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Clueless Politicians

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CLUELESS POLITICIANS

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ABSTRACT. We develop a model of policymaking in which a politician decides how much expertise to acquire or how informed to become about issues before interest groups engage in monetary lobbying. For a range of issues, the policymaker prefers to remain clueless about the merits of reform, even when acquiring expertise or better information is costless. Such a strategy leads to intense lobbying competition and larger political contributions. We identify a novel benefit of campaign finance reform, showing how contribution limits decrease the incentives that policymakers have to remain uninformed or ignorant of the issues on which they vote.

"In politics, stupidity is not a handicap."

– Napoleon Bonaparte

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1. Introduction

There is a popular belief that politicians are often "uninformed" or "clueless," unwilling or unable to weigh the costs and benefits of alternative policies. Anecdotal evidence further supports this view, suggesting that policymakers frequently do not fully understand the details of legislation on which they vote. For example, in 2009 when discussing health care reform, then U.S. House Judiciary Committee Chairman John Conyers said, "What good is reading the bill if it's a thousand pages and you don't have two days and two lawyers to find out what it means after you read the bill?"[1] Empirical evidence suggests that politicians often have inaccurate beliefs about constituent preferences (Broockman and Skovronz 2013). Others have convincingly argued that politicians face severe time and resource constraints, which make it impossible for them to fully understand each issue on which they vote (e.g. Bauer, Dexter and de Sola Pool 1963, Hansen 1991, Hall 1996, Baumgartner and Jones 2015). We show how this may not be the entire explanation for politicians being uninformed.

We present a game theoretic model of policymaking and lobbying, showing how political contributions can decrease as politicians become more informed about policy. Our model highlights an incentive that politicians have to remain strategically uninformed, ignorant about the policies on which they vote. This is because political contributions flow in greater quantity to clueless politicians than to those who believe that one policy is best. A clueless politician, unable to distinguish policies based on their merits, may choose policy based solely on political contributions. With a clueless politician, lobbying competition is most fierce, and as a result, payments from special interest groups are maximized. In contrast, an informed politician who knows one policy is best requires fewer political contributions to vote in its favor. Such a politician faces less intense lobbying, and collects fewer political contributions. Because of this, for a range of issues, politicians prefer to be clueless than informed.

Our story is consistent with empirical evidence that contributors give more money to politicians who are likely undecided about how to vote Stratmann (1992). It is also consistent with the casual observation that over the last thirty-five years, the US Congress has seen a steady decline in staff sizes and committee hearings, decreasing Congress's ability to learn about and understand policies which have arguably become more complex over the same period (Baumgartner and Jones 2015, Drutman and Teles 2015). During the same period, political contributions have increased dramatically. For example, from 1980 to 2010, the staff size of Congressional Research Services fell from 849

[1] Similarly, in 2013 after 14 state senators took the step of recalling a bill a day after voting for it, Texas State Senator Kel Seliger said "I would be very reluctant to stand up and say that I was poorly informed and ill-prepared and clueless, which is exactly what we're talking about happened here" (Batheja 2013).

to 679 (20% decrease), and the staff size of the Government Accountability Office fell from 5,196 to 3,350 (36% decrease), while during the same period PAC contributions to members of Congress increased from \$158.6 million to \$441.7 million (178% increase in 2014 dollars).[2]

Our model involves a three stage game, played between one interest group in support of a policy reform, one interest group in support of the status quo, and a policymaker who cares about both the merits of implemented policy and collecting political contributions. In the first stage, the policymaker chooses an information collection strategy, through which he learns about the merits of the reform. In the second stage, the special interest groups, each favoring an alternative policy outcome, engage in a standard monetary lobbying game. The interest groups simultaneously provide lobbying offers to the policymaker. An offer specifies how large of political contribution a group provides when the policymaker implements its favored policy. In the third stage, the policymaker chooses the policy that offers the greatest weighted combination of expected policy benefits and promised political contributions.

The analysis begins with a simple information structure. The policymaker chooses between becoming fully informed about the benefits of reform, and remaining uninformed, left to make a decision based only on his priors. For important enough issues, the policymaker prefers to become fully informed, in which case the equilibrium involves him implementing the best policy with probability 1. This is likely the case with the issues that matter most for constituents and are most likely to influence future elections. The more interesting behavior involves less politically important issues, where the policymaker may sacrifice the quality of policy in order to attract more political contributions. On these issues, the policymaker prefers to remain uninformed, which leads to higher payments from interest groups in the monetary lobbying stage of the game. These may be issues that are not central to an election, or where interest group willingness to pay is sufficiently large (e.g. technology, finance or energy sectors).

After illustrating the basic tradeoff between better informed policy and political contributions under the simple information structure, we then allow for much more complex information collection strategies. Throughout the majority of the paper, our treatment of the information collection process is general, following a Bayesian persuasion approach. The policymaker designs a signal, which reveals information about a reforms type. In order to focus on the strategic incentives for remaining less informed, we abstract from the

[2] We encourage future research to more thoroughly explore the empirical relationship between Congress's capacity for research and the political contributions to its members. Our data come from Brookings Vital Statistics on Congress, available online at http://www.brookings.edu/research/reports/2013/07/vital-statistics-congress-mann-ornstein, and from the Campaign Finance Institute, available online at http://www.cfinst.org/data/historicalstats.aspx.

costs of information acquisition: It is costless for the policymaker to become completely informed (in which case he perfectly observes the quality of reform), to remain completely uninformed (in which his beliefs are determined by his priors), or to choose any intermediate signal. The choice of information collection strategy lends itself to a variety of reasonable interpretations. First, it may represent the expertise a politician acquires about an issue, either individually or by hiring expert staff. A politician with greater expertise can better judge the merits of different policy proposals, and more accurately compare the quality of alternative proposals given available evidence. Second, the choice of information collection strategy may represent a politician's evidence collection efforts. For example, it may capture the size and methodology of a poll measuring constituent support for the reform. It may also represent the amount of time spent and the direction of inquiry when discussing policy with experts, or studying the issue through one's own staff or the Congressional Research Service.

