INFORMATIONAL LOBBYING AND AGENDA DISTORTION

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ABSTRACT. We challenge the prevailing view that pure informational lobbying (in the absence of political contributions and evidence distortion) leads to better informed policymaking. Our argument relies on two key features of the policymaking process. First, time and budget constraints prevent a policymaker from addressing all issues, forcing him to choose an agenda. Second, a policymaker can exert effort or expand resources to learn about an issue on his own, and therefore does not need lobbying to become informed. We show how interest groups involved with less important issues can have a greater incentive to collect information and lobby than other groups. These lobbying efforts can shift the policymaker’s attention away from the issues which are most important for constituents and towards the issues of lower public importance but with active lobbies. The resulting distortion of the policy agenda can lead to worse policy outcomes for constituents, even when the policymaker shares policy preferences with his constituents. Interestingly, we show that informational lobbying can simultaneously lead to a better-informed policymaker and worse policy outcomes. Also, we show that even friendly lobbying (i.e., interest groups lobbying a policymaker who is already biased in their favor) can lead to worse policy.
1. Introduction

Formal models of political lobbying tend to assume that interest groups may influence policymakers through the provision of either money or information. First, special interests may provide political contributions to policymakers in an implicit or explicit exchange for policy favors (e.g., Tullock [1980], Hillman and Riley [1989], Grossman and Helpman [1994]). Second, special interests may collect and share policy relevant information in order to influence policymakers’ beliefs about the costs and benefits 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 towards the preferences of monied special interests. Influence through information, on the other hand, is often seen as beneficial, as it leads to better informed policymaking and can, therefore, improve the overall wellbeing of constituents. Various studies of the policymaking process (Hansen 1991, Hall 1996, Bauer, Dexter and de Sola Pool 1963) make clear that, at least in the U.S., special interests’ activities typically consist of collecting and sharing information with policymakers rather than quid pro quo exchange of money for favors. The observation has led some to conclude that special interests’ activities actually help improve policymaking and are beneficial to constituents.

Our analysis challenges the widely held view that pure informational lobbying (henceforth IL), in the absence of political contributions and evidence distortion or withholding, is a beneficial form of special interest groups’ activity. We illustrate how even undistorted information provision by interest groups may distort the policy agenda and lead to worse policy choices by a policymaker whose policy preferences are perfectly aligned with the policy preferences of his constituents. To develop our argument, we present a 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 interest group influence is the collection of policy relevant information. There is no private information, and interest groups cannot hide or distort information. Interest groups and the policymaker have access to information of similar quality. There are no political contributions, and the policymaker and his constituents have policy preferences that are perfectly aligned. We make highly optimistic assumptions about the form of lobbying that takes place between interest groups and the policymaker, and we still show that lobbying can lead to systematically worse policy, resulting in lower constituents’ policy utility. The analysis characterizes necessary and sufficient conditions for pure IL to lead to worse policy compared to an alternative setting in which lobbying is not allowed. This is because even pure IL has the potential to shift the policymaker’s attention away from the issues which are most important for constituents, and to focus it on less important issues on which special interests have greater incentive to lobby. In this way, IL can simultaneously lead to an overall better-informed policymaker and worse policy outcomes.

Key to our analysis are two features of the policymaking process. The first feature is that policymaking is restricted by time and budget constraints. Policymakers typically lack the time and resources to attend to all problems that deserve attention. They must then set their agenda,

1Additionally, Ansolabehere, Snyder and Tripathi [2002] presents evidence that groups that contribute do so to secure access rather than bribery, and de Figueiredo and Cameron [2006] reports that in the late 1990s, special interests in the U.S. spent five times more on lobbying than on campaign contributions, suggesting that the organization and communication of information makes up the majority of interest group political spending.

2As Baumgartner et al. [2009, p124] write: “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 U.S. Senator in 1956, John F. Kennedy explained: “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.”
deciding which issues to prioritize and which issues to leave unaddressed. As Hansen (1991, p2) writes: “Limited in time, attention and resources, lawmakers cannot attend to all [problems], but they must attend to some. The decisive stage of interest group influence, therefore, is the choice of the problems and pressures to which to respond.” Hall (1996), Jones and Baumgartner (2005), and Bauer, Dexter and de Sola Pool (1963), among others, make the same observation.

The second of the two features of the policymaking process to be key to our analysis is that policymakers have the ability to collect information on their own. Standard in the literature on IL is the implicit assumption that interest groups have some form of monopoly power over information. That is, the only way policymakers can get informed is via interest groups. However, there are many instances where policymakers can collect information on their own, e.g., through their own staff, through government agencies, by holding legislative hearings or by spending time in their districts in order to better understand the needs of their constituents.

Taken together, these two features can result in IL leading to less informed policy decisions and worse policy choices for constituents. This happens since interest groups may gather information on different issues than a policymaker would choose to learn about in the absence of lobbying. Because of the limits on its agenda, in the absence of lobbying the policymaker would turn his attention toward more important issues. This tendency of policymakers to prioritize the more important issues in the absence of lobbying tends to result in interest groups involved with less important issues having greater incentives to collect information and lobby policymakers compared to interest groups involved with the more important issues. In essence, informational lobbying provides an informational subsidy which can alter policymakers’ incentives to collect information on their own and induce them to shift their attention from more important issues to issues with active lobbies. This shift in policymakers’ attention away from the most important issues can lead to worse policy decisions.

Our argument is consistent with empirical descriptions of the policymaking process. Various accounts of the process make clear that interest group involvement consists primarily of providing information in an effort to influence the policy agenda (Hansen 1991, Hall 1996, Bauer, Dexter and de Sola Pool 1963). Consistent with our model where the policy agenda is not aligned with the policy priorities of constituents but with the ‘lobbying agenda’ pushed by active interest groups, Baumgartner et al. (2009) shows that the most active interest groups are not involved with the issues the public views as most important, and Cohen-Eliya and Hammer (2011, p280) describes how “lobbying distorts the democratic process by manipulating the overcrowded public agenda and prioritizing specific issues that are determined by lobbyists,” helping interest groups “jump the queue” on the policy agenda. Lessig (2011) provides an example of agenda distortion by interest groups. In a related way, Caldeira and Wright (1988) provides evidence suggesting that interest groups’ activity, in the form of amicus curiae briefs, influences the U.S. Supreme Court’s decision whether to review a specific case. These accounts are consistent with our argument in which interest groups involved with less-important issues lobby in an effort to change policymakers’ priorities and alter the policy agenda.

We develop our argument using a simple model of informational lobbying in which a policymaker, who shares policy preferences with his constituents, must decide for each of two issues whether to implement a proposed reform or keep the status quo. In our baseline model, there are two interest group advocates, each involved with its own issue. In extensions to our baseline model, there are for every issue two interest groups with conflicting interests. Prior to choosing policy, the policymaker and the interest groups can acquire costly information on whether the

3Our argument applies to academic recruitment as well. A department that has special needs in one field may see department members in other fields actively gathering information on their candidates, in the hope of inducing the recruitment committee to hire one of their candidates rather than a candidate who would better fill the needs of the department, but on whom busy members of the recruitment committee would need to gather information on their own. We thank a seminar participant for suggesting this application of our argument.
reforms are beneficial for constituents. In order to abstract from already well-studied strategic information transmission considerations, we adopt the approach from the persuasion literature, in which any information collected is publicly observed. We allow issues to differ in their importance or salience (i.e., their relative weight in the policy utility of the policymaker and of his constituents), in the prior beliefs that reforms are beneficial to the policymaker and to his constituents, and in the quality of the information that can be collected.

The analysis begins by identifying three necessary conditions for informational lobbying to lead to worse policy. The first condition is that the policymaker must be limited in the number of reforms he can implement. That is, there must be a constraint on the agenda. The second condition is that the policymaker must be able to collect information on his own. That is, interest groups must not have monopoly power over information collection. The third condition is that the issues must differ in at least one of three ways: their importance, the prior beliefs that reforms are beneficial, or the quality of the information that can be collected. That is, the policymaker must value the information on one issue more than he values the information on the other issue. It is worth observing that the first two conditions correspond to the two features of the policymaking process that we have introduced into the analysis of informational lobbying, namely, the constraint on the agenda and the ability of the policymaker to collect information on his own. Hence, in our framework, each of these two features is necessary for informational lobbying to lead to worse policy.

We then characterize the equilibrium set of our model and determine when informational lobbying leads to worse policy. When issues differ in their importance, i.e., ‘salience,’ informational lobbying leads to worse policy when the interest group involved with the less salient issue collects information and when this can lead the policymaker to prioritize the less-salient issue without first collecting information on the more salient issue, which has the possibility of offering a more beneficial reform opportunity. On the other hand, when issues differ in the likelihood a reform is beneficial, informational lobbying leads to worse policy when the interest group advocating the less promising reform collects information, which crowds out the policymaker’s information collection and leads to less-informed policy decisions. In both cases, a set of necessary and sufficient conditions is identified such that informational lobbying leads to worse policy. Specifically, in each case: 1) interest groups’ information collection must induce a shift in the policymaker’s attention resulting in the alignment of the policy agenda on the priorities of active lobbies; 2) among interest groups, only those involved with the less important issue have sufficiently strong incentives to collect information and lobby; and 3) the agenda distortion resulting from the shift in the policymaker’s attention is harmful to constituents.

Finally, the analysis further considers: 1) how the presence of informational lobbying affects the probability with which the policymaker makes the same policy choice he would make if he were fully informed; 2) the interest groups’ motives for lobbying (that is, to distort the agenda or to persuade the policymaker about the merits of a reform); 3) the preference alignment between the policymaker and active lobbies (that is, whether the policymaker is lobbied by groups whose positions he is initially biased in favor or by groups which positions he is initially biased against); and 4) how the informational resources available to the policymaker influence the results. In particular, we show, among other things, that 1) informational lobbying can lead to better-informed, but worse policy choices, and 2) even friendly lobbying (i.e., groups lobbying a policymaker whose position is already biased in their favor) can lead to worse policy.

The remainder of the paper is organized as follows. Section 2 reviews the most relevant literature. Section 3 presents our baseline model. Section 4 illustrates the main intuition for informational lobbying to lead to worse policy.

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4This approach is equivalent to a setting in which the policymaker can only observe whether interest groups choose to collect verifiable information. In this case, interest groups rationally disclose any beneficial information in equilibrium since the policymaker will believe that any interest group that does not disclose its information must have gotten unfavorable information [Milgrom and Roberts 1986].
the results using a simple example. Section 5 derives and discusses our main results. Section 6 considers several extensions to our baseline model. Section 7 concludes. All proofs are in the Appendix.

2. Related Literature

There is an extensive literature on informational lobbying and persuasion. Potters and van Winden (1992), Austen-Smith (1995) and Lohmann (1995) present models of informational lobbying in which interest groups have private, non-verifiable information, which they may be able to convey to a policymaker through a combination of cheap talk and signalling through political contributions. In our framework, information is verifiable and we do not consider payments. 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. In Cotton (2009, 2012), interest groups make payments to a policymaker before being given access to disclose their verifiable private information. In each of these papers, interest groups are endowed with private information about the true state of the world. We focus on a setting in which interest groups choose whether to collect information that is then revealed to the policymaker, and which is more closely related to papers where interest groups must collect verifiable information (e.g., a signal realization that is correlated with the true state) before disclosing it to a policymaker. Austen-Smith and Wright (1992), Austen-Smith (1998), Bennedsen and Feldmann (2002, 2006), and Dahm and Porteiro (2008a, b) consider such models in the context of lobbying and policy making. These papers differ from ours in at least two fundamental ways: 1) they assume that the policymaker 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) considers also a model in which an interest group chooses to collect verifiable information. As in our paper, he finds that informational lobbying can lead to inefficient policymaking. However, contrary to our setting where information is symmetric, Lagerlöf’s result relies crucially on an information asymmetry between the policymaker and the interest group.

Rasmusen (1993) studies strategic information transmission, and like us assumes that the policymaker 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 interest groups can sometimes deceive (i.e., tell lies to) the policymaker. Deception is absent from our framework, and rarely occurs in practice. This is because as Berry (1997, p121) notes “credibility comes first” for lobbyists, and Hansen (1991) describes how interest groups must maintain a reputation for reliability in order to maintain access to policymakers.

Esteban and Ray (2006) studies a lobbying game in which a policymaker 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 policymaker. Like us, they consider a multidimensional policy space and introduce a constraint on the policymaker’s agenda, and find that lobbying can lead to worse policy decisions, even when the policymaker is ‘honest.’ However, the driving force underlying the result is different in the two papers. In Esteban and Ray (2006), the policymaker has no access to firsthand information, and the driving force is an information
asymmetry between firms and the policymaker. In our framework, information is symmetric, and the driving force is the policymaker’s access to firsthand information.

Our paper is also related to a series of papers that view informational lobbying as seeking to mobilize friendly legislators, rather than to change their policy preferences. Hall and Wayman (1990) and Hall (1996) argue that legislators lack time and that interest groups offer political contributions to friendly legislators in exchange for them investing time on the interest group’s issue. In the same spirit, Hall and Deardorff (2006) argues that interest groups act as ‘service bureaus for friendly legislators with the purpose of relaxing the time and resource constraints they face. In addition to focusing on a different question than us, these papers also differ from ours in that they view informational lobbying as a way to mobilize legislators, while our paper views informational lobbying as a way to mobilize issues on a policymaker’s agenda.

3. A MODEL OF INFORMATIONAL LOBBYING

We develop our argument using a simple model of IL. Section 6 discusses how our results and their underlying intuition extend to more general settings.

A risk-neutral policymaker (hereafter PM) has to take action on two independent issues, indexed by \( n = 1, 2 \). An issue can be interpreted literally (e.g., abortion, same-sex marriage, gun control) or as a public investment project (e.g., a new bridge, a sport 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.

There are two possible states of the world for each issue \( n \): \( R_n \) and \( S_n \). State \( R_n \) corresponds to circumstances in which the electorate (a passive player in our model) benefits from reform or funding of public investment on issue \( n \). State \( S_n \) corresponds to circumstances in which the electorate benefits from keeping the status quo in place. We denote the realized state of the world by \( \theta = (\theta_1, \theta_2) \), where \( \theta_n \in \{R_n, S_n\} \) for \( n = 1, 2 \). States are uncorrelated across issues. The realized state of the world is initially unknown to all players. However, it is common knowledge that \( \theta_n = R_n \) with probability \( \pi_n \in (0, 1) \), and \( \theta_n = S_n \) with probability \( (1 − \pi_n) \).

For each issue \( n \), the electorate benefits when the PM selects the policy corresponding to the realized state of the world. Let function \( u_n(p_n, \theta_n) \) indicate whether the PM implements the policy on issue \( n \) that corresponds to the realized state \( \theta_n \). Formally, let \( u_n(p_n, \theta_n) = 1 \) when \( p_n = \theta_n \) and \( u_n(p_n, \theta_n) = 0 \) when \( p_n \neq \theta_n \). The electorate’s policy utility is \( u(p, \theta) = \alpha u_1(p_1, \theta_1) + u_2(p_2, \theta_2) \), where \( \alpha \geq 1 \). Throughout the paper, we interpret parameter \( \alpha \) as the salience of issue 1 relative to issue 2. Alternatively, \( \alpha \) can be interpreted as the relative importance of issue 1 for the electorate, or as capturing the portion of the electorate that is affected by issue 1.

If the PM knew the realized state, \( \theta \), then he could choose policy \( p \) to maximize \( u(p, \theta) \). However, the PM is ex ante uncertain about \( \theta \). Before choosing policy \( p \), the PM may observe information about \( \theta \). This information can come from two different sources. First, interest groups (henceforth IGs) may pay costs to collect information about the state of the world on their respective issues, and share this information with the PM. Second, the PM may pay costs to collect firsthand information about the realized state of the world.

Information collection and provision by IGs—There are two interest group 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 \( \theta_n \). The utility to IG\(_n\) from policy \( p \) is \( v_n(p_n) = 1 \) when

Think for example of issue 1 as representing the construction of a new bridge in New York city and of issue 2 as representing the construction of a new bridge in Seattle. People in New York city (resp. Seattle) would be the only ones benefiting from the bridge in their city. A portion \( \alpha/(1 + \alpha) \) of people would be living in New York city, and a portion \( 1/(1 + \alpha) \) would be living in Seattle. In this case, the electorate’s policy utility \( u(p, \theta) \) could be interpreted as Utilitarian social welfare defined over policy outcomes.
Also, we let $d_n = R_n$ and $v_n(p_n) = 0$ when $p_n = S_n$. The assumption that there is only one IG per issue is a first pass. Section 6 considers a setting in which there are two IGs per issue, one in favor of the reform proposal and another one in favor of the status quo. It is worth mentioning that the key to our result is not that IGs are advocates, but rather that they are single-issue minded (i.e., that they care only about their own issue). Indeed, our results carry over to a setting in which there is one IG per issue, and IGs share the same policy preferences as the electorate on their specific issue, i.e., $IG_n$’s utility from policy $p$ is $v_n(p_n) = 1$ when $p_n = \theta_n$ and $v_n(p_n) = 0$ when $p_n \neq \theta_n$.

