r_2 \\ (S_1, S_2) & \text{if } m_1^{PM} = s_1 \text{ and } m_2^{PM} = s_2. \end{cases}$$

- Ex ante expected policy utility is $Eu(p, \theta) = 2 - \pi_1\pi_2$.

The equilibrium outcome of the game with IGs is:

- IG_2, and only IG_2, lobbies: $(\ell_1, \ell_2) = (0, 1)$.
- The PM does not collect information: $\sigma_1 = \sigma_2 = \emptyset$.
- The PM chooses policy

$$p^{IL} = \begin{cases} (S_1, R_2) & \text{if } m_2 = r_2 \\ (R_1, S_2) & \text{if } m_2 = s_2. \end{cases}$$

15. Observe that $|1/2 - \pi_2| < |1/2 - \pi_1|$ explains why the PM chooses to investigate issue 2 following signal $m_1^{PM} = s_1$ (in the equilibrium of the game without IGs), and chooses *not* to investigate issue 1 following signal $m_2 = s_2$ (in the equilibrium of the game with IGs).

- Ex ante expected policy utility is

$$Eu(p^{IL}, \theta) = [\pi_2(1 - \pi_1) + (1 - \pi_2)\pi_1] + 1 < Eu(p, \theta).$$

5. Discussion

5.1 Probability of Implementing an Optimal Policy

First, we consider the probability of the PM implementing an optimal policy. By optimal policy we mean a policy that maximizes policy utility $u(p, \theta)$ given θ, that is, that the PM would choose if he were completely informed about the state of the world $\theta = (\theta_1, \theta_2)$.

When IL is detrimental, it reduces the probability of the PM becoming informed about issue 1, while simultaneously increasing the probability of the PM becoming informed about issue 2.

In the α-case, IL has a larger positive impact on the probability of learning θ_2 than it has a negative impact on the probability of learning θ_1. In this case IL *increases* the probability of the PM implementing an optimal policy. Yet, IL is nonetheless detrimental because it makes the PM more likely of choosing to choose the wrong policy on the more important issue. Interestingly, this result shows that IL can be informative (in the sense of leading to better informed policy choices, in expectation) and yet be while also being detrimental.

The opposite is true in the π-case. IL has a smaller positive impact on the probability of learning θ_2 than it has a negative impact on the probability of learning θ_1. In this case, IL is detrimental precisely because it decreases the PM's incentives to collect information on his own, and *reduces* the probability of the PM implementing an optimal policy. Interestingly, this result shows that IL can actually lead, in expectation, to less informed policy choices.

This discussion is summarized in the following implication.

Implication 1 Detrimental IL strictly increases the probability of the PM implementing an optimal policy in the α-case and strictly decreases the probability in the π-case.

5.2 Reforming the Ex Ante More Promising Issue

Second, we consider the association between detrimental IL and the frequency with which the PM reforms the ex ante more promising issue, that is, issue 1.

In the α-case, IL is detrimental because it induces the PM to prioritize issue 2 instead of issue 1. The loss in expected policy utility is associated with the PM adopting policy $p = (S_1, R_2)$ instead of $p = (R_1, S_2)$ when the state is $\theta = (r_1, r_2)$. In this state, the PM should reform issue 1, which he does in the absence of IL but does not when IG_2 lobbies. In other words,

detrimental IL is here associated with the PM not reforming issue 1 often enough.

In the π-case, IL is detrimental because it induces the PM to reform issue 1 without investigating it before. When the state is $\theta = (s_1, s_2)$, IG_2 obtains unfavorable evidence on issue 2, which reduces the incentives for the PM to investigate issue 1 before reforming it. In this case, the loss in expected policy utility is associated with the PM adopting policy $p = (R_1, S_2)$ instead of $p = (S_1, S_2)$ when the state is $\theta = (s_1, s_2)$. In other words, detrimental IL is here associated with the PM reforming issue 1 too often.

This discussion is summarized in the following implication.

Implication 2 Detrimental IL is associated with the PM failing to reform issue 1 often enough in the α-case, and with the PM reforming issue 1 too often in the π-case.