In the general analysis, a policymaker not only chooses *whether* to collect information; he also chooses the type and informativeness of the information he collects. For issues of high enough political importance, the policymaker still prefers to become fully informed. For other issues, however, collecting no information may no longer be ideal. Instead, the politician may prefer to look for evidence that works against any prior he has in favor of or against reform. When he fails to find such evidence, his beliefs in favor or against reform become stronger. But when he finds such evidence, he is left completely indifferent between implementing and not implementing the status quo. In other words, it is a clueless politician who collects the most political contributions, and the policymaker's ideal information strategy maximizes the probability that he is clueless when choosing policy.

The tradeoff between information and policy is best highlighted in the special case where the policymaker is ex ante indifferent between reform and the status quo. In this case, the policymaker starts off clueless. We show how increasing the Blackwell informativeness of the policymaker's signal simultaneously leads to better policy and a decrease in political contributions. Here, the policymaker prefers to either become fully informed, or to remain clueless about policy.

Finally, we consider the implications of our analysis for campaign finance reform. Our analysis identifies a novel benefit of campaign contribution limits: they decrease the incentives policymakers have to remain strategically ignorant or uninformed. This is because a contribution limit constrains the financial gain associated with being clueless, and encourages the policymaker to become informed about a larger range of issues. By encouraging politicians to become better informed, contribution limits can lead to better policy choices and higher constituent welfare.

The rest of the paper is organized as follows. Section 2 reviews the literature. Section 3 introduces the formal model. Section 4 solves for equilibrium and presents the main results. Section 5 considers the impact of a contribution limit. Section 6 concludes.

2. Literature Review

Traditional models of lobbying fall into one of two categories. First are the models in which interest groups provide political contributions to politicians in exchange for policy outcomes. These include seminal work by Tullock (1980), Hillman and Riley (1989) and Grossman and Helpman (1994). Second are the persuasion models in which interest groups produce or communicate relevant information about the merits of alternative policies. These include seminal work by Milgrom and Roberts (1986), Austen-Smith and Wright (1992) and Austen-Smith (1994). More recently, the literature has developed models in which lobbying involves the provision of both political contributions and information. Austen-Smith (1995) and Lohmann (1995) develop models in which political contributions provide a costly means of signaling one's private, unverifiable information about the state of the world. In Austen-Smith (1998) and Cotton (2009, 2012), political contributions buy access to a politician, where access is required in order to share private information.

More similar to the current paper are the models of Bennedsen and Feldmann (2006) and Dahm and Porteiro (2008*a*,*b*), in which interest groups first produce information about the merits of policy, and then engage in monetary lobbying. The key difference between these papers and ours is that in the earlier papers, interest groups determined how informed the policymaker became about policies. In our framework, the politician chooses how informed to become. In many ways, ours is a more realistic assumption; interest groups will not be able to force a policymaker to become an expert on an issue if the policymaker himself chooses not to take the necessary time and effort to do so. Additionally, we show that when the policymaker chooses how informed to become, campaign finance reform often has the opposite effect as it does in Dahm and Porteiro (2008*b*), the one paper in this literature to consider political contribution limits. When interest groups control policymaker information, contribution limits can discourage information provision by the interest groups and lead to worse policy outcomes. In our framework where the policymaker himself determines how informed to become, contribution limits tend to encourage the collection of more information and lead to better policy.

Our approach to incorporating information into a lobbying game is unique compared to the rest of the literature. We assume that the politician chooses how informed to become prior to a standard monetary lobbying game. The assumption that policymakers themselves can collect information is consistent with qualitative accounts of the policy-making process (e.g. Bauer, Dexter and de Sola Pool 1963, Hansen 1991), although it is rarely incorporated into formal models of lobbying. An exception is Cotton and Dellis (2015), in which a policymaker can rely on interest groups for information or collect information on his own. That model, however, does not consider political contributions or monetary influence.

The academic literature has not reached a consensus on the welfare effect of campaign finance reform. The literature shows how campaign contribution limits may be detrimental because they reduce the incentives that interest groups have to produce evidence (Dahm and Porteiro 2008*b*), decrease the signaling value of political contributions (Cotton 2009), reduce campaign advertising budgets that are necessary to inform voters about candidate quality (Coate 2004*b*), or encouraging the policymaker to engage in additional rent seeking activity (Riezman and Wilson 1997, Drazen, Limao and Stratmann 2007). The literature also shows how limits may be beneficial because they discourage corrupt behavior by policymakers (Prat 2002*a*,*b*, Coate 2004*a*, Cotton 2009), or incentivize information provision by interest groups (Austen-Smith 1998, Cotton 2012). Our paper identifies a novel benefit of campaign finance reform, showing that contribution limits decrease the incentives that policymakers have to remain uninformed or ignorant of the issues on which they vote.

Finally, our paper is related to other agency models in which a principal may be better off remaining less informed. Kessler (1998) illustrates this possibility in a standard principal agent framework. Our analysis shows how the intensity of lobbying competition between interest groups is reduced as the policymaker becomes more informed. This has a similar flavor to results found in other literatures. For example, Moscarini and Ottaviani (2001) show how price competition between firms is reduced as consumers become better informed and better able to distinguish products, and Boleslavsky and Cotton (2015*b*) show how policy moderation by political candidates is reduced as voters becomes more informed about candidate quality.