In our baseline model, the IGs make their information collection decision before the PM decides whether to collect firsthand information on his own; the reverse sequencing, where the PM makes his information collection decision before IGs do, is studied in Section 6. Each $IG_n$ simultaneously decides whether to collect information on the state of its issue, $\theta_n$, at a cost $c_n > 0$. As a first pass we let $c_1 = c_2 \equiv c$; we relax this assumption in Section 6. If $IG_n$ collects information, it will receive a signal $m_n$ which reveals the realized state $\theta_n$ with probability $q_n \in (1/2, 1]$, and signals the wrong state with probability $(1 - q_n)$. 

As with IGs, the PM faces a cost $d_n > 0$ if he chooses to collect information on issue $n$. The PM’s information collection costs can consist of monetary and non-monetary costs. Examples of monetary costs are costs of ordering an opinion poll in order for the PM to get a sense of which policy choice is favored by a majority of his constituents. Examples of non-monetary costs are opportunity costs for the time the PM spends attending legislative hearings or gathering documentation on the issue. As was also the case with IGs’ information collection, we begin with the assumption that a signal $m_n^{PM}$ reveals the realized state with probability 1. Thus, we let $d_1 = d_2 \equiv d$. We relax these assumptions in Section 6.

**Information collection by the PM**– The PM can collect firsthand information on the state of the world. If the PM chooses to collect information on issue $n$, he receives a signal $m_n^{PM}$ which reveals the realized state $\theta_n$ with probability $q_n \in (1/2, 1]$ and the wrong state with probability $(1 - q_n)$. As with IGs, the PM faces a cost $d_n > 0$ if he chooses to collect information on issue $n$. The PM’s information collection costs can consist of monetary and non-monetary costs. Examples of monetary costs are costs of ordering an opinion poll in order for the PM to get a sense of which policy choice is favored by a majority of his constituents. Examples of non-monetary costs are opportunity costs for the time the PM spends attending legislative hearings or gathering documentation on the issue. As was also the case with IGs’ information collection, we begin with the assumption that a signal $m_n^{PM}$ reveals the realized state with probability 1. Also, we let $d_1 = d_2 \equiv d$. We relax these assumptions in Section 6.

**PM’s time and resource constraints**– The PM may face time and resource constraints. We incorporate two types of constraint. The first type of constraint involves the number of issues the PM can address. Specifically, we let $M \in \{1, 2\}$ denote the maximum number of reform proposals $p_n = R_n$ and $v_n(p_n) = 0$ when $p_n = S_n$. The assumption that there is only one IG per issue is a first pass. Section 6 considers a setting in which there are two IGs per issue, one in favor of the reform proposal and another one in favor of the status quo. It is worth mentioning that the key to our result is not that IGs are advocates, but rather that they are single-issue minded (i.e., that they care only about their own issue). Indeed, our results carry over to a setting in which there is one IG per issue, and IGs share the same policy preferences as the electorate on their specific issue, i.e., $IG_n$’s utility from policy $p$ is $v_n(p_n) = 1$ when $p_n = \theta_n$ and $v_n(p_n) = 0$ when $p_n \neq \theta_n$.

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8Observe that a cost $c_n \geq 1$ means that the cost exceeds the expected benefit from collecting information, implying that $IG_n$ never collects information in equilibrium. An information collection cost $c_n \geq 1$ is analogous to a situation in which $IG_n$ is not organized and, therefore, cannot lobby the PM. Hence, our model can account for collective action problems. For example, $IG_1$ could represent the consumers at large and $IG_2$ a special interest. Consumers would be unable to solve the collective action problem and organize ($c_1 \geq 1$), while the special interest would be able to organize ($c_2 < 1$). It is worth emphasizing though that collective action problems are not key for the intuition underlying our results, as shown in our baseline model where the two interests are organized and information collection costs and IGs’ utilities are set equal across issues.

9This setting is equivalent to one in which the PM observes the IG’s decision to collect verifiable information and the IG decides whether to reveal the information, as the IG will always choose to reveal favorable information in equilibrium.

10Observe that the PM receives the correct signal with the same probability as IGs. This assumption is made to rule out the trivial case in which IL would lead to worse policy choices simply because IGs would collect lower quality information than the PM.

11Observe that a cost $d_1 \geq a$ or $d_2 \geq 1$ means that, in equilibrium, the PM does not collect information on the issue. This setting would be analogous to a situation in which the PM cannot collect information on an issue (e.g., information on an industry production technology that cannot be observed by the PM). Thus, our model allows for the possibility that IGs have monopoly power over information collection on some issue.
the PM can implement. When \( M = 2 \), we are in the standard setting in which the PM does not face any constraint on his agenda. When \( M = 1 \), the PM does not have enough time or access to enough financial resources to implement both reform proposals, forcing him to prioritize one issue over the other.

The second type of constraint the PM faces involves the number of issues on which the PM can collect firsthand information. Specifically, we assume that the PM can collect information about the realized state of the world on up to \( K \in \{0,1,2\} \) issues. When \( K = 0 \), we are back to the standard setting in which the PM cannot collect any information on his own. When \( K = 2 \), the PM has access to enough informational resources so that he can choose to become fully informed, even in the absence of lobbying. When \( K = 1 \), the PM has access to limited informational resources and cannot become fully informed without the help of IGs.

**Payoffs**—IGs are advocates in favor of reform on their respective issues. They earn policy utility \( v_n(p_n) = 1 \) when the PM implements reform on their issue \( (p_n = R_n) \), and \( v_n(p_n) = 0 \) when the PM keeps the status quo \( (p_n = S_n) \). Furthermore, they must pay \( c_n \) in the event that they engage in informational lobbying (i.e., collect information about the state of the world on their issue). Therefore, IG\( n \) earns payoff \( v_n(p_n) - c_n \) when it lobbies and \( v_n(p_n) \) when it does not.

In order to stack the deck in favor of IL being beneficial to the electorate, we assume that the PM’s and the electorate’s policy preferences are perfectly aligned. This means that if it were costless for the PM to learn the realized state of the world, he would ‘honestly’ seek to maximize the PM’s and the electorate’s policy preferences. However, unless both IGs choose to actively lobby, the PM remains at least partially uncertain about the state of the world unless he pays a cost to collect information himself. The PM then faces a tradeoff between the benefits of better informed policymaking and his personal costs of collecting firsthand information to learn about the best policy options. In this sense, there exists a form of agency problem between the PM and the electorate he represents. The electorate would like the PM to undertake the effort to carefully investigate reforms on both issues; but the electorate might be unable or unwilling to incentivize the PM to do so.

The PM earns payoff \( u(p, \theta) - d_1 - d_2 \) when he collects firsthand information on both issues and adopts policy \( p, u(p, \theta) - d_n \) when he collects firsthand information on only issue \( n \), and \( u(p, \theta) \) when he collects no firsthand information.

**Timing**—To study the implications of IL, we compare two games, one with IGs and the possibility of lobbying, and another one without IGs or without the possibility of lobbying. We shall call the former game the game with IGs, and the latter game the game without IGs. In the game with IGs, the policymaking process has four stages. In stage 1, Nature chooses the state \( \theta_n \) for each issue \( n \). In stage 2, IGs decide simultaneously and non-cooperatively whether to collect information on their respective issues. When an IG collects information, the issue-specific state is observed by the IG and the PM. In stage 3, the PM decides whether to collect information on his own.

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12We borrow the ‘honestly’ terminology from Esteban and Ray (2006).

13There 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 already provided information, or if it is infeasible to compensate the PM for undertaking information collection.

14The assumption that IGs move simultaneously is standard in the literature. This would correspond 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 information collection decision. Having said this, there are other circumstances in which IGs may be able to make information collection decisions sequentially. One might then wonder whether our results are robust to IGs moving sequentially, the second mover observing the signal received by the first mover when the latter chooses to collect information. All our results are robust to having the IG involved with the more-important (i.e., more salient or with higher priors) issue moving first, followed by the IG involved with the less-important issue.
When $K = 2$ the PM collects information sequentially. Specifically, the PM first chooses whether to collect information on an issue (and if so, which one). If he decides to collect information on an issue, he receives a signal about the realized state on this issue, and then decides whether to collect information on the other issue. We discuss in Section 4 an alternative assumption that the PM must choose simultaneously on which issue(s) to collect information. In stage 4, the PM chooses policy. For every issue on which the PM does not implement the reform proposal, the status quo is maintained.

In the game without IGs, the policymaking process has all the above stages, except stage 2.

We now describe the structure of each stage of the policymaking process (in the game with IGs), working backwards.

3.1. Policy selection. We begin with the policy selection by the PM. When the time comes to select a policy, the PM may have observed a signal on both, on one, or on neither issue. Let $\beta_n (m_n, m_n^{PM})$ denote the PM’s belief that $\theta_n = R_n$ conditional on having received signal $m_n^{PM}$ on issue $n$ and having observed signal $m_n$ received by IG. By convention we write $m_n = \emptyset$ if IG chose not to collect information on issue $n$, and let $m_n^{PM} = \emptyset$ if the PM chose not to collect information on issue $n$. Since collected signals reveal the true state of the world, we have $\beta_n (R_n, m_n^{PM}) = \beta_n (m_n, R_n) = 1$ and $\beta_n (S_n, m_n^{PM}) = \beta_n (m_n, S_n) = 0$. If nobody collected information on issue $n$, then $\beta_n (\emptyset, \emptyset) = \pi_n$.

When at most one reform proposal can be implemented (i.e., $M = 1$), the PM can choose between three policies. Specifically, he can choose to implement the reform on issue 1, in which case the policy is $p = (R_1, S_2)$ and the expected policy utility is $\beta_1 \alpha + (1 - \beta_2)$, where $\beta_2$ is a shorthand for $\beta_n (m_n, m_n^{PM})$. Alternatively, the PM can choose to implement the reform on issue 2, in which case the policy is $p = (S_1, R_2)$ and the expected policy utility is $(1 - \beta_1) \alpha + \beta_2$. Finally, the PM can choose to maintain the status quo on both issues, in which case the policy is $p = (S_1, S_2)$ and expected policy utility is $(1 - \beta_1) \alpha + (1 - \beta_2)$. Thus, for a given vector of observed signals $(m, m^{PM}) = (m_1, m_2, m_1^{PM}, m_2^{PM})$, the PM chooses policy

$$p (m, m^{PM}) = \begin{cases} (R_1, S_2) & \text{if } \beta_1 \geq 1/2 \text{ and } (\beta_1 - \frac{1}{2}) \alpha \geq (\beta_2 - \frac{1}{2}) \\ (S_1, R_2) & \text{if } \beta_2 \geq 1/2 \text{ and } (\beta_1 - \frac{1}{2}) \alpha \leq (\beta_2 - \frac{1}{2}) \\ (S_1, S_2) & \text{if } \beta_1, \beta_2 < 1/2. \end{cases}$$

Thus, the PM adopts the reform on issue 1 if 1) he believes that the realized state on this issue is at least as likely to be $\theta_1 = R$ as $\theta_1 = S$ (i.e., $\beta_1 \geq 1/2$), and 2) the expected utility gain from adopting the reform on issue 1 instead of keeping the status quo exceeds the corresponding expected utility gain for issue 2, i.e., $\beta_1 \alpha - (1 - \beta_1) \alpha \geq \beta_2 - (1 - \beta_2)$.

When $\beta_1, \beta_2 \geq 1/2$ and $(\beta_1 - \frac{1}{2}) \alpha = (\beta_2 - \frac{1}{2})$, the PM is indifferent between $p = (R_1, S_2)$ and $p = (S_1, R_2)$. We denote by $z \in [0, 1]$ the probability the PM chooses the former.

When both reform proposals can be implemented (i.e., $M = 2$), the PM can choose between four policies: implement the reform on both issues, on issue 1 only, on issue 2 only, or on neither issue. It is easy to see that for each issue $n$ the PM chooses to implement the reform if and only if $\beta_n \geq 1/2$.

3.2. Policymaker’s information collection. We now turn to the information collection behavior of the PM. Having observed the signals $m_1$ and $m_2$ received by the IGs, the PM chooses whether to collect information on his own. Let $\gamma_n (m_n)$ denote the PM’s belief that $\theta_n = R_n$ conditional on having observed a signal $m_n \in \{R_n, S_n, \emptyset\}$. By the same argument as for $\beta_n (\cdot)$, we have $\gamma_n (R_n) = 1$, $\gamma_n (S_n) = 0$ and $\gamma_n (\emptyset) = \pi_n$. 

The result stated in Proposition 2, but not the result stated in Proposition 1, is also robust to having the IG involved with the less-important issue moving first.
When the PM can choose to collect information on up to \( K = 2 \) issues, information collection is sequential. Specifically, in step 1 the PM chooses whether to collect information on an issue and, if so, on which issue. He makes his decision based on his beliefs \( \gamma \) and the salience weight \( a \). We denote the first-step information collection strategy by \( \sigma^1 (m) = (\sigma^1_1, \sigma^1_2, \sigma^1_3) \in \{0,1\}^3 \) with \( \sum_{i \in \{1,2,3\}} \sigma^1_i = 1 \), where \( \sigma^1_i = 1 \) if the PM collects information on issue \( n \in \{1,2\} \) and \( \sigma^1_3 = 1 \) if he does not collect any information. If the PM first chooses to collect information on issue \( n \), he then receives a signal \( m^P_n = \theta_n \) and in step 2 decides whether to collect information on the other issue. We denote the second-step information collection strategy by \( \sigma^2 (m, m^P_M) = (\sigma^2_1, \sigma^2_2, \sigma^2_3) \in \{0,1\}^3 \), with the same interpretation and restriction as for \( \sigma^1 \), and the additional restriction that \( \sigma^2_3 = 1 \) if \( \sigma^1_1 = 1 \) or \( K = 1 \).

The PM chooses an information collection strategy \( \sigma = (\sigma^1, \sigma^2) \) so as to maximize the (interim) expected policy utility net of his information collection costs

\[
U (\sigma; p (.) ) = Eu \left( p \left( m, m^P_M (\sigma) \right), \theta \right) - \sum_{i,t \in \{1,2\}} \sigma^1_id_i.
\]

To simplify algebra, we assume the PM chooses to collect information when indifferent between collecting and not collecting information. Likewise, we assume the PM chooses to collect information on issue 1 when indifferent between collecting information on issue 1 and collecting information on issue 2.

3.3. Interest groups’ information collection. We now turn to IGs’ information collection decisions. IGs decide simultaneously whether to collect information about the realized state on their respective issue. IG\( _n \)’s (pure) strategy is \( \lambda_n \in \{0,1\} \), where \( \lambda_n = 1 \) indicates that IG\( _n \) collects information. A (pure) strategy profile is \( \lambda = (\lambda_1, \lambda_2) \). Given the PM’s strategies \( \sigma (.) \) and \( p (.) \), \( \lambda_n \) must be a best response to \( \lambda_{-n} \) for both \( n \in \{1,2\} \), i.e., IG\( _n \) chooses a strategy that maximizes its expected policy utility net of its information collection costs

\[
V_n (\lambda_n, \lambda_{-n}, \sigma (.), p (.) ) = Ev_n \left( p_n \left( m (\lambda), m^P_M (\lambda, \sigma (.) ) \right) \right) - \lambda_nc.
\]

As with the PM, we assume that an indifferent IG collects information.

3.4. Equilibrium. We solve for the Perfect Bayesian Equilibrium. Loosely speaking, an equilibrium consists of strategies \( \lambda^*, \sigma^* (.) \) and \( p^* (.) \), and beliefs \( \gamma^* (.) \) and \( \beta^* (.) \) such that 1) at every decision stage each agent takes an action that maximizes its expected payoff given its beliefs and others’ behavior, and 2) beliefs are derived using Bayes’ rule and are consistent with equilibrium strategies and the priors.

3.5. Detrimental informational lobbying. As a first pass we use the ex ante expected equilibrium policy utility \( Eu (p, \theta) \) as a measure of policymaking efficiency. The higher is \( Eu (p, \theta) \), the better able the PM is to choose the policy that brings the most benefit to the electorate. We say that IL is detrimental if it leads to worse policy, in the sense that the ex ante expected equilibrium policy utility in the game with IGs, which we denote by \( Eu (p^IL, \theta) \), is strictly smaller than the ex ante expected equilibrium policy utility in the game without IGs, which we denote by \( Eu (p, \theta) \). Formally, IL is said to be detrimental if \( Eu (p^IL, \theta) < Eu (p, \theta) \).