5.3 IG and PM Preference Alignment

Next, we consider the possibility of friendly lobbying, defined as lobbying by an IG involved with an issue on which the PM ex ante believes that the policy advocated by the IG is the best policy on this issue. Formally, in our setting where IGs advocate reforms, lobbying by IG_n is said to be *friendly* if $\pi_n \geqslant 1/2$, meaning that the PM ex ante believes that the reform on issue n is beneficial. Lobbying by IG_n is said to be *confrontational* if instead $\pi_n < 1/2$, meaning that the PM is predisposed against implementing the reform on issue n.

Implication 3 Detrimental IL is always confrontational in the α-case, but can be friendly or confrontational in the π-case.

An interesting feature of our analysis is that it can rationalize friendly lobbying. This is because agreement between the PM and an IG that reform is (likely) beneficial does not guarantee that the PM prioritizes that reform. In our framework, an IG may be motivated to lobby not by the need to sway the PM's beliefs about the benefits to be in favor of reform, but rather to gain priority on the policymaking agenda. This motive is key in the π-case, where IG_2 may lobby even when $\pi_2 > 1/2$, where lobbying may therefore be friendly. By contrast, condition P1.1 implies that the persuasion motive is always present in the α-case, implying that lobbying cannot be friendly.

Implication 3 has special significance for the debate on lobbying. As Kollman (1997: 520) writes, some people have concluded that: "If interest groups lobby their friends (the friendly model), the influence of lobbying may not be as large as many people think because lobbyists merely reinforce existing policy preferences among legislators." Our analysis contradicts this type of statement, showing that friendly

lobbying can have a substantial impact on policymaking and even be detrimental.

5.4 Motivation for Lobbying

Finally, we assess the motives an IG has for lobbying. Recall that there are two possible motives, an agenda motive and a persuasion motive. We say that the agenda motive is necessary for IG_n to lobby if IG_n would not lobby in equilibrium if there were no restriction on the number of reform proposals the PM can implement. We say that the persuasion motive is necessary for IG_n to lobby if IG_n would not lobby in equilibrium if $\pi_n \geqslant 1/2$.

Implication 4 Consider any parameter configuration for which IL is detrimental. In the α-case, IG_2 necessarily has a persuasion motive, but not necessarily an agenda motive, for lobbying. In the π-case, IG_2 necessarily has an agenda motive, but not necessarily a persuasion motive, for lobbying.

Interestingly, Implication 4 shows that in the α-case, detrimental IL is driven by IG_2's attempt at persuading the PM, and not necessarily at switching the PM's priority. Yet, IL is detrimental because it has the (unintended) consequence of inducing the PM to switch priority to a less important issue.

5.5 Extensions and Generalizations

We have developed our argument using a simple model of informational lobbying. In an Online Appendix, we consider a variety of extensions and generalizations to the model. We extend our framework to allow asymmetries in information collection costs and in signal precision across issues, in each case establishing the robustness of our qualitative results. Similarly, we find robustness of our results to reversing the sequence of information collection, the PM moving first and the IGs moving second, and to adding for each issue a second IG with a preference for the status quo. We further investigate the robustness of our results to limiting the number of issues the PM can investigate and to the PM deciding simultaneously on his information acquisition over the different issues; in these cases, our results are robust when issues differ in their relative importance, but not when reforms differ in the likelihood they are beneficial. Finally, we discuss alternative measures of policymaking effectiveness and discuss the robustness of our results to using these measures in place of ex ante expected policy utility.

6. Conclusion

In this article, we challenge the view that pure informational lobbying (in the absence of political contributions and evidence distortion or

withholding) leads on average to better policy. We do so under the assumptions that IGs can influence policymaking only through information provision and cannot manipulate or hide information, that the PM and IGs have access to equally precise information, and that the PM's and the electorate's policy preferences are perfectly aligned. We have shown that even in such a context, pure informational lobbying can lead to worse policy in a systematic way.

