Who Lobbies Whom? Special Interests and Hired Guns[*]

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Abstract

We model which special interest groups lobby which policymakers directly, and which employ for-profit intermediaries. We show that special interests affected by policy issues that frequently receive high political salience lobby policymakers directly, while those that rarely receive high political salience must employ "hired guns." This follows from the availability of repeated agency contracts between policymakers and special interests. Special interests that lobby on issues that frequently experience high political salience may be incentivized to truthfully reveal private, policy relevant, information to policymakers via the promise of a high probability future political access. For-profit intermediaries are always in the "informational lobbying market" and can be easily incentivized by policymakers to truthfully reveal private information. We also show that "insecure" policymakers, those in vulnerable seats, tend to be lobbied by professional intermediaries. Also, policymakers that are more time constrained tend to rely more on professional intermediaries for policy relevant information.

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1 Introduction

It is well documented that two types of lobbyist vie for the attention of policymakers. These consist of special interest groups that advocate on their own behalf, and commercial lobbyists– often referred to as "hired guns"– who intermediate between special interests and policymakers. However, the incentives faced by special interests and commercial lobbyists differ. The former are motivated by the desire to realize payoff relevant policy favors whereas the latter are simple for-profit organizations (Groll and Ellis (2014, 2017)). Some of the parameters of the lobbying process seem to be agreed upon in that lobbyists of both types trade resources and policy relevant information in return for some form of influence on policy. But, just exactly how these trades take place and their implications for policy and politics depends on the relevant institutional and informational constraints.

In this paper we endogenize a hithertofore rarely examined feature of lobbying; the division of lobbying into direct lobbying by special interests and indirect lobbying via commercial lobbyists.[1] We recognize that repeated agency relationships and connections may arise between lobbyists and policymakers (Blanes i Vidal et al. (2012), Bertrand et al. (2014), Kang and You (2018)) and that these relationships may be exploited by policymakers to obtain resources and policy relevant information. The contribution of this paper is to analyze which special interest group/policymaker pairs are able to exploit the incentive opportunities offered by repeated agency and which are not. Those special interest groups that cannot form repeated agency relationships must rely on commercial lobbyists to intermediate for them with policymakers. Commercial lobbyists, by the nature of their continuous presence in the lobbying market, are always able to enjoy agency relationships with policymakers. This analysis has several clear empirical predictions and provides relevant policy implications.

The key to our analysis is the recognition that the salience of different policies and thus the payoffs that policymakers associate with them vary across policy issues and over time. Time-constrained policymakers cannot legislate on all possible policies within a time period. We assume that they devote their attention to those that are the most salient. However, in attempting to extract information on highly salient policy topics policymakers need to incent

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[1]The commercial lobbying industry in Washington, D.C. also earned the name "K-Street"-lobbyists as many large lobbying firms had been located on this street in Washington, D.C.

special interest groups and commercial lobbyists to truthfully reveal information. They require the incentives associated with future (repeated) interaction. However, the probability of future interaction and hence the effects of the associated incentives depends on the likelihood of high future salience. We show that if the salience of a policy issue may be described by a probability density function and if these functions may be ordered according to first-order stochastic dominance, then we can characterize which special interest groups can be incented to truth-tell and which will always babble; which policy issues will be lobbied for directly by special interests and which will involve lobbying by commercial lobbyists; and which policymakers will tend to be lobbied by special interests and which by commercial lobbyists. Furthermore, we are able to explain the role of ideology in which policymakers specific lobbies lobby, and which lobbies make side payments and why.

We show that policymakers devote their limited time to lobbyists who lobby on those issues which are the most salient to them. However, whether they obtain information from special interest groups or commercial lobbyists on these issues depends on the issue's expected future salience. Furthermore, an increased probability that the interactions between policymakers and lobbyists will end for any reason implies that policymakers are lobbied less by special interests and more by commercial lobbyists. So policymakers with insecure seats tend to be lobbied more commercial lobbyists as do policymakers approaching the end of their legislative or executive careers. If the commercial lobbying industry is more competitive, has a lower lobbying fee, then there will be more commercial lobbying relative to special interest lobbying. In reality commercial lobbyists charge high fees and earn high incomes. In the public debate over lobbying this is regarded negatively and taken as evidence of the opportunity to extract excessive. However, in our analysis we show that high lobbying fees may incent more truth-telling special interest groups to engage in direct lobbying. So expensive "K-Street" lobbyists are not necessarily a bad thing.

If more policymaker time is devoted to politics such as fundraising and campaigning and thus less time devoted to governing, then there will be more lobbying by commercial lobbyists and less by special interests. Purely ideologically motivated policymakers are not lobbied but partially ideologically motivated policymakers are lobbied by opposite biased special interests or commercial lobbyists acting as their representatives. The presence of side payments in

lobbying leads to more lobbying activities and more truth-telling by special interest groups.

Our analysis provides several policy recommendations. We are able to examine arguments as to whether there should be regulation of lobbyists receiving contingency or lobbying success fees. We may also analyze the desirability of limits on the financial contributions from lobbyists to policymakers. We show that such contributions can increase the policymaker's attention to governance issues relative to their other activities such as campaigning. Furthermore, the theoretical predictions of our novel model allow us to throw some light on the questions of *who lobbies whom* and on *who lobbies on what* that are of interest to the empirical literature.

Related Literature   Our analysis relates to various strands of the lobbying literature.[2] Foremost our analysis focuses on information transmission from a privately interested and informed actor to a decision-maker who values policy relevant information. As standard in the literature a privately informed special interest group may have incentives to misrepresent information when it can affect the group's payoffs such that "cheap talk" outcomes arise (Crawford and Sobel (1982), Milgrom and Roberts (1986), Gilligan and Krehbiel (1989), Potters and van Winden (1992), Schnakenberg (2016)) and lobbyists engage in forms of costly signaling to establish full or partial credibility (Austen-Smith (1994), Austen-Smith and Banks (2000), Schnakenberg and Turner (2018a)). Our analysis shows that in-house lobbyists of special interest groups and commercial lobbyists as "hired guns" differ in their incentives to reveal information truthfully and that these hired guns can serve as a credible costly signal when in-house lobbyists are not able to transmit information truthfully. Our model can provide the conditions under which cheap talk equilibria exist, truthful information transmission persists, and costly signaling for credibility arises.

Our discussion of different incentives to transmit information truthfully is also related to studies of biased experts and advocates who may represent special interest groups as intermediaries. Biased experts may benefit privately from policy choices and have an incentive to misrepresent information similar to that of special interest groups (Krishna and Morgan (2001)). Similarly, an advocate may be incentivized by a client or special interest group to achieve certain policy outcomes ("decision-based rewards" – Dewatripont and Tirole (1999)).

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[2]For an overview of lobbying models and theories see Grossman and Helpman (2001), Hall and Deardorff (2006), and Gregor (2017).

Under both circumstances the decision-maker may take advantage of representatives with competing interests to extract truthful information. However, the need for competing interests is also a limitation to the application of this approach. In our analysis we show that "information-based" rewards rather than "decision-based" rewards (Dewatripont and Tirole (1999)) dominate when lobbyists compete for a policymaker's attention and relational exchanges over time. There is no need for competing interests as a policymaker can incentivize a lobbyist to acquire costly information by exploiting a repeated agency relationship (Groll and Ellis (2017)).[3] In our analysis of information transmission and truth-telling we show which special interests will be able to form direct relationships with policymakers, which special interests will have to hire commercial lobbyists as intermediaries representing them on their behalf, and which special interests will not receive access to policymakers and be excluded from the political process.

The observation that lobbyists compete for policymakers' attention has been discussed in various forms in the literature. Policymakers are time-constrained and cannot devote time to all policy issues (Hall and Wayman (1990), Hansen (1991)). As a result they prioritize issues or allocate their access to themselves strategically to competitive special interest groups (Austen-Smith (1995), Lohmann (1995), Austen-Smith (1998), Cotton (2009, 2012), Cotton and Dellis (2016), Schnakenberg (2017)).[4] In our analysis we show that competition for limited access to policymakers today and in the future can induce truth-telling by special interest groups and commercial lobbyists if their policy issues are currently, and expected to continue to be, of high priority to the policymaker. Competition for access between commercial lobbyists induces truthful revelation of information provided that the lobbyists are operate in the influence market repeatedly. We also consider how financial contributions may gain a policymaker's attention leading to their considering and enacting additional policies (Hall and Deardorff (2006), Ellis and Groll (2018)) and illustrate positive effects of such payments.