Observe that this concept of detrimental IL does not account for information collection costs. This concept will serve as a first pass, allowing us to rule out the trivial case in which IL would be detrimental simply because it would be more costly for IGs than for the PM to collect information or because competition between IGs would result in ‘excessive’ information collection. As we discuss in Section 6.6, our conclusions are actually robust to accounting for all information collection costs.
In Section 6.6, we also discuss alternative measures of policymaking efficiency, including the probability that the PM makes a full information policy choice (i.e., a policy choice he would make if he perfectly observed the realized state of the world). This alternative measure of policymaking efficiency is similar to the measure used by Austen-Smith and Wright (1992), Rasmusen (1993), and Dahm and Porteiro (2008b), among others, in models involving a single issue. However, in a setting with multiple issues, like ours, this measure is less effective at capturing the differential importance of issues than using $Eu(p, \theta)$ as a measure of efficiency. When issues are equally salient, both measures are closely related. As we show in Section 5, IL is detrimental according to the probability measure whenever it is so according to $Eu(p, \theta)$. Things are different though when issues differ in their salience. In this case, we favor using $Eu(p, \theta)$ to represent policy efficiency since this measure is better at capturing the differential importance of issues compared to the probability measure.

3.6. The policymaker cannot be worse off. In our model, the PM cannot be made worse off by the ability of IGs to engage in IL, in the sense that his expected equilibrium payoff is always at least as large in the game with IGs than in the game without. Indeed, the presence of IL does not change the PM’s set of feasible actions. The PM can always ignore information collected by IGs, and choose the same actions he would choose without IL. But he can also choose to rely on the information produced by IGs, and make a different information collection decision compared to the decision he would make without IL, as the policy benefit of collecting information on more issues may be dominated by the cost of collecting firsthand information.

Because the PM will not be made worse off by the ability of IGs to engage in IL, the PM does not have an incentive to ban IL in our model, even if IL leads to lower expected policy utility. This discussion may lead someone to think that our results on detrimental IL require that we do not include information collection costs in our measure of policymaking efficiency. This is not true. It is only important that we do not use the PM’s individual payoff as our measure of policymaking efficiency. We discuss this point in greater detail in Section 6.6.

4. An Example

We begin the analysis with an example to illustrate the intuition underlying our main results. We consider a situation in which issues differ only in their salience and the PM cannot implement more than one reform ($M = 1$). In this situation, we illustrate how the presence of IL can distort the policy agenda and be detrimental. For this purpose, we choose specific parameter values to make the example straightforward. Specifically, we consider a case in which: 1) $\pi_1 = \pi_2 = 2/5$, i.e., keeping the status quo is ex ante preferable than implementing a reform; 2) $\alpha = 3$, i.e., issue 1 is substantially more salient than issue 2; and 3) information collection costs are $c = 1/3$ for IGs and $d = 1$ for the PM. To facilitate exposition, we chose $d$ high enough that, in equilibrium, the PM never collects information on issue 2.

Consider first what happens in the game without IGs. The PM prioritizes the more-salient issue, first researching the reform on issue 1 and then implementing it when his review produces favorable evidence ($m_{1PM} = R_1$). In this way, the policy agenda gives priority to the issue the PM and the electorate care the most about. To see why, recall that the PM does not collect information on issue 2 and, given $\pi_2 < 1/2$, does not implement the reform on issue 2. At the same time, the PM collects information on issue 1 since the expected benefit of doing so, equal to $\pi_1 \alpha = 6/5$ (when $\theta_1 = R_1$, the PM adopts the reform on issue 1 instead of keeping the status quo) exceeds the information collection cost $d = 1$. Thus, the PM prioritizes issue 1 and ignores issue 2. Ex ante expected equilibrium policy utility is therefore equal to $Eu(p, \theta) = 3 + (3/5) = 90/25$.

Consider next what happens in the game with IGs. The IGs recognize that without lobbying, the PM will never implement the reform on the less-salient issue (issue 2). In response, $IG_2$ engages in IL (i.e., collects information) in an attempt to persuade the PM that its reform is
worthwhile and induce the PM to adopt the reform. At the same time, IG\(_1\) does not engage in costly lobbying, knowing that the PM will still address its issue in the event that IG\(_2\) obtains unfavorable evidence (\(m_2 = S_2\)). Given the specific parameter values in this example, after IG\(_2\) lobbies and IG\(_1\) does not, the PM chooses to adopt the reform on issue 2 in the event that IG\(_2\) obtains favorable evidence (\(m_2 = R_2\)). Otherwise, the PM researches on his own the reform on issue 1, and adopts this reform when his review produces favorable evidence (\(m_1^{PM} = R_1\)). In this way, the policy agenda gets aligned with the lobbying agenda, giving priority to the issue advocated by the IG which actively engages in lobbying, even though this is the less-salient issue.

When IG\(_2\)'s lobbying efforts produce unfavorable evidence, the PM goes on to collect information on issue 1 for the same reason that he collects information on issue 1 in the absence of lobbying. On the other hand, when IG\(_2\)'s lobbying efforts produce favorable evidence, the PM prefers to simply implement the reform on issue 2 rather than collect information on the more-salient issue. This is because his expected benefit from collecting information on issue 1, now equal to only \(\pi_1(\alpha - 1) = 4/5\) (if the PM were to learn that \(\theta_1 = R_1\), then he would adopt the reform on issue 1 rather than implement the reform on issue 2), is smaller than the information collection cost \(d = 1\)\(^{15}\).

Next, we consider IG behavior. IG\(_2\) prefers to lobby because its expected benefit from collecting information, equal to \(\pi_2 = 2/5\) (when \(\theta_2 = R_2\), IG\(_2\) gets its reform implemented instead of the status quo), exceeds its information collection cost \(c = 1/3\). That IG\(_1\) does not lobby follows because it has a lower expected benefit from collecting information. To see this, recall that the PM collects information on issue 1 in the event that IG\(_2\) gets unfavorable evidence. As a result, the expected benefit for IG\(_1\) to collect information in an attempt to counteract the agenda distortion created by IG\(_2\) is equal to \(\pi_1\pi_2 = 4/25\) (when \((\theta_1, \theta_2) = (R_1, R_2)\), which occurs with probability \(\pi_1\pi_2\), the PM would adopt the reform on issue 1 instead of the reform on issue 2), which is smaller than its information collection cost \(c = 1/3\). Ex ante expected equilibrium policy utility is therefore equal to \(Eu(p^{IL}, \theta) = 3\left[(3/5) + (2/5)(3/5)\right] + 1 = 88/25\).

Comparing expected policy utility in the game without IGs (\(Eu(p, \theta) = 90/25\)) with expected policy utility in the game with IGs (\(Eu(p^{IL}, \theta) = 88/25\)) establishes that IL can be detrimental by modifying the PM’s incentives to collect information on his own and distorting the policy agenda.

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

\(^{15}\)The PM’s off-equilibrium-path strategies are straightforward. When both IGs lobby and obtain favorable evidence, the PM collects no information on his own and implements reform on issue 1. When both IGs lobby and at least one gets unfavorable evidence, the PM acquires no information on his own and chooses the policy which is congruent with the evidence. When only IG\(_1\) lobbies, the PM acquires no information on his own and adopts the reform on issue 1 if IG\(_1\) obtains favorable evidence, and keeps the status quo otherwise. Finally, when neither IG lobbies, the PM acts as he does in the game without IGs.
In the analysis that follows, we generalize this argument for the polar case where the issues differ only in their salience, and we present similar general results for the alternative polar case where issues are equally salient but differ in the ex ante probability that reform is beneficial.

5. Analysis

We start by identifying three conditions that are necessary for IL to be detrimental. We then analyze two polar cases, one in which issues differ only in salience and another in which issues differ only in priors. Focusing on the two polar cases allows us to isolate the implications of differences in salience from the implications of differences in priors. In each case we characterize the set of equilibria and identify regions of the parameter space in which IL is detrimental. Finally, we discuss several implications of detrimental IL.

5.1. Three necessary conditions. The following lemma identifies a set of three conditions which are all necessary for IL to be detrimental.

**Lemma 1.** \( Eu(p^{IL}, \theta) < Eu(p, \theta) \) only if

1. \( K \neq 0 \), i.e., the PM can choose to collect some information on his own;
2. \( M = 1 \), i.e., the PM is constrained on the number of reform proposals he can implement; and
3. \( \alpha \neq 1 \) and/or \( \pi_1 \neq \pi_2 \), i.e., issues differ in their salience and/or their priors.

Condition (1) rules out the case where \( K = 0 \), i.e., the case where the PM cannot collect any information on his own and where IGs have thus some form of monopoly power over information collection. The intuition underlying this condition relies on the fact that signals collected by IGs are informative. It follows that when \( K = 0 \), IL cannot lead to less informed policy decisions and worse policy.

Condition (2) rules out the case where \( M = 2 \), i.e., where the PM can implement both reform proposals and, therefore, does not have to prioritize one issue over the other. The intuition underlying this condition relies on the fact that when \( M = 2 \), the PM’s policy choice on an issue depends on his beliefs about the realized state for that issue only; it does not depend on his beliefs about the realized state for the other issue. Since the PM and the IGs have access to signals of similar quality, \( q \), this feature implies that when \( M = 2 \), IL cannot lead to less informed policy decisions and worse policy. Indeed, there are two possible types of situation. In one type of situation, an IG collects a signal on an issue for which the PM would not have collected information on his own. The PM is therefore better informed on this issue and, since the collection of information on one issue does not affect the incentives to collect information on the other issue (given \( M = 2 \)), the PM is at least as well informed on the other issue. In the other type of situation, IGs collect a signal on an issue for which the PM would have chosen to collect information, which frees informational resources for the PM and, if \( K = 1 \), allows him to collect information on the other issue.

Observe that condition (1) and condition (2) correspond to the two features we have introduced into the analysis of IL, namely, the PM’s ability to collect firsthand information and the constraint on the agenda. Thus, Lemma 1 shows that, in our model, these two features are necessary for IL to be detrimental.

Condition (3) rules out the case where issues would be equally salient (\( \alpha = 1 \)) and their reform proposals would be ex ante equally promising (\( \pi_1 = \pi_2 \)). 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. Hence the necessity that the PM values differently the information on the two issues.\footnote{We show in Section 6 that when we allow for a difference in the quality of signals across issues, i.e., $q_1 \neq q_2$, condition (3) of Lemma 1 writes: "$\alpha \neq 1$ and/or $\pi_1 \neq \pi_2$ and/or $q_1 \neq q_2".}

Throughout the rest of the analysis, we assume that the three conditions stated in Lemma 1 are satisfied.

5.2. 

**Difference in salience.** We now analyze the polar case in which issues differ only in their salience. Specifically, we assume $\pi_1 = \pi_2$ and $\alpha > 1$. In this setting, IL can be detrimental if it causes the PM to switch priority from the more-salient issue to the less-salient issue. This happens when the IG involved with the less-salient issue collects information and, when it obtains favorable information, induces the PM to forgo collecting information on the more-salient issue and then prioritize the less-salient issue. In this context, IL is detrimental since it induces the PM to forgo a possibly more beneficial reform on the more-salient issue, something the PM would not have done in the absence of IL, where he would have prioritized the more-salient issue and would have started by collecting information on this issue.

We begin with the following preliminary observation.

**Fact 1.** $\text{Eu}(p^{IL}, \theta) < \text{Eu}(p, \theta)$ only if

1. $\sigma_1^1 > 1$ in the game without IGs, and
2. $(\lambda_1, \lambda_2) = (0, 1)$.

Condition 1 applies to the game without IGs. It says that for IL to be detrimental, it must be that, in the game without IGs, the PM starts by collecting information on the more-salient issue. The intuition underlying this condition is straightforward. That the PM must be collecting some information is obvious given that, in the game with IGs, signals collected by IGs are informative. That the PM must be starting by collecting information on the more-salient issue follows because he must be prioritizing this issue so that IL can induce a shift in the PM’s priorities toward the less-salient issue.

Condition 2 applies to the game with IGs. It says that the IG involved with the less-salient issue, $\text{IG}_2$, collects information, while the IG involved with the more-salient issue, $\text{IG}_1$, does not. Again, the intuition is straightforward. That at least one IG must be collecting information is obvious since otherwise there would be no IL. That at most one IG must be collecting information is obvious as well since the assumption of perfectly informative signals implies that the PM would be fully informed if both IGs were to collect information; obviously, IL cannot be detrimental if it results in the PM being fully informed. Finally, that the one IG collecting information is the one involved with the less-salient issue follows because IL must induce the PM to switch his priorities from the more-salient issue to the less-salient issue.

**Proposition 1.** Let $\pi_1 = \pi_2 = \pi$ and $\alpha > 1$. $\text{Eu}(p^{IL}, \theta) < \text{Eu}(p, \theta)$ if and only if

1. $1/2 > \pi$,
2. $\pi \alpha \geq d > \pi (\alpha - 1)$,
3. $\pi \geq c > \pi^2$, and
4. $\pi \alpha > 1$.

To understand the intuition, observe that there are two motives for an IG to collect information, namely, an agenda motive and a persuasion motive. We say that $\text{IG}_n$ 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 intuition underlying Proposition 1 relies on three features which are necessary for detrimental IL. One feature is that the collection of information by \( IG_2 \) can induce the PM to switch his priorities and distort the policy agenda. A second feature is that this distortion in the policy agenda leads to worse policy. The third feature, which is related to condition 2 in Fact 1, is that \( IG_2 \) faces stronger incentives to collect information than \( IG_1 \). We now discuss each of these three features, one at a time.

The first feature specifies that IL must induce the PM to switch his priorities. More specifically, it must be that when \( IG_2 \) obtains favorable information (i.e., \( m_2 = R_2 \)), the PM forgoes collecting information on issue 1 and chooses policy \( p = (S_1, R_2) \). This happens if the expected benefit from collecting information on issue 1 when he knows that \( \theta_2 = R_2 \), which is equal to \( \pi \cdot (\alpha - 1) \), is smaller than the information collection cost \( d \). Hence the strict inequality in condition 2.

The second feature specifies that the agenda distortion leads to worse policy. More specifically, it must be that conditional on \( \theta_2 = R_2 \), the expected policy utility loss from forgoing a possibly beneficial reform on issue 1, which is equal to \( \pi_0 \), exceeds the policy utility gain from making the right policy choice on issue 2, which is equal to 1. Hence condition 4.

The third feature specifies that \( IG_2 \) faces stronger incentives to collect information than \( IG_1 \). We start by observing that \( \pi_1 = \pi_2 \) implies that the agenda motive for collecting information is the same for both IGs. More specifically, the incentive for \( IG_2 \) to collect information in an attempt at distorting the agenda is the same as the incentive for \( IG_1 \) to act counteractively and collect information in an attempt at preventing the agenda distortion. Since both IGs have the same agenda motive, \( IG_2 \) faces stronger incentives than \( IG_1 \) only if it has a persuasion motive and that its persuasion motive is stronger than \( IG_1 \)’s. Now, for \( IG_2 \) to have a persuasion motive, it must be that \( \pi < 1/2 \), i.e., without any information collection, the PM would keep the status quo. Hence condition 1. For the persuasion motive to be stronger for \( IG_2 \) than for \( IG_1 \), two things must happen. First, in the game without IGs, where the PM starts by collecting information on issue 1, the PM must never collect information on issue 2 and, therefore, never implement the reform on issue 2. This is automatically satisfied given the combination of condition 1, condition 4 and the strict inequality in condition 2. Second, in the game with IGs, when \( IG_2 \) obtains unfavorable information (i.e., \( m_2 = S_2 \)), the PM must collect information on issue 1, so to rid \( IG_1 \) of any persuasion motive. For this to happen, it must be that the expected policy utility gain for the PM to collect information on issue 1 when he knows that \( \theta_2 = S_2 \), which is equal to \( \pi_0 \), exceeds the information collection cost \( d \). Hence the weak inequality in condition 2.

Finally, condition 3 ensures that the expected benefit for \( IG_2 \) to collect information exceeds its information collection cost, while the expected benefit for \( IG_1 \) to collect information counteractively is smaller than its information collection cost.

It is straightforward to check that conditions 1-4 are together sufficient for IL to be detrimental.

Taken together, conditions 1-4 imply the following equilibrium strategies

\[
\begin{cases}
\sigma^1 = \sigma^2 (m^{PM}_1) = 1 \text{ for all } m^{PM}_1 \in \{ R_1, S_1 \}, \\
(\lambda_1, \lambda_2) = (0, 1), \text{ and } \\
\sigma^IL_2 (m_2 = R_2) = \sigma^IL_1 (m_2 = S_2) = 1,
\end{cases}
\]

where the superscript IL on \( \sigma \) refers to the game with IGs and the absence of a superscript IL to the game without IGs.

5.3. **Difference in priors.** We turn to the other polar case, i.e., the one in which issues differ only in priors. Specifically, we let \( \pi_1 > \pi_2 \) and \( \alpha = 1 \). In this setting, IL can be detrimental when information collection by the IG involved with the less-promising reform (i.e., the issue with lower priors) induces the PM to forgo collecting any information on his own, therefore crowding
out the PM's information collection. In this context, IL leads to worse policy since the PM makes, on average, less-informed policy decisions.

We begin by noting that Fact 1 applies to this case as well. In other words, in the game without IGs, the PM must start by collecting information on issue 1 and, in the game with IGs, IG\(_2\) must collect information while IG\(_1\) does not.