Our results rely on a number of features of the policymaking process that we incorporate into our model. First, the PM has limited capacity to implement reform. This means that the PM must prioritize issues, which allows for the possibility that informational lobbying by IGs may influence the policy agenda. Second, the PM has the ability to learn about issues on his own. This means that the presence of informational lobbying is not necessary for informed policymaking, as the PM may collect first-hand information. It also introduces the possibility that the PM chooses to become informed about different issues without lobbying than he learns about with lobbying. Third, the PM faces costs of information collection. This is consistent with the idea that it takes effort for the PM to learn about and understand an issue, and that this effort is not directly observable, that the contractable framework is incomplete or that the electorate is unwilling to compensate the PM for the costs of information collection. This results in an agency problem between the PM and the electorate who may prefer the PM to collect more information than the PM effectively chooses to collect ex post.

This means that IG influence may lead to worse policy even when there is no "corruption" on the part of IGs or PMs. In our analysis, IG influence leads to worse policy without requiring IGs to engage in any form of "bribery" (whether legal, e.g. political contributions, or illegal, e.g. corruption), deception, or exploitation of a political advantage ensuing from some IG's ability at solving their collective action problem and other interests' inability at solving this problem.

Our analysis has important implications for the debate on the merits of campaign finance reform and lobbying. It shows that eliminating special interest money from the political process is not sufficient to ensure that PMs implement the policies favored by their constituents, even if they share the same policy preferences.

Funding

Cotton is grateful for funding provided through his position as the Jarislowsky-Deutsch Chair in Economic and Financial Policy at Queen's University, which was funded in part by The Jarislowsky Foundation. Part of this work was carried out while Dellis was visiting the Toulouse School of Economics, whose hospitality is gratefully acknowledged.

Supplementary material

Supplementary material is available at *Journal of Law, Economics, & Organization* online.

Appendix

Proof of Lemma 1 Assume by way of contradiction that $\alpha = 1$ and $\pi_1 = \pi_2 \equiv \pi$. Let U_{max} denote the expected policy utility when the PM is fully informed about the realized θ_1 and θ_2. Let $Eu(p^\Gamma, \theta)$ denote the equilibrium expected policy utility in game $\Gamma \in \{\emptyset, IL\}$.

Observe that $Eu(p^{IL}, \theta) \geqslant Eu(p, \theta)$ whenever both IGs adopt the same information collection strategy, i.e., $\ell_1 = \ell_2$. Specifically, if $\ell_1 = \ell_2 = 1$, then $Eu(p^{IL}, \theta) = U_{max} \geqslant Eu(p, \theta)$. If $\ell_1 = \ell_2 = 0$, then $Eu(p^{IL}, \theta) = Eu(p, \theta)$. Hence, $Eu(p^{IL}, \theta) < Eu(p, \theta)$ implies $\ell_1 \neq \ell_2$. W.l.o.g. suppose $\ell_1 = 1$ and $\ell_2 = 0$.

For $Eu(p^{IL}, \theta) < Eu(p, \theta)$, it must be that in the game with IGs, the PM does not collect information on issue 2; otherwise, the PM would be fully informed about θ_1 and θ_2 (given $\ell_1 = 1$) and we would then have $Eu(p^{IL}, \theta) = U_{max} \geqslant Eu(p, \theta)$. For the PM to not collect information on issue 2 (following a signal $m_1 = s_1$), it must be that $d > 1 - max\{\pi, 1 - \pi\} \equiv \underline{\pi}$.

For $Eu(p^{IL}, \theta) < Eu(p, \theta)$, given $\ell_1 = 1$ it must be that in the game without IGs the PM starts by collecting information on issue 2. Moreover, it must be that following $m_2^{PM} = s_2$, the PM collects information on issue 1 so that, in expectation, he is informed on a greater number of issues in the game without IGs than in the game with IGs. This requires $\underline{\pi} \geqslant d$, which contradicts $d > \underline{\pi}$ (from the above paragraph). ■

Proof of Lemma 2 We start by establishing the necessity of condition L2.1.

For $Eu(p, \theta) > Eu(p^{IL}, \theta)$, it must be that in the game without IGs, the PM collects information on at least one issue. Assume by way of contradiction that he starts by collecting information on issue 2.