Lastly, the predictions of our model relate to a recently growing empirical literature that focuses on the personal relationships between lobbyists and policymakers (Blanes i Vidal et al. (2012), Bertrand et al. (2014), Kang and You (2018)).[5] Personal relationships between lob-

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[3]For models of strategic information transmission with a biased intermediary see Li (2010, 2012). For on-going work on a lobbyist being a biased gate-keeper see Hirsch and Montagnes (2015).

[4]For on-going work on agenda constraints see Dellis and Oak (2018a,b).

[5]For a recent overview of the empirical lobbying literature see de Figueiredo and Richter (2014).

byists and policymakers may arise through shared work experience and the revolving door (Blanes i Vidal et al. (2012)) or through repeated work on specific issues or campaign finance (Bertrand et al. (2014)). These personal relationships allow lobbyists to "offer" these connections to their employers and clients potentially make them more credible in transmitting information than interactions with unconnected lobbyists and special interests.[6] There is also empirical evidence that policymakers are selective in choosing to whom they grant access and that connected lobbyists are more successful in securing limited access when they represent foreign clients and their issues (Kang and You (2018)). In our analysis we provide some theoretical foundations for these empirical results and show how relationships form, who can actually form such connections, who will have to hire connected lobbyists, and finally, how it depends on special interests' and clients' topics and financial contributions as well as on policymakers' policy agendas and characteristics.

The rest of our paper is organized as follows. We present the baseline model and illustrate some of the major intuition in Section 2. We then explain in Section 3 how repeated personal relationships between a policymaker and a special interest group or commercial lobbyist arise. In Section 4 we consider a policymaker's initial policy position and how this affects interest groups' and lobbyists' strategies. There is a substantial role of money in politics and lobbying and we consider some of these effects in Section 5. Section 6 discusses some additional extensions for robustness of our main results and Section 7 completes the analysis.

2   A Baseline Lobbying Model

We consider an environment in which there is one policymaker and many lobbyists of both types, special interest and commercial. Associated with each special interest group is a unique policy issue, $i \in I$. For each policy issue the policymaker chooses between either selecting one of two policies left, l, or right, r, or doing nothing, n. Doing nothing is interpreted as not receiving the policymaker's attention rather than an active choice of the status quo. The policies are denoted $p_i \in P \equiv \{p_l, p_r, p_n\}$. The payoffs associated by the players with each policy depend on the issue specific state of the world denoted $\theta_i \in \Theta \equiv \{\theta_l, \theta_r\}$. Purely for expositional ease we assume each state arises with equal probability so we write $\rho_l = \rho_r = \frac{1}{2}$

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[6]For a review and presentation of personal relationships in lobbying see Groll and McKinley (2015).

	Policy		
	p_l	p_r	p_n
State θ_l	s_i	0	0
State θ_r	0	s_i	0

Table 1: Policymaker's Payoff.

	Policy		
	p_l	p_r	p_n
State θ_l	0	1	0
State θ_r	0	1	0

Table 2: Interest Group's Payoff.

as the probabilities of each state.

The policymaker's payoffs from any given issue are state-dependent and depend on both the policy and the state in the following manner presented in Table 1.[7] The variable s_i is a measure of the current "salience" of a policy concerning issue i. Salience has many potential interpretations, it may represent the current prominence of the issue amongst the voting public driven by some external event, or the opportunity to extract rents, or the importance of the issue to the policymaker's home jurisdiction, etc. What is important for our analysis is that salience is exogenous. We assume that for any given policy issue, $i \in I$, salience is a random variable drawn from the stationary distributions $g_i(s)$ with support on $[0, S]$. We shall assume that the issues may be ordered using first order stochastic dominance, so for any $s^* \in [0, S]$ we have $\forall i \in I$, $G_i(s^*) > G_{i+1}(s^*)$. So higher values of i imply higher expected salience. This assumption captures the notion that some issues tend to be more often part of political discussions than others. We hereafter abuse notation and write $i = 1, ..., I$.

We write the policymaker's payoff function associated with the issue i as $\mathscr{P}_i(p|s, \theta)$. The policymaker's payoffs are assumed additively separable such that $\mathscr{P}(\mathbf{p}|\mathbf{s}, \theta) \equiv \sum_{i \in I} \mathscr{P}_i(p|s, \theta)$, where the use of bold face indicates vectors. The policymaker is assumed to be an expected payoff maximizer. The policymaker potentially interacts with both special interest groups, and commercial lobbyists. Since that there is one special interest group per issue the index i is employed for both. Special interest groups receive a policy dependent, state independent payoff $\mathscr{R}_i(p)$ illustrated by Table 2.[8]

We assume throughout that the special interest group is a "right" group. This has no qualitative implications. Commercial lobbyists are simple profit-maximizers whose only source of income is a fee of F paid by a special interest group per-period for representing them to a policymaker, their costs are normalized to zero. One can also think of F as the mark-up over

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[7]We consider later the effects of a policymaker's ideology, favoring a policy choice not perfectly correlated with the state of the world.

[8]We consider different payoffs for both the policymaker and special interest groups in later sections.

costs that a commercial lobbyist would charge in comparison to an in-house lobbyist. The commercial lobbyist is identified by a subscript c whenever required. On any issue their payoff is written $\mathscr{F}_i \in \{F, 0\}$.

In any period the policymaker makes two choices, which issues to enact policies on, and then what those policies should be. Their choices depend on the information they receive about each issue's current salience, and their beliefs about that issue's future salience in a repeated lobbying game.

2.1 Information and Messages

We assume that ex-ante the probability distributions over states $\rho_l = \rho_r = \frac{1}{2}$ for every issue $i \in I$, and the salience distribution functions $g_i(s) \ \forall i \in I$ are common knowledge.[9] However, in each period the state of the world for each issue $i \in I$ is observed by both the associated special interest group, i, and if involved the appropriate commercial lobbyist.[10] But there is asymmetric information in that the state is not observed by the policymaker. The policymaker can however receive messages concerning the state of the world from both special interest groups and commercial lobbyists, indeed we treat the sending of a message is synonymous with lobbying. The messages involve $m_i \in \{\Theta \cup 0\}$ and $m_c \in \{\Theta \cup 0\}$ where a zero indicates that no message is sent by the agent concerned. These messages are only informative if truthful, the policymaker's problem therefore involves devising an incentive structure that induces truth-telling. This is where the repeated nature of the agency relationship is crucial.[11] Ex-post the policymaker observes their own payoffs and can deduce whether the messages they received were truthful or not, they can then, of course, condition future play on current outcomes. That is, they can play a trigger strategy.

Given the information structure we may write the expected payoffs of the players for any

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[9]The tasks of lobbyists vary widely but active lobbying and monitoring governments those that they spend most of their time on (McGrath (2006), Nownes (2013)). It therefore seems reasonable that they know these distributions.

[10]For a commercial lobbyist's incentives to acquire costly information see Groll and Ellis (2014, 2017). Here we focus on the incentives of truth-telling rather than costly information gathering.

[11]We assume that the policymaker is the principal and the lobbyists are the agents. This follows from the observation that policymaker time is the key scarce resource – see Groll and Ellis (2014, 2017) on this specific point and Dewatripont and Tirole (1999) for a general discussion of "information-based rewards" (awarded by the decision-maker) and "decision-based rewards" awarded by the intermediary's client. However, we relax this assumption later when we consider the role of money in lobbying and show that this is an equilibrium outcome when informative lobbying occurs.

issue $i \in I$ as:

i) $\Pi_i = E[\mathscr{P}_i(p \mid s, \theta)|m_i, m_c]$ for the policymaker;

ii) $\Omega_i = E[\mathscr{R}_i(p)|m_i, m_c]$ for special interest group connected to i;

iii) $\Psi_i = E[\mathscr{F}_i]$ for the commercial lobbyist representing i's special interest group.

2.2 The Policymaker's Access Constraint

We assume that the policymaker has limited capacity to review or enact policy proposals. We capture this idea by introducing a minimum threshold on salience, $\bar{s}$, that works as a cutoff with $0 < \bar{s} < S$ such that the policymaker may only consider proposals with $s_i \geq \bar{s}$. We consider later how this constraint might be relaxed with financial contributions that can gain attention and access.