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

**Proposition 2.** Let \(\pi_1 > \pi_2\) and \(\alpha = 1\). \(\text{Eu}(p^{IL}, \theta) < \text{Eu}(p, \theta)\) if and only if

1. \(K = 2\),
2. \(\min\{\pi_2, 1 - \pi_2, \frac{(1-\pi_1)(1+\pi_2)}{2-\pi_1}\} \geq d > (1 - \pi_1)\), and
3. \(\pi_1 \pi_2 \geq c\).

The intuition underlying Proposition 2 relies on the same three features as for Proposition 1, namely, 1) that IG\(_2\)'s information collection can induce the PM to switch his priorities, 2) that the switch in priorities is associated with worse policy, and 3) that IG\(_2\) faces stronger incentives to collect information than IG\(_1\). We now discuss each of these three features, one at a time.

The first feature specifies that IL induces the PM to switch his priorities. It turns out that, in the case where issues differ in their priors only, this feature does not impose further restriction on the parameters. Indeed, the two issues being equally salient, the PM necessarily chooses to switch his priorities when IG\(_2\) obtains favorable information since the PM is then sure that the reform on issue 2 is beneficial, while he is uncertain about the desirability of the reform on issue 1.

The second feature specifies that the switch in priorities leads to worse policy. Given that issues are equally salient, this can happen only if IL leads to less informed policy choices. It must then be that the expected number of issues on which the PM is informed is bigger in the game without IGs than in the game with IGs. Two things must then be true.

First, in the game without IGs, the PM must start by collecting information on the more-promising reform (issue 1) and, when he obtains unfavorable information, go on and collect information on the less-promising reform (issue 2). In this way, the expected number of issues on which the PM is informed equals one, which is smaller than the corresponding number in the game without IGs. Hence the strict inequality in condition 2.

Second, in the game with IGs, where IG\(_2\) collects information on its issue, the PM should not collect any information on his own, whether IG\(_2\) obtains favorable or unfavorable evidence. In this way, the expected number of issues on which the PM is informed equals one. Hence condition 1 and the weak inequality in condition 2.

It follows from the above discussion that for IL to lead to less-informed policy decisions, it must be that: 1) knowing \(\theta_1 = S_1\), the PM chooses to collect information on issue 2; and 2) knowing \(\theta_2 = S_2\), the PM chooses to not collect information on issue 1. For this to be true, it must be that a signal on issue 2 is more informative than a signal on issue 1. Given \(q_1 = q_2\), this implies that the priors on issue 2 must be less informative than the priors on issue 1. This observation is formally stated in the following corollary.

**Corollary 1.** Let \(\pi_1 > \pi_2\) and \(\alpha = 1\). \(\text{Eu}(p^{IL}, \theta) < \text{Eu}(p, \theta)\) implies \(|\pi_1 - \frac{1}{2}| > |\pi_2 - \frac{1}{2}|\) and, therefore, \(\pi_1 > \frac{1}{2}\).

The third feature specifies that IG\(_2\) faces stronger incentives to collect information than IG\(_1\). As for the first feature, this feature does not impose further restriction on the parameters. Indeed,
this feature is necessarily satisfied since: 1) \( \pi_1 > \pi_2 \) implies that \( IG_2 \) has a stronger agenda motive than \( IG_1 \), i.e., \( IG_2 \) has a stronger incentive to seek to distort the agenda than \( IG_1 \) has an incentive to act counteractively, seeking to prevent the agenda distortion; and 2) \( \pi_1 > 1/2 \) (by Corollary 1) implies that \( IG_1 \) has no persuasion motive. Hence \( IG_2 \) has a stronger agenda motive than \( IG_1 \) as well as a persuasion motive at least as strong as \( IG_1 \)’s.

Finally, condition 3 ensures that the expected benefit for \( IG_2 \) to collect information exceeds its information collection cost. Note that there is no condition on the information collection cost for \( IG_1 \) to not collect information since the probability that the PM adopts the reform on issue 1 when he is informed \( \theta = (R_1, R_2) \) can be set low in equilibrium.

It is straightforward to check that conditions 1-3 are together sufficient for IL to be detrimental. Taken together, conditions 1-3 imply the following equilibrium strategies

\[
\begin{align*}
\sigma^1 & = 1; \sigma^2 (m^P_M = R_1) = \sigma^2 (m^P_M = S_1) = 1, \\
(\lambda_1, \lambda_2) & = (0, 1), \text{ and} \\
\sigma^I (m_2) & = 1 \text{ for all } m_2 \in \{R_2, S_2\}.
\end{align*}
\]

5.4. Discussion. We now discuss the main implications of the above analysis.

Full information policy choice—Our first implication discusses how detrimental IL affects the probability that the PM makes a full information policy choice, i.e., a policy choice he would make if he perfectly observed the realized state of the world. Let \( \rho \) denote the ex ante probability of a full information policy choice. A subscript \( \pi \) will refer to the case in which issues differ in their priors (hereafter \( \pi \)-case). A subscript \( \alpha \) will refer to the case in which issues differ in their salience (hereafter \( \alpha \)-case). A superscript IL will refer to the game with IGs, and the absence of a superscript IL to the game without IGs.

Implication 1. \( Eu (p^{IL}, \theta) < Eu (p, \emptyset) \) implies

\[
\begin{align*}
1 - \pi^2 < \rho^\pi > \rho^\pi = \pi_1 + \pi_2 - \pi_1 \pi_2 \\
1 - \pi^2 < \rho^\alpha > \rho^\alpha = 1 - (1 - \pi) \pi.
\end{align*}
\]

Thus, in the \( \pi \)-case detrimental IL is associated with a reduction in the ex ante probability of a full information policy choice. This happens because the PM is informed, in expectation, on a smaller number of issues in the game with IGs than in the game without IGs. This follows from a crowding-out effect, whereby information collection by \( IG_2 \) deters the PM from collecting firsthand information.

In contrast, in the \( \alpha \)-case detrimental IL is associated with an increase in the ex ante probability of a full information policy choice. This happens because the expected number of issues on which the PM gets informed is larger in the presence of IGs than in their absence.

This difference between the two polar cases explains the necessity of condition 4 in Proposition 1 and the absence of an analogous condition in Proposition 2.

That in the \( \alpha \)-case, IL can lead to worse policy and, at the same time, increase the ex ante probability that the PM makes a full information policy choice may, at first glance, appear contradictory. The key to understanding these seemingly contradictory results is to note that IL leads to a situation where the PM is more likely to get informed on issue 2 and less likely to get informed on issue 1. It follows that IL results in a higher probability of a correct policy choice in state \( (\theta_1, \theta_2) = (S_1, R_2) \)—in which the PM implements the reform on issue 2 rather than keeping the status quo,—but reduces the probability of a correct policy choice in state \( (\theta_1, \theta_2) = (R_1, R_2) \)—in which the PM implements the reform on issue 2 instead of implementing the more beneficial reform on issue 1. However, the former state involves the less-salient issue, whereas the latter state involves the more-salient issue. The policy utility gain is therefore smaller than the policy utility loss. Hence the result that IL can lead to worse policy. At the same time, \( \pi < 1/2 \) implies
that the former state is more likely than the latter state, which explains that IL increases the probability of a full information policy choice. Thus, an important implication of our analysis is that IL can lead to worse policy and a higher probability of a full information policy choice, both at the same time.\footnote{This implication contrasts with findings from the strategic information transmission tradition, where a few contributions (e.g., Rasmusen 1993) have found as well that lobbying can lead to worse policy. However, in the strategic information transmission tradition, worse policy occurs because of deception or signal-jamming, which results in the PM being on average worse, not better, informed. Hence, these contributions cannot get IL leading to worse policy and more likely full information policy choice at the same time, as we find in our analysis.}

**Preference alignment**—Our second implication discusses how the policy preferences of the active IG are aligned with the ex ante policy preferences of the PM when IL is detrimental. In our framework, lobbying by $IG_n$ is said to be friendly if $\pi_n \geq 1/2$, i.e., the PM’s ex ante policy preferences are aligned with those of $IG_n$. Lobbying by $IG_n$ is said to be confrontational if instead $\pi_n < 1/2$.

**Implication 2.** $Eu(p_{IL}, \theta) < Eu(p, \theta)$ implies
1. lobbying can be either friendly or confrontational in the $\pi$-case.
2. lobbying is confrontational in the $\alpha$-case.

That detrimental IL is confrontational in the $\alpha$-case follows directly from $\pi < 1/2$ (by condition 1 of Proposition 1). To understand this result, recall that the condition $\pi < 1/2$ serves to ensure that $IG_2$ has stronger information collection incentives than $IG_1$. Also, recall that in the $\alpha$-case, both IGs have the same agenda motives for collecting information. This implies that $IG_2$ must also have a persuasion motive, which requires $\pi < 1/2$. Hence the confrontational nature of lobbying.

That detrimental IL can be friendly or confrontational in the $\pi$-case is illustrated by the absence in Proposition 2 of a condition that $\pi_2 \geq 1/2$. To see why, recall that $IG_1$ has no persuasion motive (given $\pi_1 > 1/2$ by Corollary 1). Moreover, $\pi_1 > \pi_2$ implies a weaker agenda motive for $IG_1$ than for $IG_2$. As a result, there is no need for a persuasion motive for $IG_2$ to have stronger information collection incentives than $IG_1$. Hence the possibility that lobbying is friendly and leads to worse policy, both at the same time.

Thus, an interesting feature of our analysis is that it can rationalize friendly lobbying. Empirical evidence has shown that IGs sometimes lobby PMs who share their view (e.g., Schlozman and Tierney 1986, Kollman 1997, Bauer, Dexter and de Sola Pool 1963, Hojnacki and Kimball 1998). In our model, this happens because of agenda-setting considerations. Indeed, without any restriction on the number of issues that can be addressed, persuasion would be the sole motive for lobbying, and equilibrium lobbying would be confrontational. Our explanation for friendly lobbying is consistent with the rationalization of friendly lobbying as a form of legislative subsidy (e.g., Hall and Deardorff 2006).\footnote{Observe though that, contrary to Hall and Deardorff (2006), we find that IL is not always friendly. This follows because we allow for persuasion, which Hall and Deardorff do not.} However, it contrasts with the rationalization proposed by Austen-Smith and Wright (1992), in which IGs lobby PMs who share their view with the sole purpose of counteracting lobbying efforts by IGs holding opposite views. In our setting, counteractive lobbying cannot occur in equilibrium given that evidence is verifiable and perfectly informative.\footnote{It is worth pointing out that counteractive lobbying on one issue (as in Austen-Smith and Wright 1992) does not occur either in an extension to our baseline model where for each issue there are two IG advocates with conflicting interests (as shown in Section 6).}
That IL can be friendly and lead to worse policy, both at the same time, is an important implication of our analysis. One argument we sometimes hear is that we should not worry about lobbying since most lobbying is friendly. According to this type of argument, IGs spend, or rather waste, their time and resources trying to persuade PMs who are already biased in their favor. Our analysis warns against this type of argument; it shows that lobbying can be friendly and, yet, influence policymaking and lead to worse policy.

**Motives**—Our third implication discusses the motives behind detrimental IL. Recall that there are two motives for an IG to collect information, namely, an agenda motive and a persuasion motive. We now investigate what motive(s) is (are) driving detrimental IL. We say that the agenda motive is necessary for $IG_n$ to lobby if, in equilibrium, $IG_n$ would not have collected information had there been no restriction on the number of reform proposals the PM can implement (i.e., $M = 2$). We say that the persuasion motive is necessary for $IG_n$ to lobby if, in equilibrium, $IG_n$ would not have collected information had $π_n ≥ 1/2$.

**Implication 3.** $Eu(p^{IL}, θ) < Eu(p, θ)$ implies

1. only the agenda motive is necessary in the $π$-case.
2. only the persuasion motive is necessary in the $α$-case.

The intuition runs as follows. Consider first the $π$-case. Recall that when IL is detrimental, the expected equilibrium number of issues on which the PM gets informed is larger in the game without IGs than in the game with IGs. This means that without IL, the PM must choose to collect information on issue 2 following signal $m_{PM}^1 = S_1$ and, therefore, that $IG_2$ has no persuasion motive. Hence the necessity of only an agenda motive.

Consider now the $α$-case. Recall that in this case, both IGs have the same agenda motive since $π_1 = π_2$. Hence the necessity of a persuasion motive for having only $IG_2$ collecting information. For $IG_2$ to have a persuasion motive, it must be that without IL, the PM never collects firsthand information on issue 2. For $IG_1$ to have a weaker persuasion motive, it must be that following signal $m_2 = S_2$, the PM chooses to collect firsthand information on issue 1. These two conditions impose restrictions on parameters $π$, $α$ and $d$, which are such that equilibrium information collection strategies are the same whether $M = 1$ or $M = 2$. As a result, $IG_2$ has no agenda motive. Hence the necessity of only a persuasion motive.

We have already established that detrimental IL requires the PM to be constrained in the number of reforms he can implement. When the PM is not constrained and can implement reform on both issues, IL is necessarily driven by a persuasion motive, and IL cannot be detrimental (condition 2 in Lemma 1). Implication 3 shows that IL can be detrimental even when it is solely driven by a persuasion motive. In other words, IL can distort the agenda and lead to worse policy not because IGs purposely seek to distort the agenda, but because IGs’ persuasion effort has the unintended effect of inducing the PM to change his information collection decisions and switch his priorities.

Observe that Implication 3 is related to Implication 2. In our model, friendly lobbying necessarily requires an agenda motive. It follows from Implication 3 that detrimental IL must necessarily be confrontational in the $α$-case, as was found in Implication 2.

**Informational resources**—Our last implication discusses how detrimental IL depends on the informational resources to which the PM has access (i.e., how many issues the PM can choose to review on his own). These resources are captured by the number $K$ of issues on which the PM can collect firsthand information. Intuitively, we may expect that IL is less likely to be detrimental when the available informational resources are limited. This is because IGs’ information collection would then be more likely to complement the informational resources available to the
PM, rather than substitute for them. This intuition is confirmed in our next result. Let $Eu^K(\cdot, \theta)$ denote expected equilibrium policy utility when the PM can collect information on up to $K$ issues. Also, let $\mathcal{E}_K$ be the set of parameter lists $(\pi_1, \pi_2, \alpha, d, c)$ for which $Eu^K(p^{IL}, \theta) < Eu^K(p, \theta)$ given $K$.

**Implication 4.** (1) *In the $\pi$-case, $\mathcal{E}_1 = \emptyset \neq \mathcal{E}_2$. For any $e \in \mathcal{E}_2$, we have*

$$Eu^1(p, \theta) \leq Eu^1(p^{IL}, \theta) = Eu^2(p^{IL}, \theta) < Eu^2(p, \theta).$$

(2) *In the $\alpha$-case, $\mathcal{E}_1 = \mathcal{E}_2 \neq \emptyset$.*

Thus, in the $\pi$-case IL is less likely to be detrimental when the informational resources are limited than when they are not limited (i.e., $\mathcal{E}_1 \subsetneq \mathcal{E}_2$). The intuition runs as follows. Observe that condition 1 of Proposition 2 implies $\mathcal{E}_1 = \emptyset$ and, therefore, $\mathcal{E}_1 \subseteq \mathcal{E}_2$. This condition happens because $\alpha = 1$ and $|\pi_1 - 1/2| > |\pi_2 - 1/2|$ (by Corollary 1) imply IL can be detrimental only if the PM gets informed, in expectation, on a smaller number of issues in the game with IGs than in the game without IGs. Obviously, this cannot be when $K = 1$. That the subset is proper follows from $\mathcal{E}_2 \neq \emptyset$.

One might then be tempted to conclude that reducing the PM’s available informational resources would be beneficial to the electorate by eliminating detrimental IL. The second part of Implication 4(1) establishes that such a conclusion is actually erroneous. More specifically, it shows that moving from $K = 2$ to $K = 1$ eliminates detrimental IL not by increasing expected policy utility in the game with IGs, but instead by decreasing expected policy utility in the game without IGs.

In the $\alpha$-case the detrimental nature of IL is independent of the informational resources available to the PM (conditional on $K \neq 0$). This is easily understood by observing that no condition in Proposition 1 depends on $K$ since, in equilibrium, the PM collects firsthand information on at most one issue, both in the game with IGs and in the game without IGs.

### 6. Extensions

This section extends our baseline model in a number of ways. In Section 6.1, we consider a situation in which the PM’s information collection decisions are simultaneous instead of sequential. In section 6.2, we consider an alternative information collection sequence, one in which the PM moves first and is followed by the IGs. In section 6.3, we explore the implications of asymmetries in information collection costs. In section 6.4, we consider imperfectly informative signals, and explore the implications of asymmetries in information quality across issues. In section 6.5, we consider a situation in which there are, for each issue, two IG advocates with conflicting interests. Finally, in section 6.6, we discuss alternative measures of policymaking efficiency.

Proofs for all extension results are provided in supplementary material available online.