It must then be that in the game with IGs, IG_1 is the only IG to collect information, i.e., $(\ell_1, \ell_2) = (1, 0)$. Moreover, following signal $m_1 = s_1$, the PM must not collect information on issue 2; otherwise he would make a full information policy choice, in which case $Eu(p^{IL}, \theta) = U_{max} \geqslant Eu(p, \theta)$. For the latter to be true, it must be that $d > \underline{\pi}$.

It must also be that in the game without IGs, the PM collects information on issue 1 after some signal $m_2^{PM} \in \{r_2, s_2\}$. Given $d > \underline{\pi}$, the PM would however be strictly better off starting by collecting information

on issue 1 and not acquiring any information on issue 2. Hence the contradiction.

The necessity of condition L2.2 is a direct consequence of condition L2.1. ■

Proof of Proposition 1 *(Necessity)* Suppose $Eu(p, \theta) > Eu(p^{IL}, \theta)$.

First, we establish the necessity of condition P1.1. Assume by way of contradiction that $\pi \geqslant 1/2$. We know from Lemma 2 that in the game with IGs, $(\ell_1, \ell_2) = (0, 1)$. If IG_2 were to deviate and not collect information, we would be in the same situation as in the game without IGs, and the PM would start by collecting information on issue 1. Following signal $m_1^{PM} = r_1$, the PM would choose $p = (R_1, S_2)$. Following signal $m_1^{PM} = s_1$, he would collect information on issue 2 if $(1 - \pi) \geqslant d$, and choose $p = (S_1, R_2)$ if $m_2^{PM} = r_2$ and $p = (S_1, S_2)$ if $m_2^{PM} = s_2$. If $(1 - \pi) < d$, the PM would not collect information on issue 2 and would choose $p = (S_1, R_2)$. Thus, IG_2's expected utility would be

$$\tilde{V}_2 = \begin{cases} (1 - \pi)\pi & \text{if } d \leqslant 1 - \pi \\ 1 - \pi & \text{otherwise.} \end{cases}$$

It is easy to check that $\ell_2 = 1$ only if following signal $m_2 = r_2$, the PM chooses $p = (S_1, R_2)$, in which case IG_2's expected utility is $V_2 = \pi - c$.

Consider now IG_1. In equilibrium, it gets its reform implemented only following signal $m_2 = s_2$. If $(1 - \pi)\alpha \geqslant d$, then following $m_2 = s_2$, the PM collects information on issue 1 and chooses $p = (R_1, S_2)$ if $m_1^{PM} = r_1$ and $p = (S_1, S_2)$ if $m_1^{PM} = s_1$. Otherwise, the PM does not collect information on issue 1 and chooses $p = (R_1, S_2)$. Thus, IG_1's expected utility is

$$V_1 = \begin{cases} (1 - \pi)\pi & \text{if } d \leqslant (1 - \pi)\alpha \\ 1 - \pi & \text{otherwise.} \end{cases}$$

If IG_1 were to deviate by collecting information, it would get its reform implemented with probability π (i.e., following signal $m_1 = r_1$). Its expected utility would be $\tilde{V}_1 = \pi - c$.

Simple algebra shows that $V_2 \geqslant \tilde{V}_2$ implies $\tilde{V}_1 \geqslant V_1$, which contradicts $(\ell_1, \ell_2) = (0, 1)$. Hence, it must be that $\pi < 1/2$.