2.3 Sequence of Play

In the one-shot game the order of events is as follows. Nature plays first and draws an s_i and a θ_i for every i. s_i is observed by all players, θ_i is observed only by special interest i. The special interest group then decides whether to send a message m_i directly or employ a commercial lobbyist to act on its behalf and pay them F. If chosen, the commercial lobbyist observes θ_i and receives F, it *then* sends a message m_c to the policymaker.[12] The policymaker collects all messages from both lobbyist types and chooses policies. Finally, payoffs are realized.

Now, both for later use and to complete the description of the model, we present the equilibrium in the one-shot game followed by the equilibrium characterization for the infinitely-repeated game.[13]

2.4 The Equilibrium in the One-Shot Game as Illustration

To compute the one-shot equilibrium of the baseline model, we first need to specify the policymaker's choices if they receive no information on a policy issue. Given that the payoff is the same in each state, and that each is equally likely, we assume the policymaker is equally likely

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[12]So message contingent fees are ruled out at this point but we show later that this is actually an equilibrium outcome.

[13]The proofs of our lemmas and propositions may be found in the appendix.

to choose p_l or p_r.[14] Now suppose that a policymaker receives a message from special interest i with the salience draw s_i. Clearly, the special interest will babble. The logic is straightforward; suppose that any message sent by the special interest is believed by the policymaker who then chooses p_l if they receive the message $m_i = \theta_l$ and p_r if they receive the message $m_i = \theta_r$, in this case the special interest always sends the message $m_i = \theta_r$ whatever the realization of θ and hence the only equilibrium with the special interest sending messages involves babbling. The policymaker's and special interests' expected payoffs are then

$$\Pi_i = s_i/2, \text{ and } \Omega_i = 1/2. \tag{2.1}$$

Alternatively, the special interest may employ a commercial lobbyist to send a message, they are indifferent between policies so we assume that they are truthful.[15] These are believed by the policymaker. It then follows that if $\theta_i = \theta_r$ and the special interest employs a commercial lobbyist then the payoffs are

$$\Pi_i = s_i, \Omega_i = 1 - F, \text{ and } \Psi_i = F, \tag{2.2}$$

whereas if $\theta_i = \theta_l$ and the special interest employs a commercial lobbyist, then the payoffs are

$$\Pi_i = s_i, \Omega_i = -F, \text{ and } \Psi_i = F. \tag{2.3}$$

Hence, the special interest group will employ a commercial lobbyist if the state is θ_r and $F \leq \frac{1}{2}$, here the message $m_c = \theta_r$ is always sent and believed. Alternatively, if the state is θ_l, then the special interest will not employ the commercial lobbyist, no message is sent and this is revealing to the policymaker. If $F > \frac{1}{2}$, no commercial lobbyist is employed and the equilibrium involves babbling. Notice that it appears that the commercial lobbyist is "captured" by the special interest as it only ever sends the message $m_c = \theta_r$; however, this is not the case. If the special interest group employed the commercial lobbyist in the state θ_l, then the message $m_c = \theta_l$

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[14]If $\rho_l > \rho_r$, then clearly the policymaker would choose p_l, and vice versa. This does not affect any of our conclusions in this section. Also note that the policymaker is better off mixing between p_l and p_r than p_n. The alternative, with a different payoff for p_n, creates no substantial differences.

[15]If the commercial lobbyist were biased, or captured by her client, then the policymaker would discount the commercial lobbyist's message and the equilibrium would consist of no commercial lobbying and babbling by special interests. The classical "cheap talk" outcome in a one-shot environment.

would be sent.

If the policymaker has a limited ability to receive messages, then there will be an access cut-off with $\bar{s}$ such that all $s_i \geq \bar{s}$ will receive access to the policymaker. The probability that special interest i will receive access is then $1 - G_i(\bar{s})$.

We can now summarize these strategies and state the equilibrium to the one-shot game.

Proposition 1. *The equilibrium to the one-shot game with $F \leq \frac{1}{2}$ involves:*

   i) For any i such that $s_i < \bar{s}$ no message is sent and the policymaker chooses $p_i = p_n$;

   ii) For any i such that $s_i \geq \bar{s}$ and $\theta_i = \theta_r$ the special interest employs a commercial lobbyist, the truthful message $m_c = \theta_r$ is sent, and the policymaker chooses $p_i = p_r$;

   iii) For any i such that $s_i \geq \bar{s}$ and $\theta_i = \theta_l$ no message is sent, the policymaker infers $\theta_i = \theta_l$, and the policymaker chooses $p_i = p_l$.

In the basic one-shot game lobbying is either done by special interests and is non-informative ($F > \frac{1}{2}$) or all lobbying is by done commercial lobbyists and there is full revelation of information for all sufficiently salient policy issues. There is no revelation of information for insufficiently salient issues, but by definition the policymaker does not care about this. Furthermore, a commercial lobbyist provides the special interest groups with a credible costly signal which allows them to separate from others and signal the true state of the world if they wish to do so. Too this end the commercial lobbyist's fee should be expensive enough to be credible, but not so expensive as to prevent their use.($F \leq \frac{1}{2}$) and which is different to other applications of costly signaling where the magnitude of spending ("money burning") is informative (Austen-Smith and Banks (2000)).

Clearly then, to explain the division of lobbying between special interest groups and commercial lobbyists requires a richer set of possibilities; hence, we now assume the game is infinitely repeated.

3   Reputation and Access in the Infinitely Repeated Game

The one-shot-game is played repeatedly with a discount rate of δ. As usual δ may be thought to include the probability that the game will end, and may be interpreted as a measure of

policymaker security.[16] Clearly, repetition enlarges the strategy space, specifically it allows the policymaker to use the "grim trigger" if they so choose. We shall show that there exists an equilibrium in which the policymaker will apply the grim trigger both to special interests and commercial lobbyists. This is actually consistent with various observations that lobbyists are heavily punished for misrepresenting information.[17]

Suppose for the moment we maintain the assumption that the grim trigger is employed by the policymaker – punishing any player personally either special interest or commercial lobbyist that does not send truthful message by denying them future access.[18] That this is an equilibrium strategy for the policymaker will be established shortly. For the commercial lobbyist this means zero future income, for the special interest this means that they can only send messages indirectly by employing a commercial lobbyist. We may now demonstrate that

Proposition 2. *A special interest will send truthful messages to a policymaker if i) $\theta_i = \theta_r$ or ii) a commercial lobbyist sends truthful messages and $F \geq \frac{2(1-\delta)}{\delta[1-G_i(\bar{s})]}$.*

The intuition here is that the special interests group's temptation to cheat and send the message $m_i = \theta_r$ today when the state is θ_l, is less than the future punishment. The punishment is having to incur the cost of employing a commercial lobbyist F multiplied by the probability that the policy issue will be sufficiently salient so as to receive the policymaker's attention, $1-G_i(\bar{s})$, appropriately discounted. If $\theta = \theta_l$, the special interest does not employ a commercial lobbyist and does not lobby. Since $\rho_l = 1/2$, this explains the "2" in the expression. No lobbying is hence state-revealing to the policymaker.

Proposition 2 now implicitly defines the marginally truthful special interest by the issue $\bar{i}$ such that

$$G_{\bar{i}}(\bar{s}) = 1 - \frac{2(1-\delta)}{\delta F}. \tag{3.1}$$

Now we know by first-order stochastic dominance that $G_i(\bar{s}) > G_{i+1}(\bar{s})$; it then follows that

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[16]It may be that policymaker's seat security follows an inverted U-shape. If true, this will have interesting implications for who lobbies them.

[17]For example, Ornstein and Elder (1978) quotes "you can't afford to lie a member of Congress because if you lose access to you've had it" (p.77). Similarly, Rosenthal (1993) states a "lobbyist can deceive a legislator, but only once" (p.121), and Ainsworth (2002) explains that "by denying all future access in response to a lobbyist's uncooperative behavior, a legislator is employing a strategy frequently labeled permanent retaliation" (p.132).

[18]In other words, the individual "in-house" or "out-of-house" representative is punished but not the issue itself, meaning the issue can receive consideration if represented by someone else. This distinction in punishment relates exactly to the anecdotes and evidence above.

all special interests $i \in \{1, ..., \bar{i} - 1\}$ will babble if they send signals to policymakers, and all special interests $i \in \{\bar{i}, ..., I\}$ will send truthful messages.