#### 6.1. Simultaneous information collection.

In our baseline model we have assumed that when the PM can decide to collect information on both issues ($K=2$), he makes his information collection decisions sequentially, one issue at a time (hereafter the “sequential protocol”). This assumption was made so the equilibrium information collection sequencing in the game without IGs parallels the equilibrium sequencing in the game with IGs (where information is collected sequentially, first by $IG_2$ and then by the PM). In this section, we consider an alternative specification in which the PM makes his information collection decision on both issues simultaneously (hereafter “simultaneous protocol”). Throughout this subsection, we restrict attention to the non-trivial case where $K=2$, i.e., where the PM can effectively choose to collect information on both issues.
The key difference between the simultaneous and the sequential protocols lies in the fact that, in the absence of IL, the PM’s incentives to collect information are weaker under the simultaneous protocol than under the sequential protocol. This is because when deciding on collecting information on a second issue, the PM knows the realized state for the other issue under the sequential protocol, but not under the simultaneous protocol. The PM thus knows for sure whether the extra information will be decisive for his policy choice under the sequential protocol, but is uncertain under the simultaneous protocol.

This difference between the two protocols has opposite implications in the $\pi$-case and in the $\alpha$-case. Recall that, in the $\pi$-case, IL can be detrimental only if in the game without IGs, the PM collects information, in expectation, on more than one issue. By weakening the PM’s incentives for collecting information, the simultaneous protocol makes it more difficult for this condition to be satisfied. It follows that, in the $\pi$-case, detrimental IL is less likely under the simultaneous protocol than under the sequential protocol. Instead, in the $\alpha$-case, IL can be detrimental only if in the absence of IL, the PM collects information on one issue only. By weakening the PM’s incentives for collecting information, the simultaneous protocol makes it easier for this condition to be satisfied. It follows that, in the $\alpha$-case, detrimental IL is at least as likely under the simultaneous protocol as under the sequential protocol.

The following proposition formalizes this discussion. In the statement of the proposition, we denote by $E$ the region of the parameter space for which $Eu(p_{IL}, \theta) < Eu(p, \theta)$. We add a subscript $S$ to refer to the simultaneous protocol, while the absence of a subscript $S$ refers to the sequential protocol.

**Proposition 3.** Let $K = 2$.

1. In the $\pi$-case, $E_S = \emptyset \neq E$. For any $e \in E$, we have
   \[ Eu (p_{S}, \theta) \leq Eu (p_{S}^{IL}, \theta) = Eu (p_{S}^{IL}, \theta) < Eu (p, \theta) \]

2. In the $\alpha$-case, $E_S = E \neq \emptyset$.

Note the similarity between Proposition 3 and Implication 4. The two statements are similar, with the simultaneous protocol standing for $K = 1$ and the sequential protocol standing for $K = 2$. In our model, simultaneous information collection and a limitation on the informational resources available to the PM have thus similar implications. This happens because simultaneous information collection weakens the PM’s incentives to collect information and make use of the available informational resources.

### 6.2. Information collection sequencing.

In our baseline model we have assumed that IGs are the first to make their information collection decision, and that their choice is followed by the PM’s own decision of whether to collect information (hereafter the “IG-first protocol”). A key implication of this assumption is that information collection by $IG_2$ may deter the PM from collecting information on issue 1. We now investigate whether the PM can avoid this type of situation by moving first, effectively swapping stages 2 and 3 in the sequence of the game with IGs (hereafter the “PM-first protocol”).

We find that the PM moving first does not eliminate detrimental IL. Actually, the exact opposite happens in the $\pi$-case, where moving from the IG-first protocol to the PM-first protocol triggers an expansion of the region of the parameter space in which $Eu (p_{IL}, \theta) < Eu (p, \theta)$. Likewise, in the $\alpha$-case, we find that IL can be detrimental in the PM-first protocol. However, in the $\alpha$-case the regions of the parameter space in which IL is detrimental are disjoint under the two protocols. The following proposition makes this precise. In the statement of the proposition, a subscript $K$ indicates the number of issues on which the PM can collect information. A superscript $PM$ refers to the PM-first protocol, while the absence of superscript refers to our baseline, IG-first protocol.
Proposition 4. For any $K \in \{1, 2\}$, the set of parameter lists under which IL is detrimental in the PM-first protocol, $E_K^{PM}$, is non-empty. Moreover,

1. in the $\pi$-case, $E_K \subset E_K^{PM}$, and
2. in the $\alpha$-case, $E_K \cap E_K^{PM} = \emptyset$.

We start by discussing the intuition for the $\pi$-case. For IL to be detrimental it must be that in equilibrium of the game with IGs, only IG2 collects information, while neither IG1 nor the PM collects information. This must be true under each of the two protocols.

Given IG1’s and the PM’s information collection strategies, IG2 has incentives to collect information that are at least as strong under the PM-first protocol as under the IG-first protocol. This happens since, under the PM-first protocol, the PM has already made his information collection decision—effectively choosing to not collect information—when IG2 makes its information collection decision. As a result, if IG2 does not collect information, the PM will base his policy choice on his priors and, given $\pi_1 > \pi_2$, will not implement the reform on issue 2. The only way for IG2 to get its reform adopted is therefore to collect information itself.

Likewise, in the game with IGs, the PM’s incentives to not collect information (on issue 1) are stronger under the PM-first protocol than under the IG-first protocol. This happens since in the PM-first protocol, the PM must make his information collection decision before observing IG2’s signal and, therefore, without knowing for sure whether information on issue 1 will improve policy.

Finally, IG1’s incentives to collect information are the same under both protocols since, in any case, IG1 takes its information collection decision before observing any signal on issue 2.

We now discuss the intuition for the $\alpha$-case. Pick a parameter list under which IL is detrimental under the IG-first protocol, and consider the PM-first protocol. It follows that in the game without IGs (where the two protocols are trivially ‘equivalent’), the PM collects information on issue 1 only. For IL to be detrimental, it must then be that, in the game with IGs, the PM does not collect information on issue 1. But since $\alpha < 1/2$ (by condition 1 of Proposition 1), IG1 will then have a persuasion motive to collect information on its issue if the PM does not do so on his own. And since $\alpha \geq c$ (by condition 3 of Proposition 1), IG1 will want to exercise this persuasion motive and collect information. It follows that the PM is at least as well informed in the game with IGs as in the game without IGs and, therefore, IL cannot be detrimental. Hence, IL cannot be detrimental under the PM-first protocol for any of the parameter lists in the region of the parameter space where IL is detrimental under the IG-first protocol. That there exists a region of the parameter space in which IL is detrimental under the PM-first protocol is easily seen by constructing examples.

6.3. Information collection costs. In our baseline model we have assumed that information collection costs are the same for both issues. This assumption allowed us to focus on the implications of differences in priors and in issue salience. We now consider two alternative specifications in which information collection costs vary across issues.

In one specification, $d_1 = d_2$ and $c_1 \neq c_2$. Given that it is equally costly for the PM to collect information on each issue ($d_1 = d_2$), we can interpret the difference in IGs’ information collection costs ($c_1 \neq c_2$) as reflecting an asymmetry in IGs’ access to funds and resources. For example, this specification could capture a situation in which one interest is concentrated, and is therefore able to solve the collective action problem and raise funds easily, while the other interest is diffused, and is unable to solve the collective action problem and therefore faces difficulties in raising funds. The former interest would have the lowest $c_n$ among the two interests, and the latter interest would have the highest $c_n$.

Interestingly, the strengthening of the PM’s incentives to not collect information in the game with IGs makes detrimental IL possible even when $K = 1$, which condition 1 of Proposition 2 rules out under the IG-first protocol.
In another specification, \( d_1 = c_1 \neq d_2 = c_2 \). Given that, for each issue, the information collection cost is the same for the PM and the IG advocating the issue (\( d_n = c_n \) for \( n = 1, 2 \)), we can interpret the difference in costs as reflecting an asymmetry in the complexity of issues. For example, the specification could capture a situation in which one issue would require costly scientific evidence to determine the realized state of the world (e.g., whether intensive use of cellphones can cause brain cancer), while the other issue would require a relatively low cost, small-scale opinion poll to assess the needs of a local community.

The argument turns out to be almost identical under these two alternative specifications. Given the space constraint, we shall therefore focus our presentation on the former specification (i.e., the one in which \( d_1 = d_2 \) and \( c_1 \neq c_2 \)).

The intuition and results from Section 5 still hold in the \( \pi \)-case. This is because the information collection strategies along the equilibrium path must be the same as in our baseline model (see (II)). As a result, the set of necessary and sufficient conditions for detrimental IL are identical to the ones in Proposition 2, except for condition 3 which is replaced with \( \pi_1 \pi_2 \geq c_2 \).

Consider now the \( \alpha \)-case. The intuition and results from Section 5 still hold when \( c_2 \geq c_1 \), i.e., when the IG advocating the less salient issue is also the IG for which lobbying is relatively more costly. To understand why, recall from Fact 1 that IL can be detrimental only if: 1) in the game without IGs, the PM starts by collecting information on issue 1; and 2) in the game with IGs, \( IG_2 \) is the only IG collecting information. The latter condition requires information collection incentives to be stronger for \( IG_2 \) than for \( IG_1 \). Given that the agenda motive is here the same for both IGs and that information collection is at least as costly for \( IG_2 \) as for \( IG_1 \), \( IG_2 \) must have a stronger persuasion motive to lobby than \( IG_1 \). It must then be that: 1) in the game without IGs, the PM never implements the reform for issue 2, which requires two things, namely, that the PM does not collect information on issue 2 and that \( \pi < 1/2 \); and 2) in the game with IGs, the PM implements the reform for issue 1 with positive probability, which, given \( \pi < 1/2 \), requires that the PM collects information on issue 1 when \( IG_2 \) obtains unfavorable information (\( m_2 = S_2 \)).

To sum up, information collection strategies along the equilibrium path must be the same as in (I). The set of necessary and sufficient conditions for detrimental IL is therefore the same as in Proposition 1, except that condition 3 is replaced with \( c_1 > \pi^2 \) and \( \pi \geq c_2 \).

In contrast, when \( c_1 > c_2 \), it is no longer necessary that \( IG_2 \) faces a stronger persuasion motive than \( IG_1 \) for \( IG_2 \) to be the only IG collecting information. This observation has two important implications. First, it is now possible to have \( \pi \geq 1/2 \), implying that it is now possible to have lobbying which is both detrimental and friendly, something which is not possible when \( c_1 = c_2 \) (see Implication 2(2)). Second, in the game without IGs, it is now possible to have the PM collecting firsthand information on issue 2 following unfavorable evidence on issue 1 (\( m_1^{PM} = S_1 \)), which is different from the strategies in (I).

### 6.4. Less-than-perfect information accuracy

In our baseline model we have assumed that information is perfectly informative about the state of the world. If the IG (resp. PM) collects information on issue \( n \), then until now \( m_n = \theta_n \) (resp. \( m_n^{PM} = \theta_n \)) with probability one. In this section, we consider an alternative specification of the model in which \( m_n = \theta_n \) (\( m_n^{PM} = \theta_n \)) with

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Footnote 1:
The specification in which \( d_1 = c_1 \neq d_2 = c_2 \) has an interesting feature which is worth mentioning here. We saw in Section 5.4 that in the \( \alpha \)-case, the detrimental nature of IL is independent of the informational resources to which the PM has access. This is no longer true however when \( d_1 \) is sufficiently larger than \( d_2 \). In this case, IL is more likely to be detrimental in the case where the informational resources are limited; that is, \( \mathcal{E}_2 \subset \mathcal{E}_1 \). Curiously, this is the very case in which we would be expecting IL to improve policymaking since IL would then complement the PM’s informational resources. The intuition behind this counterintuitive result lies in stronger lobbying incentives. Specifically, a limitation on the informational resources precludes the PM from collecting information on issue 2 in the game without IGs. This creates a persuasion motive for \( IG_2 \), thereby strengthening its incentives to collect information, and increasing the prospects for detrimental IL.
probability \( q_n \in (1/2, 1] \). That is, when either the PM or \( IG_n \) collects information, evidence reflects the realized state of issue \( n \) with probability \( q_n \). With probability \( (1 - q_n) \), evidence reflects the wrong state of the world.

To make the discussion interesting, we assume that \( q_n \) is sufficiently accurate to overturn the PM’s priors in favor of or against the reform. That is, \( q_n \geq \max\{\tau_n, 1 - \tau_n\} \) for both issues. We further assume that information is identical, regardless whom collects it. This implies that regardless of whether \( IG_n \) or the PM or both collect information on issue \( n \), the PM is exposed to the same evidence. No additional evidence is revealed when both collect information compared with when only one of them collects information.

In this setting, the main qualitative results from the previous sections continue to hold for the cases where issues differ in only salience or priors, and \( q_1 = q_2 \) is sufficiently large. This observation is not really surprising. This section therefore focuses on an alternative question; we ask whether IL can be detrimental when issues only differ in their information quality, \( q_n \). Here, we assume \( \alpha = 1, \pi_1 = \pi_2 = \pi, \tau_1 = \tau_2 = \tau, d_1 = d_2 = d \), and finally \( 1/2 < q_2 < q_1 \leq 1 \).

Let \( \tau_n = \alpha \pi q_n + (1 - \pi)(1 - q_n) \) denote the probability that information collection on issue \( n \) results in a signal supporting reform (i.e., \( m_n = R_n \) if \( IG_n \) collects and \( m_n^{PM} = R_n \) if the PM collects).

**Proposition 5.** Eu \((p^{IL}, \theta) < Eu \((p, \theta)\) if and only if

1. \( \pi \geq 1/2 \),
2. \( 2\pi(1 - \pi)(2q_1 - 1) \geq d > q_1 - \pi \), and
3. \( \tau_1 + \tau_2 - 1 \geq c \).

The conditions correspond to a region of the parameter space in which, in the game without IGs, the PM collects information on issue 1 and then either implements policy \( p = (R_1, S_2) \) when \( m_1^{PM} = R_1 \) or implements \( p = (S_1, R_2) \) when \( m_1^{PM} = S_1 \). In the game with IGs, the parameters lead to an equilibrium in which \( IG_2 \) (driven by an agenda motive) collects information and \( IG_1 \) does not, and the PM implements \( p = (S_1, R_2) \) when \( m_2 = R_2 \) and implements \( p = (R_1, S_2) \) when \( m_2 = S_2 \). In the game without IGs, the PM always learns about \( \theta_1 \) and never learns about \( \theta_2 \) before choosing policy. In the game with IGs, the PM always learns about \( \theta_2 \) and never learns about \( \theta_1 \) before choosing policy. Expected policy utility is higher when the PM learns about \( \theta_1 \) rather than \( \theta_2 \); it is higher in the game without IGs.

### 6.5. Groups with conflicting interests.

Our baseline model assumes there is only one IG advocate per issue and that it always prefers the reform proposal to the status quo. However, as [Baumgartner et al. (2009)] shows for the U.S., there are often two sides to an issue, “one side seeking some particular type of change to the existing policy and another one seeking to protect the status quo”. In this specification, the PM can be better off with IL than without it.

We now consider an alternative specification in which there are two IG advocates per issue: one which always prefers the reform proposal to the status quo, and another which always prefers the status quo to the reform proposal. Specifically, given a policy \( p_n \) the utility of the pro-reform IG for issue \( n \) (hereafter \( IG_n^R \)) is given by \( v_n^R(p_n) = 1 \) when \( p_n = R_n \) and \( v_n^R(p_n) = 0 \) when \( p_n = S_n \). By contrast, the utility of the anti-reform IG for issue \( n \) (hereafter \( IG_n^S \)) is given by \( v_n^S(p_n) = 1 \) when \( p_n = S_n \) and \( v_n^S(p_n) = 0 \) when \( p_n = R_n \).

The addition of anti-reform IGs in our baseline model leaves unchanged the region of the parameter space in which \( Eu \((p^{IL}, \theta) < Eu \((p, \theta)\)\). To see why our previous results are robust to the addition of anti-reform IGs, consider a parameter list for which IL leads to worse policy when there are only pro-reform IGs. For such a parameter list, neither of the two anti-reform IGs will want to lobby. First, \( IG_n^S \) has no incentive to collect information since it actually benefits from the agenda distortion triggered by \( IG_n^R \). Second, \( IG_n^R \) has no incentive to collect information given our assumption that signals reveal the realized state of the world with probability one.
6.6. Alternative measures of policy efficiency. Until now, our analysis has used the ex ante expected equilibrium policy utility $Eu(p, \theta)$ as a measure of policymaking efficiency. We now discuss alternative measures.

We start by considering measures of policymaking efficiency that include information collection costs in our baseline measure. Formally, we consider the following family of measures

$$Eu(p, \theta) - \phi C - \mu D$$

where $C$ and $D$ represent total information collection costs incurred by the IGs and the PM respectively, and $\phi \in [0, 1]$ and $\mu \in [0, 1]$ represent the importance of these costs relative to the policy outcome for the electorate.

The polar case where $\phi = \mu = 0$ corresponds to our baseline measure. Excluding all information collection costs may be justified as a way to put aside the possibility for IL to be detrimental because IG competition leads to over-investment in information collection. In our baseline analysis, we have therefore been able to isolate agenda distortion as a source of detrimental IL.