Second, we establish the necessity of $\pi\alpha \geqslant d$ in condition P1.2. Assume by way of contradiction that $\pi\alpha < d$. This implies that following signal $m_2 = s_2$, the PM does not collect information on issue 1. Since $\pi < 1/2$, he then chooses $p = (S_1, S_2)$. IGs' expected utilities are $V_1 = 0$ and $V_2 = \pi - c$. If IG_1 were to deviate by collecting information, we know from above that its expected utility would be $\tilde{V}_1 = \pi - c$. If IG_2 were to deviate by not collecting information, it would not get its reform implemented. This is because $d > \pi\alpha$ and $\alpha > 1$ imply $d > \pi$, in which case the

PM would not collect information on issue 2. Since $\pi < 1/2$, the PM would then choose $p = (S_1, S_2)$. IG_2's expected utility would then be $\tilde{V}_2 = 0$. Simple algebra shows again that $V_2 \geqslant \tilde{V}_2$ implies $\tilde{V}_1 \geqslant V_1$, which contradicts $(\ell_1, \ell_2) = (0, 1)$. Hence, it must be that $\pi\alpha \geqslant d$ and, therefore, that the PM collects information on issue 1 following signal $m_2 = s_2$.

Third, we establish the necessity of $d > \pi(\alpha - 1)$ in condition P1.2. Since the PM collects information on issue 1 following signal $m_2 = s_2$, it must be that he does not do so following signal $m_2 = r_2$; otherwise the PM would be fully informed and $Eu(p^{IL}, \theta) = U_{max} \geqslant Eu(p, \theta)$. Hence, it must be that $d > \pi(\alpha - 1)$.

From the above conditions, we can infer that in the game with IGs, IG_2 is the only IG to collect information. Following signal $m_2 = r_2$, the PM chooses $p = (S_1, R_2)$. Following signal $m_2 = s_2$, the PM collects information on issue 1 and chooses $p = (R_1, S_2)$ if $m_1^{PM} = r_1$ and $p = (S_1, S_2)$ if $m_1^{PM} = s_1$. IGs' expected utilities are $V_1 = (1 - \pi)\pi$ and $V_2 = \pi - c$. Expected policy utility is $Eu(p^{IL}, \theta) = (1 - \pi^2)\alpha + 1$.

Fourth, we establish necessity for $d > \pi$. Assume by way of contradiction that $\pi \geqslant d$. This implies that in the game without IGs and following signal $m_1^{PM} = s_1$, the PM collects information on issue 2 and chooses $p = (S_1, R_2)$ if $m_2^{PM} = r_2$ and $p = (S_1, S_2)$ if $m_2^{PM} = s_2$. Now, in the game with IGs, if IG_2 were to deviate by not collecting information, its expected utility would be $\tilde{V}_2 = (1 - \pi)\pi$. Recall from above that if IG_1 were to deviate by collecting information, its expected utility would be $\tilde{V}_1 = \pi - c$. Simple algebra shows again that $V_2 \geqslant \tilde{V}_2$ implies $\tilde{V}_1 \geqslant V_1$, which contradicts $(\ell_1, \ell_2) = (0, 1)$. Hence, it must be that $d > \pi$ and, therefore, that the PM does not collect information on issue 2 following signal $m_1^{PM} = s_1$. Observe that $d > \pi$ is implied by conditions P1.1, P1.2, and P1.4.

From the above conditions, we can infer that in the game without IGs, the PM collects information on issue 1 only. Following signal $m_1^{PM} = r_1$, he chooses $p = (R_1, S_2)$. Following signal $m_1^{PM} = s_1$, he chooses $p = (S_1, S_2)$. Expected policy utility is $Eu(p, \theta) = \alpha + (1 - \pi)$. It follows that in the game with IGs, if IG_2 were to deviate by not collecting information, its expected utility would be $\tilde{V}_2 = 0$.

Fifth, we establish the necessity of condition P1.3. For $\ell_1 = 0$, it must be that $V_1 > \tilde{V}_1$. Recall from above that $V_1 = (1 - \pi)\pi$ and $\tilde{V}_1 = \pi - c$. It must then be that $c > \pi^2$. For $\ell_2 = 1$, it must be that $V_2 \geqslant \tilde{V}_2$. Recall from above that $V_2 = \pi - c$ and $\tilde{V}_2 = 0$. It must then be that $\pi \geqslant c$.

Sixth, we establish the necessity of condition P1.4. Recall that $Eu(p, \theta) = \alpha + (1 - \pi)$ and $Eu(p^{IL}, \theta) = (1 - \pi^2)\alpha + 1$. Simple algebra shows that $Eu(p, \theta) > Eu(p^{IL}, \theta)$ only if $\pi\alpha > 1$.