3. Model

A policymaker (PM) must choose whether to keep the status quo ($p = 0$) or implement reform ($p = 1$) on a given policy issue. Keeping the status quo guarantees the policymaker a policy payoff of $u_0 = 0$. Implementing reform provides the PM a positive policy payoff equal to $1 - \theta \in (0, 1)$ in state $\tau = 1$ when reform is "good," and provides the PM a negative policy payoff equal to $-\theta$ in state $\tau = 0$ when reform is "bad." Thus,

$$u_1(\tau) = (1 - \theta)\tau - \theta(1 - \tau).$$

The reform is good with probability $\alpha \in (0,1)$ and bad with probability $1-\alpha$. The PM is ex ante uncertain about τ, although α is common knowledge. Denote the ex ante expected benefit of implementing reform by

$$\hat{q} \equiv (1-\theta)\alpha - \theta(1-\alpha) = \alpha - \theta.$$

In the initial stage of the game, the PM can acquire information about the benefit of implementing reform. Following a Bayesian Persuasion approach, we model the PM's information collection strategy as a design of the random variable S, jointly distributed with reform type τ. Prior to the PM choosing policy, his signal S produces a public realization s that is informative about the benefit of implementing reform. The PM's choice of S may be interpreted as a choice of how extensively to search for evidence in favor of or against reform. The type and intensity of information collection procedure (e.g. hearings, surveys, polls, meetings, research) determines the likelihood of different posterior belief realizations.

A "clueless" PM has beliefs that make him indifferent between the reform and the status quo. Such a PM is fully unable to distinguish the policies based on merit.

There are two interest groups (IGs), who can engage in monetary lobbying following the realization s and prior to the PM implementing policy. The lobbying game is standard for the literature (e.g. a simplified version of Grossman and Helpman (1994)). The IGs are advocates for different policies. We denote an IG by the policy it supports, with $j \in \{0,1\}$. IG_j receives policy utility v whenever $p = j$, and receives policy utility 0 otherwise. The two IGs simultaneously offer payments to the PM in exchange for policy outcomes. IG_j offers payment c_j, which it commits to pay the PM if he implements $p = j$. The PM observes the payment offers c_0 and c_1, and chooses a policy to maximize his overall utility from payments and policy.

Initially, we consider a setting in which any contributions $c_j \geq 0$ is feasible. In later sections, we consider the impact of a contribution limit $\bar{c}$, which imposes a limit on the maximum contribution, restricting $c_j \in [0, \bar{c}]$.

Overall utility of the three players depends on policy and payments. The PM earns

$$U_{PM}(p, c_0, c_1|\tau) = (\lambda u_1(\tau) + c_1)p + c_0(1-p).$$

Parameter $\lambda > 0$ captures issue importance. IG_0 and IG_1 respectively earn

$$U_0(p, c_0) = (v - c_0)(1-p) \quad \text{and} \quad U_1(p, c_1) = (v - c_1)p.$$

In summary, the game takes place in the following order. First, the PM chooses an information collection strategy, represented by the design of a random variable S. He then observes a realization of S. His choice of S and the realization are publicly observed.[3] Second, the IGs simultaneously offer c_0 and c_1. Third, the PM chooses policy.

We solve for the Perfect Bayesian Equilibrium of the game. We assume that a PM who is indifferent between reform and the status quo implements the policy supported by the priors.

3.1. **General representation of the information collection process.** We first consider a setting in which the PM chooses between becoming fully informed or remaining uninformed. We then consider a general information environment where we place minimal structure on the PM's choice of S. For that analysis, it is helpful to represent the game as one of Bayesian persuasion.

Without loss of generality, the choice of random variable S may be represented by the choice of two independent random variables S_1 and S_0, where an independent realization of S_τ is observed when the state is τ. We place no restrictions on the design of S_1 and S_0, except that for technical reasons we assume that both signals have a finite number of discontinuities and mass points, and that except at mass points, S_1 and S_0 have differential densities and support over an interval. We focus on pairs of random variables that satisfy the monotone likelihood ratio property, which restricts attention to random variables where higher realizations are more likely to be generated in state $\tau = 1$ when reform is "good". Any random variable S satisfying these restrictions is *valid*. This characterization of the PM's information collection process is fully general. It allows for the PM choosing to collect no information (which is equivalent to setting $S_1 = S_0$), choosing to become fully informed (which is equivalent to choosing S_1 and S_0 with disjoint support), or anything in between.

There are no direct costs associated with collecting information. The PM can choose a fully uninformative signal, a fully informative signal, or anything in between at zero costs. This allows us to abstract from issues of costly information, and focus instead of the strategic incentives for remaining uninformed. When the PM in our framework chooses to remain less than fully informed, it is not because becoming informed is costly. Although we abstract from the costs associated with information, it is unlikely that the PM can acquire information at the last minute before a vote. As (Stratmann 1998, 2005) shows, political contributions often are made around or soon after the passage of legislation. This suggests that the timing of our game, in which the PM acquires information prior to political contributions being made, is accurate. For now, we assume that the PM's signal realization is publicly observed. This is consistent with the idea that the realization is the outcome of public polls, studies, or hearings.

[3]In the online appendix, we show that our results are robust to an alternative game in which the signal realization is privately observed by the policymaker.

Any choice of S corresponds to a posterior belief distribution Q. This posterior belief random variable summarizes the informational content of signal S: any signals generating the same posterior belief random variable are payoff equivalent for all players.