Proposition 3. *The count of the set of special interests that send truthful messages is; (i) increasing in F, (ii) decreasing in $\bar{s}$, (iii) increasing in δ.*

Our predictions (i)-(iii) all work through the grim trigger and (i) and (iii) follow immediately from (3.1). In (ii) a higher $\bar{s}$ makes it less likely that any special interest will achieve the critical level of salience in each future period and thus reduces the effectiveness of the grim trigger to induce truth-telling. This is immediate from (3.1) and first-order stochastic dominance. We then have

Corollary 1. *Special interests $i \in \{1, 2, .., \bar{i} - 1\}$ employ commercial lobbyists and do not lobby policymakers directly. Special interests $i \in \{\bar{i}, ..., I\}$ directly lobby policymakers and send truthful messages.*

Notice that this implies that the size of the commercial lobbying industry grows as $\bar{s}$ increases, which may be due to the policymaker having less time to devote to policy-making rather than politics.[19] This result is similar to Groll and Ellis (2017) where less access to policymakers results in a shift in the relative time allocated to special interests and commercial lobbyists.

3.1 Equilibrium

We have shown how the special interests and commercial lobbyists will behave given that the policymaker adopts the grim trigger. To construct the equilibrium, we need to demonstrate that the policymaker finds it in their best interests to actually play the grim trigger if the circumstances require. Suppose therefore that the special interest always reports $m_i = \theta_r$ irrespective of the true state of the world. Now suppose that the realized state is θ_l. If the policymaker does not enforce the grim trigger, then the special interests will babble and the policymaker's expected payoff should they choose a policy on the issue is $s_i/2$. Given the

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[19]For example, Lessig (2011) estimates that U.S. Congress members spend nowadays between 30 to 70 percent of their time on campaigning and fund raising due to increased electoral competition and costs. Similarly, Ellis and Groll (2018) demonstrate that for some years resources spent lobbying have been increasing while Congressional resources and committee meetings have been decreasing.

salience cut-off $\bar{s}$ the policymaker will only choose a policy on the issue if $s_i/2 \geq \bar{s}$. We can immediately state.

Lemma 1. *If the special interest group deviates from truth-telling, then playing the grim trigger is payoff maximizing and therefore a best response for the policymaker.*

Lemma 1 completes the construction of the equilibrium for the infinitely repeated game.[20]

There are now several directions in which we may extend the baseline model, we may; (i) vary the policymaker's payoffs to allow for ideological biases, (ii) allow the fees paid by special interests to commercial lobbyists to be contingent on messages sent or outcomes realized, (iii) allow side payments from lobbies to policymakers, (iv) consider a more general payoff structure for special interests, and finally, (v) we allow for a continuous state space.

4 Ideologically Motivated Policymakers

So far we have assumed that policymakers only care about choosing the "correct" policy and have no political bias or ideology. This is an idealization. Suppose instead that a policymaker's preferences have an ideological bias as illustrated in Table 3. We distinguish between *purely ideological* policymakers who always prefer policy p_l or p_r ($c = a = 0$, $b = d = 1$ or $c = a = 1$, $b = d = 0$) and *partially ideological* policymakers who want to match the state of the world but lean towards p_l or p_r in the absence of information ($0 = b < c < a = d = 1$ or $0 = c < b < a = d = 1$). We have immediately

Lemma 2. *Purely ideologically motivated policymakers are not lobbied.*

Since purely ideological motivated policymakers are unresponsive to messages, even if truthful, it follows that they will not be lobbied by either type of lobby. However, we get

Proposition 4. *Partially ideologically motivated policymakers are only lobbied by special interest groups with the opposite political ideology or by commercial lobbyists.*

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[20]There is an alternative equilibrium in which the policymaker allocates all access to the commercial lobbyist, applies the grim strategy towards them, and special interest groups hire the truth-telling commercial lobbyist. As both equilibria involve truth-telling and the policymaker does not bear any costs, the policymaker is indifferent. Empirically, we observe that both types of lobbyist are receiving access (Bertrand et al. (2014)) and policymakers may have difficulty justifying crowding out citizens and special interests from political access (petitioning rules) without proper cause. However, when we consider side payments later we argue that the policymaker may actually prefer the equilibrium with both types of lobbyist receiving access, facing the grim trigger, and delivering lobbying resources.

	Policy		
	p_l	p_r	p_n
State θ_l	$a(s_i)$	$b(s_i)$	0
θ_r	$c(s_i)$	$d(s_i)$	0

Table 3: Policymaker's Ideology and Generalized Payoff.

The important element is that if there is babbling, then a policymaker's ideology determines their policy choice. It follows that a special interest that would babble and shares the policymaker's ideology will never employ a commercial lobbyist to act in their behalf; furthermore, the special interest will always babble themselves as they lose nothing if the policymaker reverts to the grim trigger. However, a special interest group that does not share the policymaker's ideology wishes to avoid the babbling outcome either by truth-telling themselves or by employing a commercial lobbyist. Indeed, they are willing to pay a fee above F for the commercial lobbyist's services so as to avoid babbling.

5 Implications of Money in Lobbying

Money plays a substantial role in politics and lobbying and has been subject to significant regulatory attention.[21] For example, in the US paying lobbyists success fees for winning federal contracts is forbidden. For other types of lobbying activities success fees are heavily regulated and subject to stringent reporting requirements.[22] These restrictions arose because of their potential deleterious effects on lobbyists' incentives to reveal information truthfully ("decision-based rewards" – Dewatripont and Tirole (1999)) and because they led to the lobbyists being captured by their clients, namely special interests. Here we consider the potential effects of lobbying success fees on lobbyists, and financial contributions on policymakers. Our analysis shows that *interests groups do not want to incentivize lobbyists with success fees* as this would eliminate their ability to credibly transmit information to policymakers, leaving only the babbling equilibrium. We also consider the implications of financial contributions when they are used either to gain a policymaker's attention to enhance their ability to enact policies (Hall

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[21]In the United States lobbying at the federal level is regulated by Lobbying Disclosure Act of 1995 (LDA) for domestic interests and by the Foreign Agent Registration Act (FARA) for foreign interests. For a global comparison of lobbying regulation see Chari et al. (2010).

[22]See the Lobbying Disclosure Act Guidance published by the Office of the Clerk of the U.S. House of Representatives which oversees the reporting of federal lobbying activities.

and Deardorff (2006), Ellis and Groll (2018)).

5.1   Lobbying Success Fees

It might seem that the special interest can gain from incenting the commercial lobbyist to report that the state is θ_r more frequently. This might be accomplished by making the fee contingent either on lobbyist's message $m_c = \theta_r$ or the realization of the policy outcome p_r. However, both of these options always lead to the commercial lobbyist babbling and if this is the case, the special interest group would have no incentive to employ them in the first place. To see this, consider the following; for some realization of the state θ_l let the special interest employ the commercial lobbyist and have them send the false message $m_c = \theta_r$ with some non-zero probability, λ. The policymaker would in principle be willing to tolerate some small λ as the message sent by the commercial lobbyists is truthful with a high probability. However, suppose that the policymaker is a Bayesian that updates their beliefs about the frequency with which false messages are sent, that is beliefs about λ. Whenever then they believe λ is sufficiently small, then the special interest group can choose $\lambda = 1$ without the update triggering the policymaker to play the punishment strategy. However, all the players can work this out and understand that $m_c = \theta_r$ is then just babbling and will be so for all subsequent periods. It then follows that

Proposition 5. *The special interest gains no benefit from paying the commercial lobbyist a lobbying success fee and declines to do so.*

Indeed all players are hurt by this option, suggesting that regulatory concerns about lobbying success fees may be overstated at least when there is transparency about lobbyists' compensation schemes.[23]

The baseline model and extensions so far consider only the exchange of policymaker time for information. Access is purchased by truth-telling the worth of which depends on policy issue salience. However, it is well understood that that lobbies also exchange other resources for policy favors.[24] We now consider this option by introducing side payments into the model.

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[23]For example, the Lobbying Disclosure Act Guidance states clearly such contingent fees are forbidden (for government contracts) or have to be made transparent.

[24]For example, Bennedsen and Feldmann (2006), Dahm and Porteiro (2008a,b), Groll and Ellis (2014, 2017), and Schnakenberg and Turner (2018b) consider the strategic considerations of providing policy relevant infor-

5.2 Side-Payments

We allow for the possibility that special interests and/or commercial lobbyists make side payments to policymakers.[25] The questions that arise are who pays how much to whom and why, and how does the presence of side payments effect our results concerning information transmission?