(Sufficiency) Suppose conditions P1.1–P1.4 are satisfied. It is not difficult to check that the strategies described above are equilibrium strategies and that $Eu(p, \theta) > Eu(p^{IL}, \theta)$. ■

Proof to Lemma 3 and Proposition 2 (Necessity) Because $\alpha = 1$, the two issues are equally important. When both reforms are beneficial, it does not matter for $u(p, \theta)$ which reform the PM implements, as long as he implements one of them. Thus, the PM will never collect information on a second issue after observing that reform on one issue is beneficial; instead he will just implement reform on the first issue. In a game without IGs, collecting information on issue 1 and then issue 2 (if $m_1^{PM} = s_1$) gives the same expected policy utility as first collecting information on issue 2 and then issue 1 (if $m_2^{PR} = s_2$). From here, it follows that

(i) If the PM collects no information in the game without IGs, then IL cannot make the PM less informed and is never detrimental.
(ii) If the PM collects information on only one issue (and never collects information on the other issue) in the game without IGs, then IL can be detrimental only if it leads to the PM becoming informed on only the other issue.
(iii) If the PM collects information on both issues (on the second only if he learns that status quo is the correct policy on the first) in the game without IGs, then IL can be detrimental only if it leads to the PM becoming informed about only one of the two issues.

For IL to be detrimental, either (ii) or (iii) must be happening in equilibrium. We first rule out the possibility of (ii).

Consider possibility (ii). If $1/2 \leqslant \pi_2 < \pi_1$, then only ever learning about issue 1 results in $Eu(p, \theta) = 1+[\pi_1(1-\pi_2)+(1-\pi_1)\pi_2]$, and only ever learning about issue 2 results in $Eu(p, \theta) = [\pi_2(1-\pi_1)+(1-\pi_2)\pi_1]+1$. Expected policy utility is equal in both cases. Therefore, even if the presence of IGs caused the PM to learn about the other issue, it would not yield $Eu(p, \theta) > Eu(p^{IL}, \theta)$.

If $\pi_2 < 1/2 \leqslant \pi_1$, then learning about only issue 1 results in $Eu(p, \theta) = 1+(1-\pi_2)$ and learning about only issue 2 results in $Eu(p, \theta) = [\pi_2(1-\pi_1)+(1-\pi_2)\pi_1]+1$. Algebra shows that $Eu(p, \theta)$ is higher when the PM only learns about issue 1 rather than only learn about issue 2. Similarly, if $\pi_2 < \pi_1 < 1/2$, then it is again better for the PM to learn only about issue 1 than only about issue 2 (since $1+(1-\pi_2) > (1-\pi_1)+1$). Therefore, in both cases, IL may be detrimental only if in the game without IGs, the PM collects information only on issue 1, and in the game with IGs, only IG_2 lobbies and the PM never collects information on issue 1. Therefore, we need the PM to prefer to collect information on issue 1 rather than neither issue in the game without lobbying (which requires $1+(1-\pi_2) - d \geqslant max\ \{\pi_1, 1-\pi_1\}+(1-\pi_2)$, or $d \leqslant min\ \{\pi_1, 1-\pi_1\}$). We also require that the PM does not want to collect information on issue 1 if IG_2 lobbies and he observes $m_2 = s_2$, which requires $min\ \{\pi_1, 1-\pi_1\} < d$, contradicting the condition above that $d \leqslant min\ \{\pi_1, 1-\pi_1\}$.

Therefore, only possibility (iii) remains a viable possibility for the existence of detrimental IL. Thus, in the absence of lobbying, the PM will collect information on one issue, and then collect information on the second if he does not learn that reform on the first is beneficial. Because $\pi_1 > \pi_2$, the PM strictly prefers collecting information on issue 1 first, as it has a higher possibility of being beneficial, which means a lower probability that the PM spends effort collecting information on a second issue. As a result, detrimental IL must involve information collection by IG_2 (whose issue does not have priority in the absence of lobbying), as well as no information collection by either IG_1 or the PM on issue 1. Lemma 3 follows immediately from this argument.