A posterior belief random variable generated by a signal must have certain properties. First, because it's realization represents the benefit of implementing reform, the support of Q is a subset of the unit interval $[-\theta, 1-\theta]$. Second, according to the law of total expectation, the expected value of the posterior belief random variable must be equal to the prior belief, i.e. $E[Q] = \hat{q}$. According to Kamenica and Gentzkow (2011), this is the only restriction on the random variable Q.[4]

Lemma 1. *For any random variable Q with support in the unit interval $[-\theta, 1-\theta]$ and expected value $\hat{q}$, there exists a valid signal S for which Q is the distribution of the PM's posterior belief. For any valid signal S, there exists a unique random variable Q with support $[-\theta, 1-\theta]$ and expected value $\hat{q}$ representing the distribution over posterior beliefs generated by S.*

Lemma 1 considerably simplifies the analysis of this game. Instead of focusing on the PM's choice of signals S_1 and S_0, we can instead focus on the choice of random variable Q, with support in the unit interval $[-\theta, 1-\theta]$ and expectation $\hat{q}$. This choice represents the ex ante distribution of the PM's posterior beliefs about the benefits of reform, and is equivalent to a choice of one of many signals that generate the same distribution of posterior beliefs. Given that only Q, and not the specific choice of S, is important for the analysis, we can reinterpret the game as one in which the PM chooses Q.

4. Analysis

We first determine the equilibrium of the monetary lobbying subgame, and then consider the PM's information strategy accounting for its impact on lobbying.

4.1. **Monetary lobbying.** Let q denote the PM's posterior beliefs about the benefits of reform following information collection (i.e. the realization of Q). The subgame equilibrium of the monetary lobbying game involves

$$c_0 = v, \;\; c_1 = \max\{v - q\lambda, 0\}, \;\; p = 1 \;\text{ when }\; q > 0$$
$$c_0 = \max\{v + q\lambda, 0\}, \;\; c_1 = v, \;\; p = 0 \;\text{ when }\; q < 0.$$

When $q = 0$, both IGs offer $c_0 = c_1 = v$, and our tie breaking assumption leads the PM to implement the policy supported by his priors.

When $q = 0$, the PM is clueless, indifferent between policy, and he chooses policy in favor of the IG that offers the largest monetary contribution. In this case, monetary

[4]See Boleslavsky and Cotton (2015*a*) for the adaptation of the Kamenica and Gentzkow (2011) proof for a binary environment.

competition between the IGs is most intense, and in equilibrium the IGs compete away their policy rents, with the PM collecting the highest feasible payment of v.

As q moves away from 0, the PM begins to favor one of the policies. He favors reform when q is positive, and the status quo when q is negative. In these cases, the equilibrium involves the IG involved with the policy not supported by the posterior beliefs offering v for their policy to be implemented, and the favored IG offering just enough to keep the PM in favor of their policy. Because the PM starts off in favor of their policy, the favored IG is able to maintain the PM's support with an offer less than v. The further from 0 is q, the bigger the favored group's advantage, and the smaller its needed contribution in order to have its policy implemented.

When the potential monetary payment is sufficiently large or the importance of policy is low (i.e. when $v/\lambda \geq |q|$), the PM collects political contributions in equilibrium. For more important issues, and cases where the potential payments are small, the PM always prefers to implement the policy supported by the evidence, even if the favored IG offers no contribution, as long as one group's advantage is sufficiently large (i.e. when $|q| \geq v/\lambda$).

4.2. **Full information or no information.** Before determining the PM's optimal information collection strategy, we consider a simple environment in which the PM chooses between becoming fully informed or collecting no information.

If the PM chooses to remain uninformed, the expected payoffs from reform equal the prior $\hat{q}$. When $\hat{q} \geq 0$, the PM expects to implement reform, and anticipates policy payoffs following the monetary lobbying stage of $EU_{PM} = \lambda\hat{q} + \max\{v - \lambda\hat{q}, 0\}$. Similarly, when $\hat{q} < 0$, the PM expects not to implement reform, and anticipates payoffs following the monetary lobbying stage of $EU_{PM} = \max\{v + \lambda\hat{q}, 0\}$.

If the PM becomes fully informed about the merits of reform, then the equilibrium involves him implementing the policy that corresponds to the true state of the world. In equilibrium,

$$EU_{PM}^{\text{full info}} = \alpha[\lambda(1-\theta) + \max\{v - \lambda(1-\theta), 0\}] + (1-\alpha)[\max\{v - \lambda\theta, 0\}].$$

The PM earns the maximum possible policy utility of $\lambda\alpha(1-\theta)$ under full information. This compares positively to his policy utility of either $\lambda\hat{q}$ or 0 when he remains uninformed. This represents the benefit of full information.

At the same time, becoming fully informed can decrease the incentives that IGs have to provide political contributions. To see this, consider the case where $v/\lambda > \max\{1-\theta, \theta\}$. Here, becoming fully informed results in contributions $\alpha(v - \lambda(1-\theta)) + (1-\alpha)(v - \lambda\theta)$ and remaining uninformed results in payments of $v - \lambda|\hat{q}|$. Substituting in for $\hat{q} = \alpha - \theta$

and simplifying the expressions shows that expected payments are strictly higher when the PM remains uninformed.[5] This represents the costs of full information.

Proposition 1. *Consider the game in which the PM chooses between no information and full information. The PM collects no information when the potential monetary payments are sufficiently high relative to his potential policy utility. There exists a unique threshold* $T > 0$ *such that in equilibrium the PM collects no information if* $v/\lambda \geq T$*, and becomes fully informed when* $v/\lambda < T$*.*

When choosing whether to become fully informed, the PM trades off the policy benefits with the potential costs from a reduction in political contributions. When the PM cares enough about policy relative to the potential monetary payments from the IGs, he prefers to become fully informed. In other cases, where the returns to higher monetary contributions outweigh the costs of worse policy, the PM prefers to remain uninformed.