To analyze the implication of side payments, we first need to modify the policymaker's expected payoff function. We assume that for any issue $i \in I$ it becomes

$$\Pi_i = E[\mathscr{P}_i(p \mid s, \theta)|m_i, m_c] + E[\mathscr{Z}_i(s, \theta)], \tag{5.1}$$

where $E[\mathscr{Z}_i(s, \theta)]$ is the expected side payment that could potentially depend on both salience and the state. We shall consider only side payments made ex post, after the salience and state realization are observed. Ex ante payments are sunk and have no significant consequences for our analysis. Further, in our baseline model salience and the policymaker's payoffs were synonymous, now they consist of both salience and side payments; hence, the policy issues to which the policymaker devotes attention also depend on both forms of benefit. We now define $\bar{\pi}$ as the opportunity cost of the policymaker's time, such that only those lobbies that offer $\bar{\pi}$ may receive access. Except for the side payments we employ the simple payoff structure of the baseline model in this section. Assume for the moment that we know which special interests lobby directly and which use commercial lobbyists. We may state

Lemma 3. *For special interests that lobby directly*

i) $s_i \in [\bar{\pi}, S]$ *receive access and make no side payments;*

ii) $s_i \in [\bar{\pi} - 1, \bar{\pi}]$ *receive access and make side payments of* $z_i = \bar{\pi} - s_i$*;*

iii) $s_i \in [0, \bar{\pi} - 1]$ *receive no access and make no side payments.*

For special interests that lobby via commercial lobbyists

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mation or financial contributions. In these models financial contributions for policy favors and information tend to be substitutes. With an alternative focus Bombardini and Trebbi (2011) analyze the relationship between the size of an interest group and its strategic use of voter representation or financial contributions to influence policymakers.

[25]For more detailed modeling approaches with auction-style bidding for access see Cotton (2009, 2012). In these models financial contributions for access and information provision are complements.

i) $s_i \in [\bar{\pi}, S]$ *receive access and make no side payments;*

ii) $s_i \in [\bar{\pi} - 1 + F, \bar{\pi}]$ *receive access and make side payments of* $z_i = \bar{\pi} - s_i;$

iii) $s_i \in [0, \bar{\pi} - 1 + F]$ *receive no access and make no side payments.*

This lemma simply tells us that those special interests and commercial lobbyists that cannot "afford" $\bar{\pi}$, simply fail to lobby, those that can "afford" $\bar{\pi}$ without making a side payment get access on the basis of salience alone, and those in the intermediate range need to "top-up" their salience with a side payment. Following the same procedure as in the baseline model, we can derive the truth-telling conditions for the special interest group given that the policymaker again adopt the grim strategy. We obtain

Proposition 6. *With side payments the special interest group will send truthful messages if ı)* $\theta_i = \theta_r$ *or ii) the commercial lobbyist is truthful and*

$$F \geq \frac{2(1-\delta)}{\delta(1 - G_i(\bar{\pi}))} - \frac{\int_{\bar{\pi}-1}^{\bar{\pi}-1+F} (1 - \bar{\pi} + s)g_i(s)ds}{(1 - G_i(\bar{\pi}))} - \frac{\int_{\bar{\pi}-1+F}^{\bar{\pi}} Fg_i(s)ds}{(1 - G_i(\bar{\pi}))}.$$

So Proposition 6 implies that the marginally truthful special interest is that $\hat{i}$ which satisfies

$$\int_{\bar{\pi}-1}^{\bar{\pi}-1+F} (1 - \bar{\pi} + s_i)g_i(s)ds + \int_{\bar{\pi}-1+F}^{\bar{\pi}} Fg_i(s)ds - G_i(\bar{\pi})F = \frac{2(1-\delta)}{\delta} - F. \qquad (5.2)$$

Using (3.1) and (5.2), we may compare the equilibria with and without side payments. The results may be summarized as

Proposition 7. *In comparison to the case without side payment we find that side payments involve:*

i) More truth-telling by special interests in the sense $\bar{i} > \hat{i};$

ii) More lobbying by special interests;

iii) More lobbying in total.

That there is more truth-telling by special interests when side-payments are permitted follows from the fact that side-payments allow more special interest groups to deliver $\bar{\pi}$ in the

current period, and given the fixed salience distributions more of them expect to be able to do so in future periods. Policymakers and special interest groups thus anticipate more frequent interactions enhancing the ability of the grim trigger to induce truth-telling. It follows that there is more lobbying by special interests. There is also more lobbying in total since special interests with relatively low salience policy proposals that would not in the absence of side-payments achieve access to a policymaker can now employ commercial lobbyists to obtain access and have the commercial lobbyist deliver the side-payment to the policymaker on their behalf. Notice that the implication here is that limiting side payments would have negative effects. Less truthful information would be passed from special interest groups to policymakers who would in turn enact fewer total correct policies. This is because side payments enhance the ability of the trigger strategy to induce truth-telling by special interests and also induce the policymaker to consider more policy proposals.[26]

6   Further Extensions

In the following we consider a couple of extensions to our baseline model and illustrate that the results are robust to a richer set of assumptions.[27]

6.1   Generalized Payoffs

We begin by modeling a more general payoff structure for special interests. In the baseline model the special interest group cares only about it's preferred policy being enacted. It however is quite possible that it would prefer to receive no attention and hence no policy choice from the policymaker rather than the "left" policy p_l.

Let special interest groups receive a policy-dependent but state-independent payoff $\mathscr{R}_i(p)$ illustrated by Table 4 with $a > 0$ and $b > 0$. We may now follow the same procedure as used in the baseline model to obtain the equilibrium.

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[26]While not explicitly modeled in our analysis it seem clear that in the presence of side payments the policymaker would prefer the equilibrium that involves both lobbying by special interests and commercial lobbyists. With direct access the special interest group does not have to pay the lobbying fee F and would be willing to pay the amount in forms of side payments to the policymaker, which would be obviously preferred as it would cut out a costly "middle man" without giving the benefits of truthful reporting.

[27]Allowing for uncertainty as to whether the policymaker actually implements the policy after lobbying has no substantial implications for the results and produces similar empirical predictions regarding truth-telling and repeated interactions.

Policy

		p_l	p_n	p_r
State	θ_l	$-a$	0	b
	θ_r	$-a$	0	b

Table 4: Interest Group's Generalized Payoff.

6.1.1 Equilibrium in the One-Shot Game

Employing the generalized version of the special interest groups' payoffs, it is straight-forward to show that the special interest group would always babble and that they would choose to employ a commercial lobbyist to intermediate on their behalf and signal the true state of the world if

$$F \leq \frac{b+a}{2}, \tag{6.1}$$

which immediately yields

Lemma 4. *The special interest's willingness to pay for a commercial lobbyist is increasing in i) its potential gains, b, ii) its potential losses, a, and iii) payoff spread, $b + a$.*

Clearly, as the interest group's stake in political decisions increases, its willingness to pay for credible representation increases and the policymaker can learn the state of the world for all sufficiently salient policy issues either by revelation or inference as in Proposition 1.

6.1.2 Equilibrium in the Infinitely-Repeated Game

Now let us consider the infinitely-repeated lobbying game with generalized payoffs for the special interests. Again we assume that the policymaker employs the grim trigger, punishing any special interest or commercial lobbyist that does not send truthful messages with no future access. Hence, a special interest would have to employ a commercial lobbyist in the future if caught and a commercial lobbyist would earn zero future income.[28] We are able to show that

Proposition 8. *With generalized payoffs a special interest group i will send truthful messages if i) $\theta_i = \theta_r$ or ii) the commercial lobbyist is truthful and $F \geq \frac{2(1-\delta)(b+a)}{\delta[1-G_i(\bar{s})]}$.*

This mirrors Proposition 3 except that an increase in the rewards from deviating from

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[28]The proof that playing the grim trigger is an equilibrium strategy for the policymaker is identical to the one for the baseline model presented in Lemma 1 and is omitted for brevity.

truth-telling in the current period, the greater the magnitude of $a + b$, causes the relative number of commercial lobbyists to special interests to increase.

The marginally truthful special interest, $\bar{\bar{i}}$, is then defined by

$$G_{\bar{\bar{i}}}(\bar{s}) = 1 - \frac{2(1-\delta)(b+a)}{\delta F}. \tag{6.2}$$

From (6.2) if follows that the count of the set of truthful special interests is (i) increasing in F, (ii) decreasing in $\bar{s}$, and (iii) decreasing in $b + a$.