An alternative polar case is the one where $\phi = \mu = 1$, i.e., where we subtract from the ex ante expected equilibrium policy utility any information collection costs incurred by the IGs or the PM. Our results are qualitatively robust to incorporating all information collection costs into the measure of policymaking efficiency. This measure can be justified if the electorate funds the information collection activities of the PM and of the IGs. For example, part of the electorate may constitute the membership of the IGs, and fund IGs’ information collection efforts through membership fees and contributions. They may also be shareholders of firms engaging in lobbying, and may indirectly fund the firms’ information collection activities by receiving lower dividends. Likewise, the PM’s information collection efforts may be financed by taxpayer money.

A similar discussion holds for the intermediate cases where $\phi = \mu \in (0, 1)$.

Another polar case is the one where $\phi = 0$ and $\mu = 1$, i.e., where we subtract from the ex ante expected equilibrium policy utility any information collection costs incurred by the PM, but none of the information collection costs incurred by the IGs. This measure corresponds to the PM’s ex ante expected payoff. Our results are not robust to this alternative measure; IL cannot be detrimental according to this measure. This is because, as was already discussed in Section 3.6, IL cannot make the PM worse off given that it does not change the PM’s set of feasible actions and that IGs cannot deceive the PM. In a way, the result is not really surprising since this measure treats the information collected by the IGs as a freebie. Having said this, this measure can be justified in circumstances where the electorate funds the PM’s information collection activities (e.g., through tax payments) and where the IGs are controlled and financed by foreign entities whose welfare is of no direct concern to the electorate.

Intermediate cases between the previous polar case ($\phi = 0$ and $\mu = 1$) and our baseline measure ($\phi = \mu = 0$) involve $\phi = 0$ and $\mu \in (0, 1)$. These cases may represent situations in which the PM cares more about his own information collection costs relative to policy utility than the electorate does. Our results are qualitatively robust to such measures when $\mu$ is sufficiently small.

We have so far discussed measures of policymaking efficiency which rely on expected policy utility $Eu(p, \theta)$. Another measure frequently used in the literature to evaluate the impact of IL on policy is the ex ante probability that the PM implements policy as if he were fully informed about the realized state of the world. We have already discussed in Section 3.5 the limitations of applying this measure to our setting. While this measure leads to the same conclusion as our baseline measure in settings with a single issue, we show in Implication 1 in Section 5.4 that this is not necessarily true in a setting like ours with multiple issues, when the electorate cares about one issue more than another. In such settings, we can find circumstances in which IL is

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22IL is yet again detrimental according to this measure if the conditions stated in Proposition 1 or Proposition 2, together with an additional condition on the difference between $c$ and $d$, are satisfied. Moreover, there is now an additional region of the parameter space where IL is detrimental in the $\pi$-case.
detrimental according to one measure, but not according to the other measure. As we previously
mentioned, between these two measures our preferences go toward our baseline measure since
it is better at capturing the differential weights the electorate puts on the different issues.

7. Conclusion

The literature on informational lobbying and persuasion generally views the collection and
undistorted transmission of valuable information by interest groups as leading to better-informed
policymaking. The literature tends to conclude that IG influence has the potential to lead to worse
policy only when quid pro quo exchange of political contributions for policy favors, pandering
to special interests for reelection, or deception and information distortion are incorporated into
the models.

In this paper, we challenge the view that pure informational lobbying (in the absence of po-
litical contributions and evidence distortion) leads on average to better policy. We do so un-
der a number of assumptions favorable for lobbying to be beneficial. Specifically, we assume
that interest groups can influence policymaking only through information provision and cannot
manipulate or hide information, the policymaker and interest groups have access to the same
information collection technology, and the policymaker’s and the electorate’s policy preferences
are perfectly aligned. We have shown that even in such a favorable 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. First, the policymaker
has limited capacity to implement reform. This means that the PM must prioritize issues, which
allows for the possibility that informational lobbying by interest groups may influence the policy
agenda. Second, the policymaker 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
policymaker may collect firsthand information. It also introduces the possibility that the policy-
maker chooses to become informed about different issues without lobbying than he learns about
with lobbying. Third, the policymaker faces costs of information collection. This is consistent
with the idea that it takes effort for the policymaker to learn about and understand an issue, and
that this effort is not directly observable or that the contractable framework is incomplete. This
results in an agency problem between the policymaker and the electorate who, before any in-
formation collection by interest groups, may prefer the policymaker to collect more information
than the policymaker 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 of policymakers, or exploitation of a political advantage ensuing from the
IG’s ability at solving the collective action problem and other interests’ inability at solving this
problem.

Our analysis has important implications for the public debate on the merits of campaign fi-
ance reform and lobbying. It shows that eliminating special interest money from the political
process is not sufficient to ensure that policymakers implement the policies favored by their con-
stituents, even in the best-case scenario where they share the same policy preferences. Unbiased
informational lobbying, even in the absence of political contributions, can have detrimental ef-
fects on policy outcomes. We show how the reliance of policymakers on informational lobbying
to learn about issues can induce them to prioritize issues advocated by IGs who actively lobby
policymakers.

References


Appendix A. Appendix

Proof of Lemma 1. We start by proving the necessity of $K \in \{1, 2\}$. Assume by way of contradiction that $K = 0$, i.e., the PM cannot collect any information on his own. It follows that in the game without IGs, the PM’s posterior beliefs coincide trivially with his priors, i.e., $\beta_n = \pi_n$ for $n = 1, 2$. At the same time, in the game with IGs, for each issue $n$ the IG involved with this issue, $IG_n$, either collects information or does not. In the former case, the PM gets fully informed about $\theta_n$, and his posterior belief about $\theta_n$ is $\beta_n \in \{0, 1\}$. In the latter case, the PM’s posterior belief about $\theta_n$ coincides with his prior, i.e., $\beta_n = \pi_n$. In both cases, the PM’s posterior beliefs are at least as precise as his priors, i.e., $|\beta_n - 1/2| \geq |\pi_n - 1/2|$ for $n = 1, 2$. Hence $Eu (p^{IL}, \theta) \geq Eu (p, \theta)$, a contradiction. From now on, we shall assume $K \in \{1, 2\}$.

We continue by proving the necessity of $M = 1$. Assume by way of contradiction that $M = 2$, i.e., the PM can address both issues. It follows that for each issue $n$, the PM chooses policy $p_n = R_n (S_n)$ if $\beta_n > 1/2$ ($\beta_n < 1/2$), and is indifferent between $p_n = R_n$ and $p_n = S_n$ if $\beta_n = 1/2$. Note that $\beta_n \in \{0, \pi_n, 1\}$ for $n = 1, 2$, where $\beta_n \in \{0, 1\}$ if the PM or $IG_n$ collected information about $\theta_n$, and $\beta_n = \pi_n$ otherwise. Let $\bar{\beta}_n \equiv \max \{\beta_n, 1 - \beta_n\}$, which corresponds to the PM’s ex post belief that he is making the right policy choice on issue $n$. To prove the necessity of $M = 1$, it is sufficient to show that $p_n^{IL} \geq \bar{\beta}_n$ for $n = 1, 2$, where superscript IL indicates the game with IGs ($\Gamma = IL$) and the absence of superscript IL indicates the game without IGs ($\Gamma = \emptyset$).

Consider the PM’s information collection decision. In the game $\Gamma \in \{\emptyset, IL\}$, let $\gamma_n \equiv \min \{\gamma_n, 1 - \gamma_n\}$, which corresponds to the PM’s belief before he decides whether to collect information about $\theta_n$. Observe that in the game without IGs, we have $\gamma_n = \min \{\pi_n, 1 - \pi_n\}$. At the same time, in the game with IGs, we have $\gamma_n^{IL} = 0$ if $IG_n$ collected information, and
\[
\gamma_{n}^{IL} = \min \{\pi_n, 1 - \pi_n\} \text{ if it did not. Observe also that in game } \Gamma \in \{\emptyset, IL\}, \text{ the PM collects information on issue } n \text{ when } \gamma_{n}^{\Gamma} a_n \geq d \text{ and, if } K = 1, \text{ only when } \gamma_{n}^{\Gamma} a_n \geq \gamma_{-n}^{\Gamma} a_{-n}, \text{ where } a_1 = \alpha \text{ and } a_2 = 1.
\]

Consider an arbitrary issue \( n \). In the game with IGs, there are two cases to consider.

In one case, IG\( n \) collected information, in which case \( \gamma_{n}^{IL} = 0 \), the PM does not collect information on issue \( n \), and \( \beta_n^{IL} = 1 \geq \beta_n \). Moreover, the PM is at least as likely to be informed on the other issue, issue \( -n \), in the game with IGs than in the game without since in the game with IGs, either IG\( -n \) collects information or \( \gamma_{-n} a_{-n} \geq d \) and \( \gamma_{-n} a_{-n} \geq \gamma_{n} a_n \) then imply \( \gamma_{-n}^{IL} a_{-n} \geq d \) and and \( \gamma_{-n}^{IL} a_{-n} \geq \gamma_{n}^{IL} a_n \). Hence, we have \( \beta_n^{IL} \geq \beta_n \).

In the other case, IG\( n \) does not collect information, in which case \( \gamma_{n}^{IL} = \gamma_n \). Since \( \gamma_{n}^{IL} \leq \gamma_{-n} \), the PM is at least as likely to collect information on issue \( n \) in the game with IGs than in the game without. It follows that \( \beta_n^{IL} \geq \beta_n \) and \( \beta_n^{IL} \geq \beta_n \) again.

From now on, we shall therefore assume \( M = 1 \).

It remains to prove the necessity of \( \alpha \neq 1 \) and/or \( \pi_1 \neq \pi_2 \). Assume by way of contradiction that \( \alpha = 1 \) and \( \pi_1 = \pi_2 = \pi \). Let \( U_{\max} \) denote the expected policy utility when the PM is fully informed about the realized \( \theta_1 \) and \( \theta_2 \). Let \( Eu(p^{\Gamma}, \theta) \) denote the equilibrium expected policy utility in game \( \Gamma \in \{\emptyset, IL\} \).

Observe that \( Eu(p^{IL}, \theta) \geq Eu(p, \theta) \) whenever both IGs adopt the same information collection strategy, i.e., \( \lambda_1 = \lambda_2 \). Specifically, if \( \lambda_1 = \lambda_2 = 1 \), then \( Eu(p^{IL}, \theta) = U_{\max} \) and, therefore, \( Eu(p^{IL}, \theta) \geq Eu(p, \theta) \). If \( \lambda_1 = \lambda_2 = 0 \), then \( Eu(p^{IL}, \theta) = Eu(p, \theta) \). Hence, \( Eu(p^{IL}, \theta) < Eu(p, \theta) \) implies \( \lambda_1 \neq \lambda_2 \). W.l.o.g. suppose \( \lambda_1 = 1 \) and \( \lambda_2 = 0 \).

Observe that \( \pi_1 = \pi_2 \) and \( \alpha = 1 \) imply that the expected policy utility increases with the number of issues on which the PM is informed. It follows that \( Eu(p^{IL}, \theta) \geq Eu(p, \theta) \) whenever \( K = 1 \), a contradiction. Hence, it must be that \( K = 2 \).

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 \( \theta_1 \) and \( \theta_2 \) (given \( \lambda_1 = 1 \)) and we would then have \( Eu(p^{IL}, \theta) = U_{\max} \geq Eu(p, \theta) \). For the PM to not collect information on issue \( 2 \) (following a signal \( m_1 = S_1 \)), it must be that \( d > \bar{\pi} \), where \( \bar{\pi} \equiv \min \{\pi, 1 - \pi\} \).

For \( Eu(p^{IL}, \theta) < Eu(p, \theta) \) and given \( \lambda_1 = 1 \), it must be that in the game without IGs, the PM starts by collecting information on issue \( 2 \). Moreover, it must be that following unfavorable information on \( \theta_2 \) (i.e., \( m_2^{PM} = S_2 \)), 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 \( \bar{\pi} \geq d \), which contradicts \( d > \bar{\pi} \) (from the above paragraph). Hence the contradiction.\footnote{Observe that \( d_1 = d_2 \equiv d \) is not necessary to establish the contradiction. A proof for the case where \( d_1 \neq d_2 \) is available from the authors.}

**Proof of Fact 1.** We start by establishing the necessity of condition 1. Consider two equilibria, one in the game with IGs and another one in the game without IGs. For \( Eu(p, \theta) > Eu(p^{IL}, \theta) \), it must be that in the absence of lobbying, 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., \( (\lambda_1, \lambda_2) = (1, 0) \). It must also be that following a signal \( m_1 = S_1 \), the PM does not collect information on issue \( 2 \); otherwise the PM would make a full information policy choice, in which case \( Eu(p^{IL}, \theta) = U_{\max} \geq Eu(p, \theta) \). For the latter to be true, it must be that \( d > \bar{\pi} \).
Consider now the equilibrium in the game without IGs. Given \((\lambda_1, \lambda_2) = (1, 0)\) and \(\alpha > 1\), it must be that the PM collects information on issue 1 after some signal \(m_2^{PM} \in \{R_2, S_2\}\). Three cases are possible: (i) the PM collects information on issue 1 indifferentively of the signal \(m_2^{PM}\); (ii) the PM collects information on issue 1 only after signal \(m_2^{PM} = R_2\); or (iii) the PM collects information on issue 1 only after signal \(m_2^{PM} = S_2\). In all cases, it is easy but tedious to check that the PM would be strictly better off starting by collecting information on issue 1 and not acquiring any information on issue 2 given \(d > \pi\). Hence the contradiction.

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

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

We first establish the necessity of condition 1. Assume by way of contradiction that \(\pi \geq 1/2\). We know from Fact 1 that in the game with IGs, \((\lambda_1, \lambda_2) = (0, 1)\). If IG 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 \(K = 2\) and \((1 - \pi) \geq d\), and then choose \(p = (S_1, \theta_2)\). Otherwise, if \(K = 1\) or \((1 - \pi) < d\), the PM would not collect information on issue 2 and would choose \(p = (S_1, R_2)\) (since \(\pi \geq 1/2\)). Thus, IG’s expected utility for deviating by not collecting information would be

\[
\bar{V}_2 = \begin{cases} 
(1 - \pi) \pi \quad \text{if } K = 2 \text{ and } (1 - \pi) \geq d \\
(1 - \pi) \quad \text{otherwise.}
\end{cases}
\]

It is easy to check that \(\lambda_2 = 1\) only if following signal \(m_2 = R_2\), the PM chooses \(p = (S_1, R_2)\). Thus, in equilibrium IG’s expected utility from collecting information is \(V_2 = \pi - c\).

Consider now IG. In equilibrium, it gets its reform implemented only following signal \(m_2 = S_2\). If \((1 - \pi) \alpha \geq d\), then following \(m_2 = S_2\), the PM collects information on issue 1 and chooses \(p = (\theta_1, S_2)\). Otherwise, the PM does not collect information on issue 1 and chooses \(p = (R_1, S_2)\) (the latter since \(\pi \geq 1/2\)). IG’s expected utility from not collecting information is

\[
V_1 = \begin{cases} 
(1 - \pi) \pi \quad \text{if } (1 - \pi) \alpha \geq d \\
(1 - \pi) \quad \text{otherwise.}
\end{cases}
\]

If IG were to deviate by collecting information, it would get its reform implemented with probability \(\pi\) (i.e., following signal \(m_1 = R_1\)). Its expected utility would be \(\bar{V}_1 = \pi - c\).

Simple algebra shows that \(V_2 \geq \bar{V}_2\) implies \(V_1 \geq V_1\), which contradicts \((\lambda_1, \lambda_2) = (0, 1)\). Hence, it must be that \(\pi < 1/2\).

We next establish the necessity of \(\pi \alpha \geq d\) in condition 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 \(V_2 = \pi - c\) for IG and IG, respectively. If IG were to deviate by collecting information, we know from above that its expected utility would be \(\bar{V}_1 = \pi - c\). If IG 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 does not collect information on issue 2. Since \(\pi < 1/2\), he then chooses \(p = (S_1, S_2)\). IG’s expected utility would then be \(\bar{V}_2 = 0\). Simple algebra shows again that \(V_2 \geq \bar{V}_2\) implies \(V_1 \geq V_1\), which contradicts \((\lambda_1, \lambda_2) = (0, 1)\). Hence, it must be that \(\pi \alpha \geq d\) and, therefore, that the PM collects information on issue 1 following signal \(m_2 = S_2\).

We third establish the necessity of \(d > \pi (\alpha - 1)\) in condition 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 \(m_2 = R_2\). This is because otherwise he would be fully informed and \(Eu(p^{IL}, \theta) = U_{max} \geq Eu(p, \theta)\). Hence, it must be that \(d > \pi (\alpha - 1)\).
From the above conditions, we can infer that in the game with IGs, IG2 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 \( p = (\theta_1, S_2) \). IGs’ expected utilities are \( V_1 = (1 - \pi) \pi \) and \( V_2 = \pi - c \) for IG1 and IG2, respectively. Here, \( Eu (p^{IL}, \theta) = (1 - \pi^2) \alpha + 1 \).