4.3. **Optimal information strategy.** In this section, we do not restrict the PM's information strategy. In the first stage, he chooses a distribution over posterior beliefs, Q. The only restrictions on Q are that it has support within the range of feasible posteriors, $[-\theta, 1-\theta]$, and that the expected value of Q equals the prior $\hat{q}$. As Lemma 1 established, such a choice of Q captures all valid information processes.

The PM chooses Q, represented by density f, to maximize his expected utility, while anticipating how IG contributions, and his future policy choice will respond to different realizations of information.

In equilibrium, following the monetary lobbying subgame, the PM implements the policy supported by his posterior beliefs. He collects political contributions from the IG that supports his favored policy, as long as his posterior beliefs are not so favorable to one policy that IGs are unwilling to pay enough to overturn his priors. When $|q| < v/\lambda$, it is the case that the PM positive contributions in equilibrium. When $|q| > v/\lambda$, no contributions are paid. It follows that the PM expects total payoffs EU_{PM} from the ensuring subgame equal to 0 if $q \in [-\theta, -v/\lambda]$, equal to $v + \lambda q$ if $q \in [-v/\lambda, 0]$, equal to $\lambda q + v - \lambda q = v$ if $q \in [0, v/\lambda]$, and equal to λq if $q \in [v/\lambda, 1-\theta]$.

Therefore, the PM chooses Q, which defines f, to maximize

$$\int_{\max\{-\theta,-v/\lambda\}}^{0} f(q)(v+q\lambda)dq + \int_{0}^{\min\{1-\theta,v/\lambda\}} f(q)v dq + \int_{\min\{1-\theta,v/\lambda\}}^{1-\theta} f(q)q\lambda dq \qquad (1)$$

[5]When $\theta = 1/2$, and the potential upside and downside of reform are equal, the PM always expects higher payoffs when he remains uninformed. In other cases, there are parameters under which the PM may collect fewer contribuitons when uninformed. If $\theta < v/\lambda < \hat{q} < 1-\theta$, for example, then the PM collects no contributions when he remains uninformed, but expects to collect positive contributions if he becomes informed.

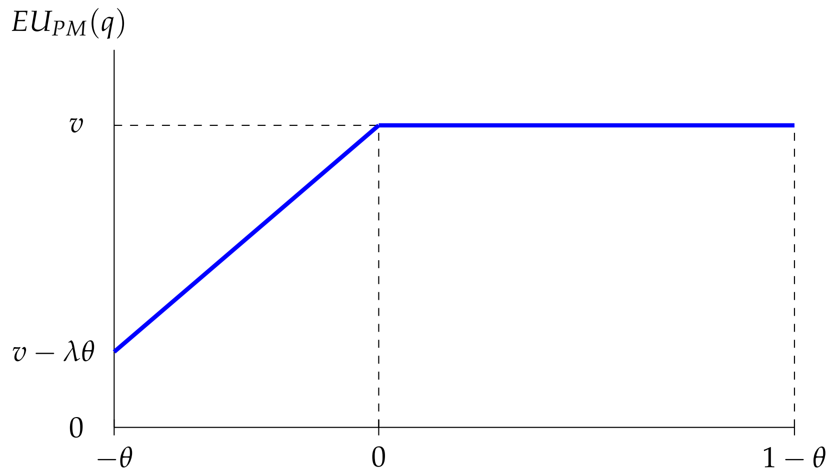

FIGURE 1. The policymaker's expected payoff and her posterior belief about the benefits of implementing reform when $v/\lambda \geq \max\{\theta, 1-\theta\}$.

subject to the constraints that

$$\int_{-\theta}^{1-\theta} f(q)q\,dq = \hat{q} \quad \text{and} \quad \int_{-\theta}^{1-\theta} f(q)\,dq = 1.$$

We first consider the case where the PM cares little about policy relative to the potential value of contributions, i.e. when $v/\lambda \geq \max\{\theta, 1-\theta\}$. In this case, Eq. (1) simplifies to

$$v + \lambda \int_{-\theta}^{0} f(q)q\,dq \tag{2}$$

or equivalently

$$v + \lambda\hat{q} - \lambda \int_{0}^{1-\theta} f(q)q\,dq. \tag{3}$$

Figure 1 shows the relationship between the policymaker's expected payoff and her posterior belief about the benefits of implementing reform. We see that the PM expects payoff v whenever his information strategy generates posterior beliefs that favor reform (i.e. $q \geq 0$), and he expects a lower payoff whenever this posterior beliefs favor the status quo (i.e. $q < 0$). When $\hat{q} \geq 0$, it is feasible to choose a belief distribution Q such that $f(q) > 0$ if and only if $q \geq 0$. The PM is indifferent between all such information strategies.

When the priors favor the status quo, such a strategy is not feasible, given that the constraint $EQ = \hat{q}$ necessitates at least some negative realizations of Q when $\hat{q} < 0$. For this case, Eq. (3) shows that the PM expects payoff $v - \lambda\hat{q} < v$ whenever the information strategy generates posterior beliefs that favor the status quo, and he expects a lower payoff whenever his posterior beliefs favor reform. Therefore, in the case when the priors favor the status quo, the PM prefers a belief distribution Q such that $f(q) > 0$ if and only if $q \leq 0$. The PM is indifferent between all such information strategies.