6.2 Continuous State Space

It might seem that the findings of the preceding sections are too sharp and rely on the restriction of the model to a two state world. Here we show that this is not restrictive and assume that the state of the world θ_i is randomly distributed on the interval $[\theta_l, \theta_r]$ with full support and marginal density $h_i(\theta)$. We similarly assume that the policy may take any value in the same interval so that $p_i \in [\theta_l, \theta_r]$ $\forall i$.

We thus have to modify the policymaker's and interest group's payoff functions accordingly:

i) $\mathscr{P}_i(p \mid s, \theta) = -|\theta_i - p_i|s_i$ for the policymaker from issue i;

ii) $\mathscr{R}_i(p \mid p_i^*) = -|p_i^* - p_i|$ for special interest group i.

These two payoff functions simply say that the policymaker has state-dependent preferences and simply wishes to match the policy to the state, while the lobby has single-peaked preferences with a most preferred policy, p_i^*, and which are again state-independent. All other aspects of the model remain as before.

Following the same methodology as in the discrete state space version, we have

Proposition 9. $\exists$ *a critical $\bar{i}$ such that all $i \geq \bar{i}$ will send truthful messages and lobby the policymaker directly whenever $s_i \geq \bar{s}$ for some given $\bar{s}$. Whereas those special interests for which $i < \bar{i}$ will employ commercial lobbyists to lobby on their behalf whenever $s_i \geq \bar{s}$. All special interests for which $s_i < \bar{s}$ will not lobby.*

In essence there is no substantive difference between the discrete and continuous state space versions of the analysis and each produces the same empirical predictions.

7   Discussion and Conclusion

Our theory provides a series of predictions, evidence on some of which already exist and others are in principle testable. In the following we summarize and discuss our empirically interesting findings. We can distinguish between predictions on questions of *who lobbies whom* and on *who lobbies on what*. From a perspective of data availability the former is more challenging as, in the USA, direct interactions between lobbyists and policymakers are not reported under the Lobbying Disclosure Act of 1995.[29] So hopefully, at some point federal lobbying reports will not just include client-lobbyist pairs but also lobbyist-policymaker pairs such that all of our empirical predictions can be tested. Nevertheless, our predictions on the latter question focusing on policy issues and lobbyist-type can be brought to the data with fewer challenges.

In summary the theory predicts the following.

1. *Special interests with consistently high levels of expected salience lobby directly.* Special interest groups lobbying on ongoing "hot button" issues such as gun control, reproductive rights, and the environment are predicted to lobby directly.

2. *Special interests lobby directly those policymakers for which the issue is highly salient and which also enjoy high expected future salience.* We might thus anticipate policymakers who's constituencies involve concentrations of particular industries such as the extractive industries will be lobbied directly by the relevant special interest groups. Other policymakers without such natural associations would be lobbied (if at all) by commercial lobbyists.

3. *An increase in the probability that the game will end for any reason implies that policymakers are lobbied less by special interests and more by commercial lobbyists. So policymakers with marginal seats tend to be lobbied more by commercial lobbyists as do policymakers approaching the end of their legislative careers.* In the limit policymakers that are sure that their congressional careers are soon to be over would cease interacting with lobbyists. Presumably these individuals are therefore likely to be more supportive of regulating the lobbying industry.

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[29]Direct interactions between policymakers and lobbyists are reported under the Foreign Agent Registration Act on foreign lobbying activities and we refer to work by on-going work by Kang and You (2018).

4. *If the commercial lobbying industry is more competitive, has a lower F, then there will be more commercial lobbying relative to special interest lobbying.* This suggests something about the market structure of the lobbying industry. The more concentrated is the commercial lobbying industry the smaller would be its share in total lobbying.

5. *Purely ideologically motivated policymakers are not lobbied, whereas partially ideologically motivated policymakers are lobbied by opposite biased special interests or commercial lobbyists acting as their representatives.* This suggests that the information and resources that flow from lobbyists to policymakers may well induce posturing. However, if over time a policymakers congressional activities reveal themselves to be true ideologues then their supply of resources from lobbyists should dry up.

6. *The presence of side payments in lobbying leads to more lobbying and therefore more truth-telling by special interests, and more lobbying in total.* Different countries have more or less stringent restrictions on the transfers of resources from lobbyists to policymakers. We might anticipate that those with stricter regulations should have less total lobbying and less special interest lobbying.

7.1 Conclusion

Our analysis has highlighted that repeated agency relationships can induce the truthful revelation of information to policymakers. But it also showed that not all special interest groups can exploit repeated agency relationships with policymakers. The ability to form such relationships depends on the special interest groups' policy issues and policymakers' characteristics with respect to issue salience, agenda space and expected tenure. Special interest groups that cannot form repeated agency relationships must rely on commercial lobbyists to intermediate for them with policymakers. We have considered a considerable number of extensions but much more could be done. For example, we considered competition for access and agenda space rather than issue competition; hence, competing interests on the same issue and how this may affect the division in the lobbying market and lobbyists' strategies are left for the future. We implicitly assume that lobbyists know the salience of policy to a particular policymaker, that is that they have considerable expertise in monitoring the policymaking process

and policymaker's preferences; however this may or may not be a good abstraction. There may be a learning process whereby lobbyists learn about the salience of issues to particular policymakers. This may create information advantages for some lobbyists. However, our prior is that this would favor commercial lobbyists as they represent more clients and issues and interact with a wider spectrum of policymakers.

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A Appendix

A.1 Proof of Proposition 1

Proof. The proof of this follows immediately from our discussions above. Alternatively, see the proof for Lemma 4 with $b + a = 1$. □

A.2 Proof of Proposition 2

Proof. Suppose first that the special interest sends truthful messages. If the state is θ_l, the special interest's payoff with truth-telling today, $m_i = \theta_l$, is given by

$$0 + \frac{\delta[1 - G_i(\bar{s})]}{2} + \frac{\delta^2[1 - G_i(\bar{s})]}{2} + ... = \frac{\delta[1 - G_i(\bar{s})]}{2(1 - \delta)}. \tag{A.1}$$

If the state is θ_r, the special interest's payoff with truth-telling today, $m_i = \theta_r$, is given by

$$1 + \frac{\delta[1 - G_i(\bar{s})]}{2} + \frac{\delta^2[1 - G_i(\bar{s})]}{2} + ... = 1 + \frac{\delta[1 - G_i(\bar{s})]}{2(1 - \delta)}. \tag{A.2}$$

Finally, if the special interest is not truthful, $m_i = \theta_r$ when $\theta_i = \theta_l$, but the commercial lobbyist is, $m_c = \theta_i$, then the special interest's payoff, given that they lie today and then use the commercial lobbyist in all future periods, will be

$$1 + \frac{\delta[1 - G_i(\bar{s})][1 - F]}{2} + \frac{\delta^2[1 - G_i(\bar{s})][1 - F]}{2} + ... = 1 + \frac{\delta[1 - G_i(\bar{s})][1 - F]}{2(1 - \delta)}. \tag{A.3}$$

Hence, from (A.1)-(A.3) it follows immediately that the special interest will be truthful if $F \geq \frac{2(1-\delta)}{\delta[1-G_i(\bar{s})]}$. □

A.3 Proof of Proposition 3

Proof. The proof of this follows immediately from our discussions above. □

A.4 Proof of Lemma 1

Proof. It follows that the discounted stream of the policymaker's expected payoffs from issue i if they do not enforce the trigger is

$$\frac{\delta}{2(1-\delta)} \int_{2\bar{s}}^{S} sg_i(s)ds \ \ \text{iff} \ \ 2\bar{s} \leq S; \ \text{and}$$

$$0 \quad \text{otherwise.} \tag{A.4}$$

If they do enforce the trigger, the special interest must employ a commercial lobbyist who is always truthful and the policymaker's expected payoff is then

$$\frac{\delta}{(1-\delta)} \int_{\bar{s}}^{S} sg_i(s)ds. \tag{A.5}$$

Trivially, we get

$$0 \leq \frac{\delta}{2(1-\delta)} \int_{2\bar{s}}^{S} sg_i(s)ds < \frac{\delta}{(1-\delta)} \int_{\bar{s}}^{S} sg_i(s)ds. \tag{A.6}$$

So the policymaker will indeed play the grim trigger. □

A.5 Proof of Lemma 2

Proof. Consider a purely ideological policymaker with $a = c = 0$ and $b = d = 1$. The policymaker will always choose $p_i = p_r$ independent of θ_i and is therefore not responsive to any m_i or m_c and there is no incentive for any lobbying.