We first establish the necessity for \( d > \pi \) when \( K = 2 \) (which is implicit in conditions 1, 2 and 4). Assume by way of contradiction that \( K = 2 \) and \( \pi \geq d \). 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 \( p = (S_1, \theta_2) \). Now, in the game with IGs, if IG2 were to deviate by not collecting information, its expected utility would then be \( \tilde{V}_2 = (1 - \pi) \pi \). Recall from above that if IG1 were to deviate by collecting information, its expected utility would be \( \tilde{V}_1 = \pi - c \). Simple algebra shows again that \( V_2 \geq \tilde{V}_2 \) implies \( \tilde{V}_1 \geq V_1 \), which contradicts \( (\lambda_1, \lambda_2) = (0,1) \). Hence, it must be that \( d > \pi \) when \( K = 2 \) and, therefore, that the PM does not collect information on issue 2 following signal \( m_1^{PM} = S_1 \).

We second establish the necessity of condition 2. For further reference, observe that in the game with IGs, IGs’ expected utilities are

\[
Eu (p^{IL}, \theta) = (1 - \pi^2) \alpha + 1.
\]

We fifth establish the necessity of condition 3. For \( \lambda_1 = 0 \), 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 \( \lambda_2 = 1 \), it must be that \( V_2 \geq \tilde{V}_2 \). Recall from above that \( V_2 = \pi - c \) and \( \tilde{V}_2 = 0 \). It must then be that \( \pi > c \).

Finally, simple algebra shows that condition 4 is necessary for \( Eu (p, \theta) > Eu (p^{IL}, \theta) \).

(Sufficiency) Suppose conditions 1-4 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 of Proposition 2. (Necessity) Suppose \( Eu (p, \theta) > Eu (p^{IL}, \theta) \).

We first establish the necessity of condition 1. Assume by way of contradiction that \( K = 1 \). We know from Fact 1 that in the absence of lobbying, the PM collects information on issue 1. Following signal \( m_1^{PM} = R_1 \), he chooses \( p = (R_1, S_2) \). Following signal \( m_1^{PM} = S_1 \), he chooses \( p = (S_1, S_2) \) if \( \pi_2 \geq 1/2 \) and \( p = (S_1, S_2) \) if \( \pi_2 < 1/2 \). His expected utility is then

\[
U_1 = \pi_1 [1 + (1 - \pi_2)] + (1 - \pi_1) (1 + \pi_2) - d,
\]

where \( \pi_2 \equiv \max \{\pi_2, 1 - \pi_2\} \). If the PM were to deviate by not collecting information, he would choose \( p = (R_1, S_2) \) if \( \pi_1 \geq 1/2 \) and \( p = (S_1, S_2) \) if \( \pi_1 < 1/2 \). His expected utility would be \( U_0 = \pi_1 + (1 - \pi_2) \). We also know from Fact 1 that \( (\lambda_1, \lambda_2) = (0,1) \). This, together with \( \alpha = 1 \) and \( Eu (p, \theta) > Eu (p^{IL}, \theta) \), implies that in the game with IGs, the PM does not collect information on issue 1. This happens only if \( d > \pi_1 \), where \( \pi_1 \equiv \min \{\pi_1, 1 - \pi_1\} \). Simple algebra shows that \( d > \pi_1 \) and \( U_1 \geq U_0 \) imply \( \pi_2 \geq 1/2 \).

Given the above information collection strategies,

\[
Eu (p, \theta) = \pi_1 [1 + (1 - \pi_2)] + (1 - \pi_1) (1 + \pi_2)
\]

in the game without IGs, and

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

in the game with IGs. Hence, \( Eu (p^{IL}, \theta) = Eu (p, \theta) \), a contradiction. It must then be that \( K = 2 \).

We second establish the necessity of condition 2. For further reference, observe that in the game with IGs, only IG2 collects information. Following signal \( m_2 = R_2 \), the PM chooses \( p = (S_1, R_2) \). Following signal \( m_2 = S_2 \), he chooses instead \( p = (R_1, S_2) \) if \( \pi_1 \geq 1/2 \) and \( p = (S_1, S_2) \) if
\[ \pi_1 < 1/2. \] Here,
\[ Eu \left( p^{IL}, \theta \right) = \pi_2 \left[ (1 - \pi_1) + 1 \right] + (1 - \pi_2) (\pi_1 + 1). \]

To establish the necessity of condition 2, we must show the necessity for \( \pi_1 \geq 1/2 \) (which is implicit in condition 2). To see this, assume by way of contradiction that \( \pi_1 < 1/2 \). We know from above that in the game with IGs, the PM must not collect information on issue 1 (following both signal \( m_2 = R_2 \) and signal \( m_2 = S_2 \)). For this to be true, it must then be that \( d > \pi_1 = \pi_1 \).

Since \( \pi_1 > \pi_2 \), it then follows that \( d > \pi_2 \). This implies that in the game without IGs, the PM does not collect information on issue 2 (following both signal \( m_1^{PM} = R_1 \) and signal \( m_1^{PM} = S_1 \)). The PM’s expected utility is then equal to \( U_1 = 1 + (1 - \pi_2) - d \). If the PM were to deviate by not collecting any information, his expected utility would be equal to \( U_\emptyset = (1 - \pi_1) + (1 - \pi_2) \).

It is easy to check that \( d > \pi_1 \) implies \( U_\emptyset > U_1 \), which contradicts condition (1) of Fact 1. It must then be that \( \pi_1 \geq 1/2 \).

\( d > (1 - \pi_1) = \pi_1 \) is necessary for the PM to not collect information on issue 1 in the game with IGs, as already noted above.

We now establish the necessity of \( \pi_2 \equiv \min \{ \pi_2, 1 - \pi_2 \} \geq d. \) Assume by way of contradiction that \( d > \pi_2. \) It follows that in the game without IGs, the PM does not collect information on issue 2 (following any signal \( m_1^{PM} \)). He thus chooses \( p = (R_1, S_2) \) following signal \( m_1^{PM} = R_1 \). Following signal \( m_1^{PM} = S_1 \), he chooses \( p = (S_1, R_2) \) if \( \pi_2 \geq 1/2 \) and \( p = (S_1, S_2) \) if \( \pi_2 < 1/2 \). If \( \pi_2 \geq 1/2 \), we have
\[ Eu \left( p, \theta \right) = \pi_1 \left[ 1 + (1 - \pi_2) \right] + (1 - \pi_1) (1 + \pi_2). \]

Simple algebra shows that \( Eu \left( p^{IL}, \theta \right) = Eu \left( p, \theta \right) \), a contradiction. If \( \pi_2 < 1/2 \), the PM’s expected utility is \( U_1 = 1 + (1 - \pi_2) - d \). If the PM were to deviate by not collecting information, he would choose \( p = (R_1, S_2) \) (since \( \pi_1 \geq 1/2 > \pi_2 \)) and his expected utility would be \( U_\emptyset = \pi_1 + (1 - \pi_2) \). Simple algebra shows that \( d > (1 - \pi_1) \) implies \( U_\emptyset > U_1 \), a contradiction. It must then be that \( \pi_2 \geq d \).

In the game without IGs, the PM starts by collecting information on issue 1. Following signal \( m_1^{PM} = R_1 \), he chooses \( p = (R_1, S_2) \). Following signal \( m_1^{PM} = S_1 \), he collects information on issue 2 (since \( \pi_2 \geq d \)) and chooses \( p = (S_1, \theta_2) \). His expected utility is then \( U_1 = \pi_1 \left[ 1 + (1 - \pi_2) - d \right] + (1 - \pi_1) (2 - 2d) \). If he were to deviate by not collecting any information, his expected utility would be \( U_\emptyset = \pi_1 + (1 - \pi_2) \). Simple algebra shows that \( U_1 \geq U_\emptyset \) only if \( (1 - \pi_1)/(1 + \pi_2) \geq d \).

We third establish the necessity of condition 3. We know that IG_2 collects information and gets its reform implemented with probability \( \pi_2 \) (i.e., following signal \( m_2 = R_2 \)). Its expected utility is then equal to \( \pi_2 - c \). If it were to deviate by not collecting information, we would be in the same situation as in the game without IGs, and IG_2 would get its reform implemented with probability \( (1 - \pi_1) \pi_2 \). Simple algebra shows that \( \lambda_2 = 1 \) only if \( \pi_1 \pi_2 \geq c \).

In the game with IGs, IG_1 gets its reform implemented with probability \( (1 - \pi_2) \) (i.e., following signal \( m_2 = S_2 \)). Its expected utility is equal to \( (1 - \pi_2) \). If it were to deviate by collecting information, it would get its reform implemented with probability \( \pi_1 \pi_2 z + \pi_1 (1 - \pi_2) \) (i.e., following signal \( m_1 = R_1 \)). Letting \( z = 0 \) (i.e., if indifferent between implementing the reform on issue 1 and the reform on issue 2, the PM chooses the latter), IG_1’s expected utility would then be equal to \( \pi_1 - c \). Simple algebra shows that IG_1 is strictly better off not deviating.

**Sufficiency** Suppose conditions 1-3 are satisfied. It is not difficult to check that the strategies described above are equilibrium strategies. Moreover,
\[ Eu \left( p, \theta \right) = \pi_1 \left[ 1 + (1 - \pi_2) \right] + (1 - \pi_1) 2 \]

in the game with IGs, and
\[ Eu \left( p^{IL}, \theta \right) = \pi_2 \left[ (1 - \pi_1) + 1 \right] + (1 - \pi_2) (\pi_1 + 1) \]
in the game with IGs. Simple algebra shows that $Eu(p, \theta) > Eu(p^{IL}, \theta)$. ■
Appendix B. Online Appendix

Proof of Proposition 3. We first consider the $\pi$-case. Assume by way of contradiction that there exists a parameter list $e \in E_S$. Proceeding as in the proof of Proposition 2, we can establish that in the game with IGs, $(\lambda_1, \lambda_2) = (0,1)$ and the PM does not collect information (on issue 1). For the latter to be true, it must be that $d > \pi_1$. Since $(\lambda_1, \lambda_2) = (0,1)$, it must also be that in the game without IGs, the PM collects information (i) on issue 1 only or (ii) on both issues.

Suppose the former. Observe first that we must have $\pi_2 < 1/2$. This is because otherwise $Eu(p_S, \theta) = Eu(p_{IL}^S, \theta)$, which would contradict $e \in E_S$. Following signal $m_1^{PM} = R_1$, the PM chooses $p = (R_1, S_2)$. Following signal $m_1^{PM} = S_1$, he chooses $p = (S_1, S_2)$. The PM’s expected utility is then $U_1 = 1 + (1 - \pi_2) - d$. If the PM were to deviate by not collecting any information, he would choose $p = (R_1, S_2)$ if $\pi_1 \geq 1/2$ and $p = (S_1, S_2)$ if $\pi_1 < 1/2$. His expected utility would be $U_0 = \pi_1 + (1 - \pi_2)$. Now, $d > \pi_1$ implies $U_0 > U_1$, a contradiction.

Suppose now that the PM collects information on both issues. He chooses $p \in \{(R_1, S_2), (S_1, R_2)\}$ following signals $m_1^{PM} = R_1$ and $m_2^{PM} = R_2$. He chooses $p = (\theta_1, \theta_2)$ otherwise. His expected utility is $U_{12} = \pi_1 \pi_2 + (1 - \pi_1 \pi_2) 2 - 2d$. If the PM were to deviate by collecting information on issue 2 only, he would choose $p = (S_1, R_2)$ following signal $m_2^{PM} = R_2$. Following signal $m_2^{PM} = S_2$, he would choose $p = (R_1, S_2)$ if $\pi_1 \geq 1/2$ and $p = (S_1, S_2)$ if $\pi_1 < 1/2$. His expected utility is $U_2 = \pi_2 [(1 - \pi_1) + 1] + (1 - \pi_2) (\pi_1 + 1) - d$. Now, $d > \pi_1$ implies $U_2 > U_{12}$, a contradiction. We have thus established that $E_S = \emptyset$.

Pick $e \in E$. We now show that $Eu(p_S, \theta) = Eu(p_{IL}^S, \theta)$. Consider first the sequential protocol. We know from the proof of Proposition 2 that $Eu(p, \theta) = 2 - \pi_1 \pi_2$ and $Eu(p_{IL}^S, \theta) = 1 + \pi_1 (1 - \pi_2) + (1 - \pi_1) \pi_2$. Consider second the simultaneous protocol. Proceeding as above, we can establish that in the game without IGs, the PM collects information on at most one issue. There are two cases to consider:

1. $d > 2\pi_2 (1 - \pi_1)$. In this case, the PM collects no information and chooses $p = (R_1, S_2)$. Here, $Eu(p_S, \theta) = \pi_1 + (1 - \pi_2)$. In the game with IGs, $(\lambda_1, \lambda_2) = (0,1)$ and the PM collects no information. This is the same as under the sequential protocol, which implies $Eu(p_{IL}^S, \theta) = Eu(p_{IL}^S, \theta)$. Simple algebra shows that $Eu(p_S, \theta) = Eu(p_{IL}^S, \theta) = Eu(p_{IL}^S, \theta) < Eu(p, \theta)$.

2. $d \leq 2\pi_2 (1 - \pi_1)$. This, together with $d > \pi_1 = (1 - \pi_1)$, implies $\pi_2 > 1/2$. 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 $p = (S_1, R_2)$. It follows that $Eu(p_S, \theta) = \pi_1 [1 + (1 - \pi_2)] + (1 - \pi_1) (1 + \pi_2)$. In the game with IGs, either $c > \pi_1 + \pi_2 - 1$, in which case $(\lambda_1, \lambda_2) = (0,0)$ and $Eu(p_S, \theta) = Eu(p_{IL}^S, \theta) = Eu(p_{IL}^S, \theta) < Eu(p, \theta)$ or $c \leq \pi_1 + \pi_2 - 1$, in which case $(\lambda_1, \lambda_2) = (0,1)$ and the PM collects no information. In this case, $Eu(p_S, \theta) = Eu(p_{IL}^S, \theta) = Eu(p_{IL}^S, \theta) < Eu(p, \theta)$.

We now turn to the $\alpha$-case. We first establish that $E \subseteq E_S$. Pick a parameter list $e \in E$. Hence, all the conditions stated in Proposition 1 must be satisfied. To prove the result, it is sufficient to show that in the game without IGs, the PM collects information on issue 1 only. To see this, observe that the PM has four options available:

1. Collecting information on issue 1 only. Since $\pi < 1/2$, he then chooses $p = (\theta_1, S_2)$. His expected utility is $U_1 = a + (1 - \pi) - d$.

2. Collecting information on issue 2 only. Since $\pi < 1/2$, he then chooses $p = (S_1, \theta_2)$. His expected utility is $U_2 = (1 - \pi) a + 1 - d$. Now, $a > 1$ implies $U_1 > U_2$.

3. Collecting information on both issues. He chooses $p = (R_1, S_2)$ following signals $(m_1^{PM}, m_2^{PM}) = (R_1, R_2)$, and $p = (\theta_1, \theta_2)$ otherwise. His expected utility is $U_{12} = a + (1 - \pi_2^2) - 2d$. Now, $d > \pi$ (from proof of Proposition 1) implies $U_{12} > U_{12}$.
Proposition 1, we can establish the necessity of the following conditions: show that under both protocols the PM collects information on issue 1 only. It is then straightforward to

\[ \pi < 1/2. \]

(2) \((\lambda_1, \lambda_2) = (0, 1)\), which implies \(\pi \geq c > \pi^2\).

(3) Following signal \(m_2 = R_2\), the PM does not collect information on issue 1 and chooses \(p = (S_1, R_2)\), which implies \(d > \pi (a - 1)\).

(4) Following signal \(m_2 = S_2\), the PM collects information on issue 1 and chooses \(p = (\theta_1, S_2)\).

In the game without IGs, only \(I_G\) collects information. To see this, consider each of the five information collection decisions the PM might choose:

(1) Collecting no information. In this case, \(\pi_1 \geq 1/2\) and condition 3 of Proposition 2 imply that only \(I_G\) collects information. Following signal \(m_2 = R_2\), the PM chooses \(p = (S_1, R_2)\). His expected utility is

\[ U_0 = 1 + \pi_1 (1 - \pi_2) + (1 - \pi_1) \pi_2. \]

Collecting information on issue 1 only. In this case, \(I_G\) collects no information, while \(I_G\) collects information if and only if \(\pi_2 < 1/2\) and \(m_2 = S_2\). The PM’s expected utility is

\[ U_1 = \begin{cases} \pi_1 [1 + (1 - \pi_2)] + (1 - \pi_1)(1 + \pi_2) - d & \text{if } \pi_2 \geq 1/2 \\ \pi_1 [1 + (1 - \pi_2)] + (1 - \pi_1)2 - d & \text{if } \pi_2 < 1/2. \end{cases} \]

Now, \(d > (1 - \pi_1)\) implies \(U_0 > U_1\).