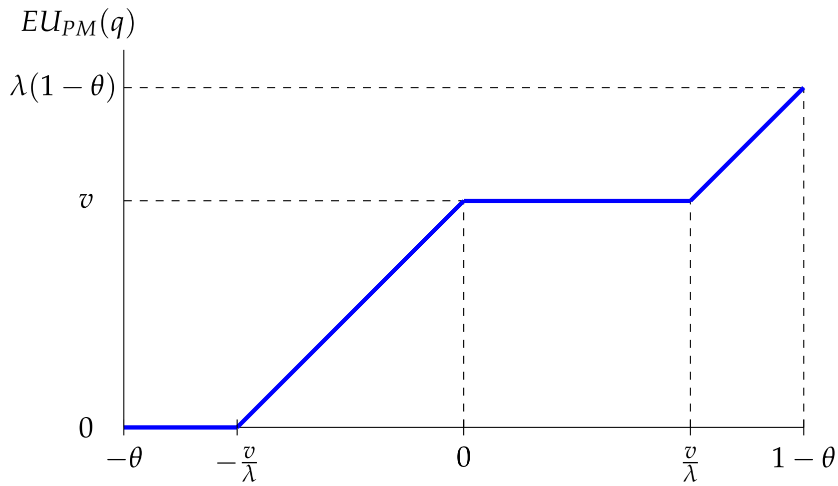

FIGURE 2. The policymaker's expected payoff and her posterior belief about the benefits of implementing reform when $v/\lambda < \max\{\theta, 1-\theta\}$.

Thus, when the PM cares sufficiently little about policy, he is indifferent between all information collection strategies that always lead to posterior beliefs with the same sign as his priors. There are many such strategies that fail to overturn the priors, the most straightforward being no information collection.[6]

Next, we consider the case where the PM cares more about policy, but not so much about policy that he always prefers to become fully informed about the quality of reform. Figure 2 shows how the policymaker's expected payoff is related to her posterior belief in this case.

When the priors support reform, $\hat{q} \geq 0$, and $v/\lambda < 1-\theta$, a realization of $q \in [0, v/\lambda]$ results in an expected payoff to the PM of v. A realization of $q \in [v/\lambda, 1-\theta]$, however, results in a larger expected payoff to the PM of $q\lambda > v$. In this case, the PM is no longer indifferent between any information collection strategy that is guaranteed to produce beliefs consistent with the priors and leave him favoring reform. Instead, the PM prefers Q that returns realizations $q = 0$ or $q = 1-\theta$, where

$$Pr(q=0) = 1 - \hat{q}/(1-\theta) \quad \text{and} \quad Pr(q = 1-\theta) = \hat{q}/(1-\theta).$$

Similarly, when the priors support the status quo, $\hat{q} < 0$, and $v/\lambda < \theta$, the PM prefers an information collection strategy Q that returns realizations $q = -\theta$ or $q = 0$, where

$$Pr(q=-\theta) = -\hat{q}/\theta \quad \text{and} \quad Pr(q=0) = 1 + \hat{q}/\theta.$$

In these situations, the PM's optimal information strategy maximizes the probability of $q = 0$, leaving him clueless when choosing policy. When the priors favor reform,

[6]However, many other strategies, including strategies in which the PM maximizes the probability of being clueless, are also consistent.

this strategy is not drives by a desire to be clueless, per say, but is rather driven by the fact that an information strategy that leads him to be clueless more often is able to simultaneously put higher probability on belief realizations $q > v/\lambda$ which result in higher expected payoffs to the PM. In contrast, when priors favor the status quo, the PM prefers to be clueless as often as possible because being clueless results in higher payoffs than having stronger beliefs in favor of the status quo.

One interpretation of such information strategies is that they represent a partial search for evidence in favor of the policy supported by the prior. When the PM finds the evidence, he becomes certain that the policy supported by the prior is best. When he does not find the evidence, he remains uncertain, but updates his beliefs to be more favorable to the other policy. His optimal search intensity is just enough that not finding evidence leaves him perfectly indifferent between the two policies, a situation that maximizes political contributions.

Finally, when the PM cares even more about policy, i.e. when $v/\lambda \leq \theta(1-\theta)$, the PM always prefers to become fully informed, which ensures that he implements the best policy. When he chooses this strategy, he collects expects no political contributions in equilibrium.

The following proposition summarizes the PM's information collection strategy.

Proposition 2. *In equilibrium:*

- *When the PM cares sufficiently little about policy, he is indifferent between all information collection strategies that with probability* 1 *lead to the implementation of the policy supported by his priors, including a strategy of collecting no information. This is the case when* $0 \leq \hat{q}$ *and* $1-\theta \leq v/\lambda$, *or* $\hat{q} < 0$ *and* $\theta \leq v/\lambda$.
- *For intermediate levels of policy importance, the PM chooses an information strategy that maximizes the probability he is clueless when choosing policy (i.e. the probability that* $q = 0$*). This is the case when* $0 \leq \hat{q}$ *and* $\theta(1-\theta) < v/\lambda < 1-\theta$, *or* $\hat{q} < 0$ *and* $\theta(1-\theta) < v/\lambda < \theta$.
- *When the PM cares enough about policy, he becomes fully informed and implements the best policy. This is the case when* $v/\lambda \leq \theta(1-\theta)$.

When $v/\lambda > \theta(1-\theta)$, the PM's concerns over collecting politician contributions leads him to remain less than fully informed. In equilibrium, the PM always implements the policy supported by the priors, and his ability to (costlessly) collect information has no effect on equilibrium policy outcomes. Only when the PM cares enough about policy (i.e. $v/\lambda \leq \theta(1-\theta)$) does he collect information that that has a potential to overturn the priors. In equilibrium, the PM becomes fully informed and implements the best policy and no payments are made from either IG to the PM.