Now consider a purely ideological policymaker with $a = c = 1$ and $b = d = 0$. Similarly, this policymaker will always choose $p_i = p_l$ independent of θ_i and is therefore not responsive to any m_i or m_c and there is no incentive for any lobbying. □

A.6 Proof of Proposition 4

Proof. We illustrate the proof with $0 = b < c < a = d = 1$.[30] Suppose the partially ideological policymaker receives no message, $m_i = m_c = 0$, and will then enact her preferred policy $p_i = p_l$

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[30]The implications for are identical for $0 = c < b < a = d = 1$.

in absence of information. The payoffs from issue i are then

$$\Pi_i = \frac{a+c}{2}, \Omega_i = 0, \text{ and } \Psi_i = 0. \tag{A.7}$$

Now suppose the interest group sends a message directly. Due to its expected payoffs it will send $m_i = \theta_r$ independent of θ_i, which is anticipated by the policymaker and payoffs are identical to (A.23).

Alternatively, a commercial lobbyist may send a message on interest group i's behalf. The commercial lobbyist sends $m_c = \theta_i$, which is believed by the policymaker. It then follows that if $\theta_i = \theta_r$ and the special interest employs a commercial lobbyist then the payoffs are

$$\Pi_i = d, \Omega_i = 1 - F, \text{ and } \Psi_i = F, \tag{A.8}$$

whereas if $\theta_i = \theta_l$ and the special interest employs a commercial lobbyist, then the payoffs are

$$\Pi_i = a, \Omega_i = -F, \text{ and } \Psi_i = F. \tag{A.9}$$

Hence, if $\theta_i = \theta_r$, then the interest group i will hire a commercial lobbyist to send $m_c = \theta_r$ to an initially oppositely biased policymaker whenever

$$F \leq 1. \tag{A.10}$$

However, if $\theta_i = \theta_l$, the lobby will abstain from direct and indirect lobbying. $\qquad\square$

A.7 Proof of Proposition 5

Proof. Suppose the special interest group i pays the commercial lobbyist a signal-contingent fee F if $m_c = \theta^r$.[31] We consider both the one-shot game and the infinitely repeated game.

Equilibrium in One-Shot Game Suppose the policymaker receives no message, $m_i = m_c = 0$, then policymaker mixes between p_l and p_r with equal probability. The payoffs from

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[31]The assumption of an outcome-contingent fee produces similar outcomes and is neglected.

issue i are then

$$\Pi_i = \frac{s_i}{2}, \Omega_i = \frac{1}{2}, \text{ and } \Psi_i = 0. \tag{A.11}$$

Now suppose the interest group sends a message directly. Due to its expected payoffs it will send $m_i = \theta_r$ independent of θ_i, which is anticipated by the policymaker and payoffs are identical to (A.11). Alternatively, a commercial lobbyist may send a message on interest group i's behalf. Due to the signal-contingent fee, the commercial lobbyist may send $m_c = \theta_r$, which is no longer believed by the policymaker. It then follows that the policymaker discards the message, mixes between policies p_l and p_r, and the special interest group would be better off to babble ($\Omega_i = \frac{1}{2}$) instead of hiring a commercial lobbyist $\Omega_i = \frac{1}{2}$.

However, a special interest group with $\theta_i = \theta_r$ would be better off to pay the commercial lobbyist a fee F which is not contingent on the signal if $F \leq 0$. A policymaker observing the signal independent compensation would learn the truth and could infer from all other presentations that $\theta_i = \theta_l$.

In sum, special interests do not pay signal-contingent fees as they would not gain from them ("costly babbling") or do not want to pay them as it undermines credibility ("costly signaling").

Equilibrium in Infinitely-Repeated Game   The commercial lobbyist has to decide whether to get captured by the SIG's success fee or to report truth-fully and forfeit the success fee. Suppose the commercial lobbyist always sends $m_c = \theta_r$ to earn the success fee, independent of the true θ_i. The expected payoff is then

$$F + \frac{\delta}{2}F + \left(\frac{\delta}{2}\right)^2 F + \dots = \frac{2F}{2 - \delta}, \tag{A.12}$$

where each period the game may end with probability δ as the commercial lobbyist may get caught with probability $\frac{1}{2}$ for lying and would be banned.

Now suppose the commercial lobbyist reports truth-fully and sends $m_c = \theta_i$. Further, suppose $\theta_i = \theta_r$. The expected payoff is then

$$F + \delta\frac{F}{2} + \delta^2\frac{F}{2} + \dots = \frac{2F - 2\delta}{2(1 - \delta)}, \tag{A.13}$$

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where the commercial lobbyist reports truthfully and only earns with probability $\frac{1}{2}$ a success fee. Similarly, if $m_c = \theta_i = \theta_l$, then the expected payoff is

$$\delta \frac{F}{2} + \delta^2 \frac{F}{2} + \ldots = \frac{\delta F}{2(1-\delta)}. \tag{A.14}$$

Comparing (A.14) and (A.12), the CL is reporting truth-fully – and cannot be captured by the SIG – if

$$\frac{\delta F}{2(1-\delta)} \geq \frac{2F}{2-\delta}. \tag{A.15}$$

Solving above, we get that special interest can capture the commercial lobbyist with a signal-contingen fee if $\delta < \delta^* \equiv \frac{-6+\sqrt{20}}{-2} \approx 0.764$.

However, if the policymaker anticipates the commercial lobbists' incentives, then any message m_c will be discarded when $\delta < \delta^*$; the interest group would have no incentive engage in costly babbling, the commercial lobbyist would not be employed, and . However, any interest groups with $\theta_i = \theta_r$ would offer signal-independent compensation and could separate the outcomes. On the other hand, if $\delta \geq \delta^*$, then the commercial lobbyist will refuse the offered contract and special interest group will have to offer a flat fee if it wishes to be represented.

In sum, if $\delta < \delta^*$, then the special interest groups prefer weakly a flat fee and a hired commercial lobbyist reports truth-fully; if $\delta \geq \delta^*$, then special interest groups cannot induce the commercial lobbyist to lie, contingent-fees are rejected, and special interest groups have to offer flat fees. $\qquad\square$

A.8 Proof of Proposition 6

Proof. Given the structure above let's work out the truth-telling conditions. Consider special interest i and assume first that they are telling the truth. If the state is θ_l, the special interest's payoff from sending $m_i = \theta_l$ is given by

$$0 + \delta \left[\frac{1-G_i(\bar{\pi})}{2} + \frac{1}{2} \int_{\bar{\pi}-1}^{\bar{\pi}} (1 - \bar{\pi} + s_i) g_i(s) ds \right] + \delta^2 \left[\frac{1-G_i(\bar{\pi})}{2} + \frac{1}{2} \int_{\bar{\pi}-1}^{\bar{\pi}} (1 - \bar{\pi} + s_i) g_i(s) ds \right] + \ldots$$
$$= \frac{\delta}{2(1-\delta)} \left[1 - G_i(\bar{\pi}) + \int_{\bar{\pi}-1}^{\bar{\pi}} (1 - \bar{\pi} + s_i) g_i(s) ds \right]. \tag{A.16}$$

If the state is θ_r, the special interest's payoff from sending $m_i = \theta_r$ is given by

$$1 + \delta \left[\frac{1-G_i(\bar{\pi})}{2} + \frac{1}{2} \int_{\bar{\pi}-1}^{\bar{\pi}}(1 - \bar{\pi} + s_i)g_i(s)ds \right] + \delta^2 \left[\frac{1-G_i(\bar{\pi})}{2} + \frac{1}{2}\int_{\bar{\pi}-1}^{\bar{\pi}}(1 - \bar{\pi} + s_i)g_i(s)ds \right] + \ldots$$

$$= 1 + \frac{\delta}{2(1-\delta)} \left[1 - G_i(\bar{\pi}) + \int_{\bar{\pi}-1}^{\bar{\pi}}(1 - \bar{\pi} + s_i)g_i(s)ds \right]. \tag{A.17}$$