In the game without IGs, the parameters must be such that the PM is willing to collect information on both issues starting with issue 1. The PM's expected payoff from doing so is

$$(2 - \pi_1\pi_2) - (2 - \pi_1)d.$$

Alternatively, the PM may collect information on neither issue, earning

$$max\ \{\pi_1, 1 - \pi_1\} + (1 - \pi_2).$$

Or, the PM may collect information on only issue 1, earning

$$1 + \pi_1(1 - \pi_2) + (1 - \pi_1)max\ \{\pi_2, 1 - \pi_2\} - d.$$

Or, the PM may collect information on only issue 2, earning

$$1 + \pi_2(1 - \pi_1) + (1 - \pi_2)max\ \{\pi_1, 1 - \pi_1\} - d.$$

We can rule out the case where $\pi_2 < \pi_1 < 1/2$. When this is the case, the PM is willing to collect information on issue 2 after learning that $\theta_1 = s_1$ (a necessary condition for detrimental IL) if $d \leqslant \pi_2$. At the same time, the PM must not prefer to follow up failed lobbying by IG_2 by collecting information on issue 1. This is true if $\pi_1 < d$. Thus, $d \leqslant \pi_2 < \pi_1 < d$, a contradiction, ruling out the possibility that IL is detrimental when $\pi_2 < \pi_1 < 1/2$. Observe that $\pi_1 \geqslant 1/2$ is satisfied given $1 - \pi_1 < \pi_2$ (condition P2.1) and $\pi_2 < \pi_1$.

Next, consider the possibility that $\pi_2 < 1/2 \leqslant \pi_1$. The PM is willing to collect information on both issues rather than only on issue 1 as long as $d \leqslant \pi_2$. He is willing to collect information on both issues rather than only on issue 2 if $d \leqslant 1 - \pi_2$. He is willing to collect information on both issues rather than neither if

$$d \leqslant \frac{(1 - \pi_1)(1 + \pi_2)}{2 - \pi_1}.$$

At the same time, he must not prefer to collect information on issue 1 following failed lobbying by IG_2, which is the case when $d > 1 - \pi_1$. These conditions give us the range of d stated in condition P2.1.

It must also be the case that only IG_2 lobbies. For IG_2 to lobby, it must be that $\pi_2 - c \geqslant (1-\pi_1)\pi_2$, or $c \leqslant \pi_1\pi_2$. For IG_1 to not lobby in equilibrium, it must be that $(1-\pi_2)\pi_1 \geqslant Z\pi_1\pi_2 + \pi_1(1-\pi_2) - c$, where Z is the probability that the PM implements the reform on issue 1 when he knows $\theta = (r_1, r_2)$ and is therefore indifferent between $p = (R_1, S_2)$ and $p = (S_1, R_2)$. Letting $Z = 0$, IG_1 never prefers to lobby in response to lobbying by IG_2. The possibility of detrimental IL therefore requires that $c \leqslant \pi_1\pi_2$ (condition P2.2).

Finally, consider the possibility that $1/2 \leqslant \pi_2 < \pi_1$. In this case, the PM's equilibrium strategy continues to require that $1 - \pi_1 < d$, and $d \leqslant (1-\pi_1)(1+\pi_2)/(2-\pi_1)$ for the same reasons as in the previous case. Additionally, one can show that the other two restrictions both imply that $d \leqslant 1 - \pi_2$, which in this case is at least as restrictive than $d < \pi_2$ whenever $\pi_2 \geqslant 1/2$. Thus, the same conditions apply for variable d, and condition P2.1 must continue to hold. Restrictions on c are also unchanged. Hence, condition P2.2 must continue to hold.

(Sufficiency) Suppose conditions P2.1–P2.2 are satisfied. It is not difficult to check that the strategies described above are equilibrium strategies. Simple algebra shows that $Eu(p, \theta) > Eu(p^{IL}, \theta)$. ■

The remaining analysis is included in the Online Appendix.

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