When the PM prefers to remain less than fully uninformed about the benefits of reform, he often prefers to collect information in a way that maximizes the probability of generating information that offsets any favoritism inherent in his priors, and leaves him completely indifferent between the policies. That is, he chooses an information collection strategy that leaves him clueless when comparing the policies. In other situations, he is indifferent between a strategy that maximizes the probability of being clueless, and one that involves no information collection.

4.4. **A special case: When priors are unbiased.** The general analysis considered above allows for the policymaker to initially favor one policy over the other. In this subsection, we focus on the case where $\theta = \alpha = 1/2$. Here, the benefits of implementing a good reform equal the costs of implementing a bad reform, and the reform is just as likely good as bad. It follows that $\hat{q} = 0$.

In this case, the analysis is simplified by the fact that the PM is initially indifferent between the policies (i.e. clueless) and any information collection will introduce ex post asymmetries. When the PM collects no information, lobbying competition and political contributions are maximized. An increase in information strictly decreases expected political contributions, and strictly increases the PM's expected policy payoff.

Lemma 2. *In the case when $\theta = \alpha = 1/2$, consider two alternative information strategies Q and Q', where Q second order stochastic dominates Q' over support $[-1/2, 1/2]$. Here,*

(1) the PM's information collection strategy is more Blackwell informative under Q' than under Q,

(2) the PM's expected policy utility $E[\max\{q, 0\}]$ is strictly higher under Q' than under Q, and

(3) the PM's expected payment is strictly lower under Q' than under Q.

This result clearly illustrates the tradeoff between better policy outcomes and higher revenue that often prevents the PM from becoming fully informed.

As the quality of his information increases, there are two direct effects. First, better information makes it more likely that he has correct beliefs about which policy alternative is highest quality. Second, better information tends to increase *how much* better one policy looks compared to the other. In this way, more information increases the ex post asymmetries between the expected qualities of the policy alternatives. As the difference between the policy alternatives increases, it effectively becomes less expensive for an interest group to ensure that the policymaker maker implements the ex post more promising policy. In this way, asymmetry decreases the competitive pressures between the interest groups and decreases total political contributions. Increasing the policymaker's ability to distinguish policies strictly increases his ability to identify and implement the better policy, but also strictly decreases political contributions. When the policymaker chooses how informed to become on the issue, he weighs the expected tradeoff between worse policy outcomes and higher political contributions.

When the priors favor neither policy, the PM always prefers to either remain fully uninformed, or to become fully informed. The incentive to conduct a partial search for evidence no longer exists, as the benefit of such an information collection strategy came from it maximizing the probability the PM is indifferent between the policies. When the PM starts off indifferent, collecting no information maximizes the probability of being clueless.

Proposition 3. *Assume $\hat{q} = 0$. The PM remains uninformed and sells policy to the highest bidder when $v/\lambda > \theta(1-\theta)$. The PM becomes fully informed and always implements the best policy when $v/\lambda \leq \theta(1-\theta)$.*

5. Contribution limits

In this section, we consider a contribution limit $\bar{c}$. When the limit is higher than v, it is never binding and does not change equilibrium behavior. When $\bar{c} < v$, neither IG can offer a contribution in excess of $\bar{c}$. This changes the above analysis only in that throughout we replace v, which indicates an IG's maximum willingness to pay for policy, with $\bar{c}$, which indicates the IG's maximum allowed payment. This implies that the PM now becomes fully informed if and only if $\bar{c}/\lambda \leq \theta(1-\theta)$.

Proposition 4. *Any contribution limit $\bar{c} \leq \theta(1-\theta)\lambda$, leads to the PM becoming fully informed and implementing the first best policy. When $\bar{c} > \theta(1-\theta)\lambda$, the PM becomes less than fully informed, and always implements the policy supported by his priors in equilibrium.*

If $v/\lambda > \theta(1-\theta)$, then without a contribution limit, the PM's desire to collect political contributions provides a disincentive for information collection, and in equilibrium PM always implements the policy supported by the priors. When this is the case, a contribution limit of $\bar{c} \leq \theta(1-\theta)\lambda$ strictly improves policy outcomes by reducing the disincentive for information collection. Under such a limit, the PM chooses to become fully informed, which results in the first best policy being implemented in equilibrium.

We may imagine a policymaking environment in which the PM faces an array of issues, which may differ in terms of potential policy payoffs $\theta \in [0,1]$, the likelihood $\alpha \in (0,1)$ of reform being beneficial, or issue importance $\lambda > 0$ and $v > 0$. Any combination of these parameters may be feasible. In such an environment, decreasing $\bar{c}$ increases the range of issues for which $\bar{c} \leq \theta(1-\theta)\lambda$ is satisfied and thus the PM decides to become fully informed.

To formalize this point, assume that at the time a contribution limit is implemented, there is uncertainty about which issue (or issues) the PM will need to make a decision on in the future. Suppose the potential issues differ in λ, which is distributed on R_+ according to some continuous distribution. λ is realized after $\bar{c}$ is set, but before the PM chooses how much information to acquire. We refer to this as the game with multiple issues.

Corollary 1. *In the game with multiple issues, imposing a stricter contribution limit (decreasing $\bar{c}$) strictly increases the share of issues on which the PM becomes fully informed.*

6. Discussion

In this paper, we take a new approach when incorporating information into a model of lobbying. Instead of assuming that interest groups are responsible for creating or communicating information to a policymaker, we instead assume that the policymaker himself chooses how much expertise or information to acquire. A policymaker who chooses to remain ignorant will not become informed, no matter how badly an interest group wants to communicate evidence in favor of its policy. After the policymaker chooses an information collection strategy, interest groups engage in a traditional monetary lobbying game.