Finally, if the special interest is not truthful but the commercial lobbyist is, $m_i = \theta_r$ when $\theta_i = \theta_l$ and $m_c = \theta_i$, then the special interest's payoff will be

$$1 + \delta \left[\frac{(1 - G_i(\bar{\pi}))(1 - F)}{2} + \frac{1}{2} \int_{\bar{\pi}-1+F}^{\bar{\pi}}(1 - \bar{\pi} + s_i - F)g_i(s)ds \right]$$

$$+ \delta^2 \left[\frac{(1 - G_i(\bar{\pi}))(1 - F)}{2} + \frac{1}{2} \int_{\bar{\pi}-1+F}^{\bar{\pi}}(1 - \bar{\pi} + s_i - F)g_i(s)ds \right] + \ldots$$

$$= 1 + \frac{\delta}{2(1 - \delta)} \left[(1 - G_i(\bar{\pi}))(1 - F) + \int_{\bar{\pi}-1+F}^{\bar{\pi}}(1 - \bar{\pi} + s_i - F)g_i(s)ds \right]. \tag{A.18}$$

Hence, from (A.16) and (A.18) we get the truth-telling condition and which reduces to

$$F \geq \frac{2(1 - \delta)}{\delta(1 - G_i(\bar{\pi}))} - \frac{\int_{\bar{\pi}-1}^{\bar{\pi}-1+F}(1 - \bar{\pi} + s)g_i(s)ds}{(1 - G_i(\bar{\pi}))} - \frac{\int_{\bar{\pi}-1+F}^{\bar{\pi}} F g_i(s)ds}{(1 - G_i(\bar{\pi}))}. \tag{A.19}$$

$\square$

A.9 Proof of Proposition 7

Proof. In the absence of side payments the marginally truthful special interest is an $\bar{i}$ from (3.1) which satisfies

$$G_{\bar{i}}(\bar{s}) = 1 - \frac{2(1 - \delta)}{\delta F}. \tag{A.20}$$

With side payments the marginally truthful special interest is an $\hat{i}$ which satisfies

$$\int_{\bar{\pi}-1}^{\bar{\pi}-1+F}(1 - \bar{\pi} + s_i)g_i(s)ds + \int_{\bar{\pi}-1+F}^{\bar{\pi}} F g_i(s)ds - G_i(\bar{\pi})F = \frac{2(1 - \delta)}{\delta} - F. \tag{A.21}$$

So we can immediately write

$$G_{\hat{i}}(\bar{\pi}) > 1 - \frac{2(1 - \delta)}{\delta F} = G_{\bar{i}}(\bar{s}). \tag{A.22}$$

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Given that the densities are ordered by first-order stochastic dominance it follows that $\bar{\pi} = \bar{s} \implies G_{\bar{i}}(\bar{s}) < G_{\hat{i}}(\bar{\pi}) \implies \bar{i} > \hat{i}$. This tells us that if side payment are permitted, then

i) There is more truth-telling by special interests in the sense that $I - \bar{i} < I - \hat{i}$;

ii) More lobbying by special interest groups;

iii) More lobbying in total. $\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\square$

A.10 Proof of Lemma 4

Proof. Suppose the policymaker receives no message, $m_i = m_c = 0$, then policymaker mixes between p_l and p_r with equal probability. The payoffs from issue i are then

$$\Pi_i = \frac{s_i}{2}, \Omega_i = \frac{b - a}{2}, \text{ and } \Psi_i = 0. \tag{A.23}$$

Now suppose the interest group sends a message directly. Due to its expected payoffs it will send $m_i = \theta_r$ independent of θ_i, which is anticipated by the policymaker and payoffs are identical to (A.23).

Alternatively, a commercial lobbyist may send a message on interest group i's behalf. The commercial lobbyist sends $m_c = \theta_i$, which is believed by the policymaker. It then follows that if $\theta_i = \theta_r$ and the special interest employs a commercial lobbyist then the payoffs are

$$\Pi_i = s_i, \Omega_i = b - F, \text{ and } \Psi_i = F, \tag{A.24}$$

whereas if $\theta_i = \theta_l$ and the special interest employs a commercial lobbyist, then the payoffs are

$$\Pi_i = s_i, \Omega_i = -a - F, \text{ and } \Psi_i = F. \tag{A.25}$$

Hence, if $\theta_i = \theta_r$, then the interest group i will hire a commercial lobbyist to send $m_c = \theta_r$ if

$$F \leq \frac{b + a}{2}. \tag{A.26}$$

However, if $\theta_i = \theta_l$, then the interest group i will not hire a commercial lobbyist and just send

$m_i = \theta_r$. The policymaker will receive no revealing information when $F > \frac{b+a}{2}$ but can learn or infer the state of the world for issue i when $F \leq \frac{b+a}{2}$.

Considering (A.26), we can see that the right-hand side is increasing in i) a, ii) b, and therefore iii) $b + a$, which increases the incentives for the interest group to hire a commercial lobbyist when $\theta_i = \theta_r$. $\qquad\square$

A.11 Proof of Proposition 8

Proof. Here we consider the special interest group's choices. If the state is θ_l and the special interest sends $m_i = \theta_l$, the special interest's expected payoff is given by

$$-a+\delta[1-G_i(\bar{s})]\left(\frac{b-a}{2}\right)+\delta^2[1-G_i(\bar{s})]\left(\frac{b-a}{2}\right)+... = -a+\frac{\delta[1-G_i(\bar{s})]}{1-\delta}\left(\frac{b-a}{2}\right). \quad (A.27)$$

If the state is θ_r and the special interest sends $m_i = \theta_r$, the special interest's expected payoff is given by

$$b+\delta[1-G_i(\bar{s})]\left(\frac{b-a}{2}\right)+\delta^2[1-G_i(\bar{s})]\left(\frac{b-a}{2}\right)+... = 1+\frac{\delta[1-G_i(\bar{s})]}{1-\delta}\left(\frac{b-a}{2}\right). \quad (A.28)$$

Finally, if the special interest is not telling the truth, $mi_i = \theta_r$ when $\theta_i = \theta_l$, and has to employ commercial lobbyist in the future, which would tell the truth with $m_c = \theta_i$, then the expected payoff would be

$$b+\delta[1-G_i(\bar{s})]\left(\frac{b-F}{2}-\frac{a}{2}\right)+\delta^2[1-G_i(\bar{s})]\left(\frac{b-F}{2}-\frac{a}{2}\right)+... = 1+\frac{\delta[1-G_i(\bar{s})]}{1-\delta}\left(\frac{b-F-a}{2}\right).$$
$$(A.29)$$

Hence, from (A.27)-(A.29) it follows that the special interest will be truthful if $\theta_i = \theta_r$ or $F \geq \frac{2(1-\delta)(b+a)}{\delta[1-G_i(\bar{s})]}$. $\qquad\square$

A.12 Proof of Proposition 9

Proof. To simplify the exposition, we temporarily write the lobbies' continuation values as $\mathscr{R}_i^T$ if they are truthful, and $\mathscr{R}_i^U$ if they are untruthful.

If the state θ_i is realized today, then the truth-telling condition requires

$$\mathscr{R}_i(\theta_i \mid p_i^*) + \delta\mathscr{R}_i^T \geq \mathscr{R}_i(p_i^* \mid p_i^*) + \delta\mathscr{R}_i^U, \tag{A.30}$$

which may be rewritten

$$|p_i^* - \theta_i| \leq \delta\left(\mathscr{R}_i^T - \mathscr{R}_i^U\right). \tag{A.31}$$

If (A.31) holds, then in the state θ_i the lobby may send the truthful message $m_i(\theta) = \theta_i$. Consider now the marginally truthful states, $\{\bar{\theta}_i,\ \underline{\theta}_i\}$, defined by

$$\theta_i = p_i^* \pm \delta\left(\mathscr{R}_i^T - \mathscr{R}_i^U\right). \tag{A.32}$$

We note first that if $\theta_i \geq \underline{\theta}_i$ and $\theta_i \leq \bar{\theta}_i$, then the special interest sends truthful messages for all state realizations. If either $\theta_i < \underline{\theta}_i$ or $\theta_i > \bar{\theta}_i$, then the special interest will send untruthful messages for some states.

Next we note that if the special interest sends an untruthful message, the policymaker will choose to play the grim trigger strategy exactly as demonstrated in expressions (A.4)-(A.6).

Finally, we note that when we consider an interest group with higher expected salience, increase in i, then this interest group has greater expected benefit from truth-telling and as a consequence there will spread in the interval $[\underline{\theta}_i, \bar{\theta}_i]$ if $\mathscr{R}_i^T - \mathscr{R}_i^U$ is increasing in i which follows from the Proof of Proposition 2. $\qquad\square$