(3) Starting by collecting information on issue 1 and, following signal \(m_2 = S_1\), collecting information on issue 2 as well. In this case, neither IG collects information. The PM’s expected utility is

\[ U_{12} = 2 - \pi_1 \pi_2 - (2 - \pi_1) d. \]

Now, \(d > (1 - \pi_1)\) implies \(U_0 > U_{12}\).

(4) Collecting information on issue 2 only. In this case, \(I_G\) collects no information, while \(I_G\) may collect information following signal \(m_2 = R_2\) only (depending on \(z\), the probability

Taken together, these conditions imply \(Eu(p, \theta) = \alpha + (1 - \pi)\) and \(Eu(p^{IL}_2, \theta) = \pi [(1 - \pi) \alpha + 1] + (1 - \pi) \alpha + 1\). Simple algebra shows that \(Eu(p^G, \theta) > Eu(p^{IL}_2, \theta)\) only if \(\pi \alpha > 1\). Hence, all four conditions in Proposition 1 are satisfied, and \(e \in E_S\). Observe that in the game without IGs, the two protocols are trivially equivalent. We

Proof of Proposition 4. It is easy to construct parameter lists \(e \in E^{PM}_K\), thereby establishing \(E^{PM}_K \neq \emptyset\).

We first consider the \(\pi\)-case, and establish \(E^K \subsetneq E^{PM}_K\). The result is trivial for \(K = 1\) since \(E_1 = \emptyset\) and \(E^{PM}_1 \neq \emptyset\). So suppose \(K = 2\). We first show that \(E_2 \subsetneq E^{PM}_2\). Pick a parameter list \(e \in E_2\). All the conditions stated in Proposition 2 are then satisfied. Suppose the PM-first protocol. Observe that in the game without IGs, the two protocols are trivially equivalent. We then know that the PM starts by collecting information on issue 1. Following signal \(m^{PM}_1 = R_1\), he chooses \(p = (R_1, S_2)\). Following signal \(m^{PM}_1 = S_1\), he collects information on issue 2 and chooses \(p = (S_1, R_2)\). Here, \(Eu(p, \theta) = 2 - \pi_1 \pi_2\).

In the game with IGs, only \(I_G\) collects information. To see this, consider each of the five information collection decisions the PM might choose:

\[ \pi < 1/2. \]

\(\pi_1 \geq 1/2\) and condition 3 of Proposition 2 imply that only \(I_G\) collects information. Following signal \(m_2 = R_2\), the PM chooses \(p = (S_1, R_2)\). Following signal \(m_2 = S_2\), he chooses \(p = (R_1, S_2)\). His expected utility is

\[ U_0 = 1 + \pi_1 (1 - \pi_2) + (1 - \pi_1) \pi_2. \]

Collecting information on issue 1 only. In this case, \(I_G\) collects no information, while \(I_G\) collects information if and only if \(\pi_2 < 1/2\) and \(m_2 = S_2\). The PM’s expected utility is

\[ U_1 = \begin{cases} \pi_1 [1 + (1 - \pi_2)] + (1 - \pi_1)(1 + \pi_2) - d & \text{if } \pi_2 \geq 1/2 \\ \pi_1 [1 + (1 - \pi_2)] + (1 - \pi_1)2 - d & \text{if } \pi_2 < 1/2. \end{cases} \]

Now, \(d > (1 - \pi_1)\) implies \(U_0 > U_1\).

(3) Starting by collecting information on issue 1 and, following signal \(m_2^{PM} = S_1\), collecting information on issue 2 as well. In this case, neither IG collects information. The PM’s expected utility is

\[ U_{12} = 2 - \pi_1 \pi_2 - (2 - \pi_1) d. \]

Now, \(d > (1 - \pi_1)\) implies \(U_0 > U_{12}\).

(4) Collecting information on issue 2 only. In this case, \(I_G\) collects no information, while \(I_G\) may collect information following signal \(m_2^{PM} = R_2\) only (depending on \(z\), the probability

An example is available from the authors.
the PM implements its reform following signals \( m_1 = R_1 \) and \( m_2 = R_2 \). The PM’s expected utility is

\[
U_2 = \pi_2 [\pi_1 + (1 - \pi_1)2] + (1 - \pi_2)(\pi_1 + 1) - d < U_\emptyset.
\]

(5) Starting by collecting information on issue 2 and, following signal \( m_2^{PM} = S_2 \), collecting information on issue 1 as well. IGs’ information collection strategies are the same as in the previous case. The PM’s expected utility is \( U_{21} = 2 - \pi_1\pi_2 - (2 - \pi_2)d \). Hence, \( U_{12} > U_{21} \) which, together with \( U_\emptyset > U_{12} \), implies \( U_\emptyset > U_{21} \).

Thus, in the game with IGs the PM collects no information, and \( E_u(p,\theta) = 1 + \pi_1(1 - \pi_2) + (1 - \pi_1)\pi_2 \). Simple algebra shows that \( E_u(p,\theta) > E_u(p^{IL},\theta) \). Hence, \( e \in \mathcal{E}_2^{PM} \), which implies \( \mathcal{E}_2 \subseteq \mathcal{E}_2^{PM} \). That \( \mathcal{E}_2 \subseteq \mathcal{E}_2^{PM} \) is easily seen by constructing parameter lists \( e \in \mathcal{E}_2^{PM} \setminus \mathcal{E}_2 \).

We now turn to the \( c \)-case, and establish \( \mathcal{E}_K \cap \mathcal{E}_K^{PM} = \emptyset \). We consider the case in which \( K = 2 \); a similar argument applies when \( K = 1 \). Pick a parameter list \( e \in \mathcal{E}_2 \). All the conditions stated in Proposition 1 are then satisfied. Consider the PM-first protocol. Given that in the game without IGs the two protocols are equivalent, we know that the PM collects information on issue 1 only, and chooses \( p = (\theta_1, S_2) \). Here, \( E_u(p,\theta) = \alpha + (1 - \pi) \).

In the game with IGs, the PM collects no information, while IG1 (and possibly IG2) collects information. To see this, consider again each of the five information collection decisions the PM might choose:

1. Collecting no information. In this case, \( \pi < 1/2 \) and \( \pi \geq c \) imply that IG1 collects information. The PM’s expected utility is then \( U_\emptyset \geq \alpha + (1 - \pi) \).
2. Collecting information on issue 1 only. In this case, IG1 collects no information, while IG2 collects information following signal \( m_1^{PM} = S_1 \) only. The PM’s expected utility is \( U_1 = \alpha + (1 - \pi^2) - d \). Now, \( d > \pi \) (from proof of Proposition 1) implies \( U_\emptyset > U_1 \).
3. Starting by collecting information on issue 1 and, following signal \( m_1^{PM} = S_1 \), collecting information on issue 2 as well. In this case, neither IG collects information. We then have \( U_{12} < U_1 < U_\emptyset \).
4. Collecting information on issue 2 only. In this case, IG2 collects no information, while IG1 does. The PM’s expected utility is \( U_2 = \alpha + (1 - \pi^2) - d = U_1 < U_\emptyset \).
5. Starting by collecting information on issue 2 and, following signal \( m_2^{PM} = S_2 \), collecting information on issue 1 as well. It is easy to see that the PM’s expected utility \( U_{21} < U_2 \) which, together with \( U_2 < U_\emptyset \), implies \( U_{21} < U_\emptyset \).

Thus, in the game with IGs, the PM collects no information and \( E_u(p^{IL},\theta) = 1 + \pi_1(1 - \pi_2) + (1 - \pi_1)\pi_2 \). Simple algebra shows that \( E_u(p,\theta) > E_u(p^{IL},\theta) \). Hence, \( e \in \mathcal{E}_2^{PM} \), which implies \( \mathcal{E}_2 \subseteq \mathcal{E}_2^{PM} \). It follows that \( \mathcal{E}_2 \cap \mathcal{E}_2^{PM} = \emptyset \).

Proof of Proposition 5. Let \( \alpha = 1 \), \( \pi_1 = \pi_2 = \pi \), \( c_1 = c_2 = c \), \( d_1 = d_2 = d \), and finally \( 1/2 < q_2 < q_1 \leq 1 \). Additionally, \( \tau_n = \pi q_n + (1 - \pi)(1 - q_n) \) and \( q_n \geq \max\{\pi,1 - \pi\} \) for both \( n \).

Consider first the PM’s choice of whether to collect information on issue \( j \), given that he previously observed signal \( m_i \) (or equivalently \( m_i^{PM} \)). First note that since \( \alpha = 1 \), both issues are equally salient. This means that when \( m_i = R_i \), the PM prefers to implement \( R_i \) rather than collect \( m_i^{PM} \). When \( m_i = S_i \), the PM may choose to implement \( R_j \), which results in expected payoff \( E_{u_j} = \pi \), to implement neither reform, resulting in \( E_{u_j} = 1 - \pi \), or to collect \( m_i^{PM} \), resulting in \( E_{u_j} = q_j - d \). The PM prefers to collect information on \( j \) when

\[
\pi \geq \frac{1}{2} \quad \text{and} \quad d \geq q_j - \pi.
\]
He prefers to implement \((S_i, S_j)\) without collecting \(m_j^{\text{PM}}\) if

\[
\pi < \frac{1}{2} \quad \text{and} \quad d \geq q_j - (1 - \pi).
\]

Consider second the PM’s choice of whether to collect information, and on which issue to collect information on first, in the event that \(m_i = m_j = \emptyset\). If the uninformed PM does not collect information, his expected payoffs is \(Eu = 2(1 - \pi)\) if he maintains \(S_u\) on both issues and is \(Eu = \pi + (1 - \pi) = 1\) if he implements either reform. If, rather, he begins by collecting information on issue \(i\), then his expected payoff depends on what he does after observing \(m_i^{\text{PM}}\), i.e., depends on whether (1) or (2) or (3) hold. Collecting information on issue 1 first results in \(Eu = q_i - d + \tau_i(1 - \pi) + (1 - \tau_i)\hat{u}_1\), where \(\hat{u}_i = q_j - d\) when (1) holds, \(\hat{u}_j = \pi\) when (2) holds, and \(\hat{u}_j = 1 - \pi\) when (3) holds.

In determining the PM’s behavior in the absence of lobbying, we first analyze the setting where \(\pi \geq 1/2\). Since \(q_1 > q_2\), it follows that \(q_1 - \pi < q_2 - \pi\), and thus the cut value associated with (1) and (2) is higher when \(j = 1\) than when \(j = 2\). The analysis refers to the following three cases, where \(i\) denotes the issue on which the PM collects information first: (i) \(d < q_2 - \pi\) (e.g., when \(m_i^{\text{PM}} = S_i\) the PM collects information on the second issue); (ii) \(q_2 - \pi \leq d < q_1 - \pi\) (e.g., when \(m_i^{\text{PM}} = S_i\) the PM collects information on the second issue when \(i = 2\), and implements reform on the second issue without additional information when \(i = 1\)); (iii) \(q_1 - \pi \leq d\) (e.g., when \(m_i^{\text{PM}} = S_i\) the PM implements reform on the second issue without additional information). In all of these cases, when \(m_i^{\text{PM}} = R_i\), the PM implements reform \(R_i\).

In all three cases, one can show that the PM prefers to collect information on issue 1 first than to collect information on issue 2 first. That is,

\[
q_1 - d + \tau_1(1 - \pi) + (1 - \tau_1)\hat{u}_2 \geq q_2 - d + \tau_2(1 - \pi) + (1 - \tau_2)\hat{u}_1
\]

regardless of whether (i) holds where \(\hat{u}_1 = q_1 - d\) and \(\hat{u}_2 = q_2 - d\), (ii) holds where \(\hat{u}_1 = q_1 - d\) and \(\hat{u}_2 = \pi\), or (iii) holds where \(\hat{u}_1 = \hat{u}_2 = \pi\). Notice that \(\hat{u}_1 \geq \hat{u}_2\) in all cases since \(q_1 - d > q_2 - d\) and \(q_1 - d > \alpha\) given that \(d < q_1 - \pi\). The expression simplifies to

\[
\hat{q} + \hat{q}(2\pi - 1)(1 - \pi) \geq (1 - \tau_2)\hat{u}_1 - (1 - \tau_1)\hat{u}_2,
\]

where \(\hat{q} \equiv q_1 - q_2\). In case (i), the right hand side becomes \(\hat{q}(\pi - (2\pi - 1)d)\). Substituting in to the above inequality and simplifying gives

\[
q - \pi + (2\pi - 1)(1 + d - \pi) \geq 0,
\]

an expression which is always satisfied given the constraints. One can similarly show that the PM prefers to collect information on issue 1 first than to collect information on issue 2 first in cases (ii) and (iii).

Having established that the PM prefers to begin his information collection on issue 1 rather than 2, we must now determine when the PM prefers to collect information on issue 1 first rather than implement a reform without collecting any information. In cases (i) and (ii) the costs of information collection \(d\) are sufficiently low that the PM always prefers to collect information on issue 1 than to not collect information. In case (iii), the PM will prefer to collect information on 1 rather than no information if

\[
q_1 - d + \tau_1(1 - \pi) + (1 - \tau_1)\pi > \pi + (1 - \pi) = 1.
\]

This simplifies to a requirement that

\[
d < q_1 - (1 - \pi) - (2\pi - 1)\tau_1 = 2\pi(2q_1 - 1)(1 - \pi).
\]

For larger values of \(d\), an uninformed PM chooses to implement a reform without first collecting any information.
Next we analyze PM behavior in the absence of lobbying when \( \pi < 1/2 \). Here, condition [1] or [3] hold, never [2]. We consider three cases of \( d \): (iv) when \( d < q_2 - (1 - \pi) \), (v) when \( q_2 - (1 - \pi) \leq d < q_1 - (1 - \pi) \), and (vi) when \( q_1 - (1 - \pi) \leq d \). Proceeding as we did for the case when \( \pi \geq 1/2 \), one can show that in all three cases, the PM prefers to first collect information on issue 1 rather than on issue 2. One can also show that in cases (iv) and (v), the PM always prefers to search on issue 1 first than to search on neither. In case (vi), however, the PM prefers to implement neither reform without collecting any information.

In order for \( Eu (p, \theta) > Eu (p^{IL}, \theta) \), it must decrease the probability that the PM implements a beneficial reform when one exists. In the no-lobbying subgame equilibria under (i) and (iv), this will not be the case since the PM will always follow up a realization that \( \theta_n = S_n \) by searching on the issue he remains uninformed about. In the no-lobbying subgame equilibria under (ii) and (v), similar logic applies. In these equilibria, the PM collects information on issue 1, and then makes a decision without collecting information on issue 2. If \( IG_1 \) collects information, then the PM is always at least as informed as without lobbying. If only \( IG_2 \) collects information, then the PM implements a beneficial reform when \( m_2 = R_2 \), and collects information on issue 1 when \( m_2 = S_2 \). That is, the PM always implements a beneficial reform when one exists. In case (vi) as well as case (iii) when [5] is violated, the PM did not collect information in the absence of lobbying, and therefore IL cannot decrease his information.

Only case (iii) when [5] holds remains a viable option for IL to be detrimental. In this case,

\[
\pi \geq 1/2 \quad \text{and} \quad q_1 - \pi \leq d < 2\pi (1 - \pi)(2q_1 - 1). \tag{6}
\]

Here, the PM collects information on issue 1 when he is uninformed, and then chooses whether to implement a reform without collecting information on issue 2. If IL involves information collection by \( IG_2 \) and not \( IG_1 \), then the PM will make a reform decision without collecting information on issue 1. This means that when \( m_2 = S_2 \), the PM chooses \( R_1 \) without further search, this leads to \( Eu (p^{IL}, \theta) = q_2 + \tau_2 (1 - \pi) + (1 - \tau_2) \pi \), versus expected expected policy utility without IL of \( Eu (p, \theta) = q_1 + \tau_1 (1 - \pi) + (1 - \tau - 1) \pi \). In this case, \( Eu (p, \theta) > Eu (p^{IL}, \theta) \).

We must find conditions under which \( IG_2 \) prefers to collect information and \( IG_1 \) does not in equilibrium. In this case, \( IG_2 \) expects payoff from collecting information of \( \tau_2 - c \) and from deviating to not collect information of \( 1 - \tau_1 \). It must be that \( \tau_2 - c \geq 1 - \tau_1 \), which becomes \( c \leq \tau_1 + \tau_2 - 1 \). Additionally, \( IG_1 \) expects payoff from not collecting information of \( 1 - \tau_2 \) and from deviating to collect information of \( \tau_1 (z \tau_2 + 1 - \tau_2) - c \). It must be that \( 1 - \tau_2 > \tau_1 (1 - \tau_2 (1 - z)) - c \). This condition becomes \( c > \tau_1 + \tau_2 - 1 - \tau_1 \tau_2 (1 - z) \), and is necessarily satisfied for \( z = 0 \). Therefore, for IL to be detrimental, it must be that

\[
c \leq \tau_1 + \tau_2 - 1. \tag{7}
\]

From conditions [6] and [7] we get the ranges of \( \pi, c, \) and \( d \) for which IL decreases expected equilibrium policy utility. There is no constraint on \( K \) and the PM only collects information on one issue in the relevant parameter case. ■