We in no way believe that our model describes all aspects of interactions between interest groups and politicians. The real world policymaking environment is much more complicated than the one we capture with our analysis. However, by focusing on a simple model, we are able to highlight a potentially harmful aspect of the interest group-politician interaction that has been overlooked by models in the past. Our analysis shows how concerns over collecting political contributions may incentivize policymakers to remain uninformed about policy, even when it is costless for them to develop expertise or collect more information.

Within this context, we identify a novel argument in favor of campaign finance reform: Contribution limits decrease the incentive that politicians have to remain uninformed or clueless. By limiting the potential monetary return to remaining uninformed, a contribution limit encourages a policymaker to acquire expertise or collect information on an issue in order to improve policy outcomes. On the flip side, these results highlight a novel cost associated with the U.S. Supreme Court's 2010 decision in *Citizens United v. Federal Elections Commission*, which allowed unlimited private spending on behalf of a political campaign. In many ways, this ruling weakens the effects of contribution limits, and may, as our model predicts, lead to less informed policymaking.

Our analysis suggests that the incentives that policymakers have to become informed on issues is maximized when campaign contributions are banned. However, our paper does not consider reasons that some contributions may be beneficial, such as providing politicians with a means to fund their campaigns and communicate with voters.

The main results of our analysis are robust to a variety of alternative assumptions. In the online appendix, we present an alternative version of the game in which we allow the policymaker to privately learn about the state of the world, while focusing on the case in which the policymaker is ex ante unbiased, and the signal structure is less general.[7] Future work may extend our analysis to consider settings in which interest groups also have the potential to produce information, and where a legislature of policymakers work together to implement policy.

Mathematical Appendix

Here, we prove Lemma 1 and Proposition 1, and then walk through the analysis from Section 4.

Proof of Lemma 1. The proof to Lemma 1 is adapted from Boleslavsky and Cotton (2015*a*), which itself is a binary state space adaption of the related proof from Kamenica and Gentzkow (2011).

Consider random variable Q, with support on the unit interval and density $f(x)$, and expected value $\hat{q} = -\theta(1-\alpha) + (1-\theta)\alpha = \alpha - \theta$. Consider also two random variables S_1 and S_0, with densities $f_1(x)$ and $f_0(x)$, where

$$f_1(x) = \frac{x+\theta}{\hat{q}+\theta} f(x) = \frac{x+\theta}{\alpha} f(x), \qquad f_0(x) = \frac{1-\theta-x}{1-\theta-\hat{q}} f(x) = \frac{1-\theta-x}{1-\alpha} f(x)$$

for all $x \in [-\theta, 1-\theta]$, and $f_1(x) = f_0(x) = 0$ for all other x. Furthermore, $\int f_1(x)dx = \int f_0(x)dx = 1$.

The posterior belief that $\tau = 1$ generated by realization x of joint distribution $S = (S_1, S_0)$:

$$\Pr(\tau = 1|x) = \frac{\alpha f_1(x)}{\alpha f_1(x) + (1-\alpha) f_0(x)} = \frac{(x+\theta) f(x)}{(x+\theta) f(x) + (1-\theta-x) f(x)} = x + \theta$$

Therefore, the expectation that $\tau = 1$ given x is simply $x+\theta$. The likelihood ratio is monotone because $\Pr(\tau = 1|x)$ is monotone in x. The density of Q is given by

$$f(x) = \alpha f_1(x) + (1-\alpha) f_0(x)$$

For the information collection strategy S, the posterior belief about the expected value of reform has density $f(x)$. Thus for the information collection strategy constructed, Q

[7] In unreported analysis, we consider costly information acquisition, alternative monetary lobbying frameworks, and the possibility that the politician can hide his information collection efforts or the level of expertise he acquires. The cases are included in Li (2015)'s dissertation.

is the ex ante distribution over posterior beliefs. Thus, for any Q, we can construct an information collection strategy S which generates it.

Next, consider any valid random variable $S = (S_1, S_0)$ with densities $f_1(x)$ and $f_0(x)$, and supports X_1 and X_0. For all x in X_1 but not in X_0, $\Pr(\tau = 1|x) = 1$ and $E(q|x) = 1 - \theta$. For all x in X_0 but not in X_1, $\Pr(\tau = 1|x) = 0$ and $E(q|x) = -\theta$. For all x in both X_1 and X_0,

$$\Pr(\tau = 1|x) = \frac{\alpha f_1(x)}{\alpha f_1(x) + (1-\alpha) f_0(x)} \in (0, 1),$$

and

$$E(q|x) = \Pr(\tau = 1|x)(1-\theta) - (1 - \Pr(\tau = 1|x))\theta = \Pr(\tau = 1|x) - \theta \in (-\theta, 1-\theta).$$

Let Q be the distribution over all $E(q|x)$ generated by S. It follows that

$$\begin{aligned}
E[Q|S] &= \int (\alpha f_1(x) + (1-\alpha) f_0(x))(Pr(\tau = 1|x) - \theta) dx \\
&= \int (\alpha f_1(x) + (1-\alpha) f_0(x)) \frac{\alpha f_1(x)}{\alpha f_1(x) + (1-\alpha) f_0(x)} dx - \theta \\
&= \int \alpha f_1(x) dx - \theta \\
&= \alpha - \theta \\
&= \hat{q}.
\end{aligned}$$

Hence, any valid S generates a posterior belief realization with support $[-\theta, 1-\theta]$ and expected value $\hat{q}$. ∎

Proof to Proposition 1. If the PM remains uninformed, he expects equilibrium payoffs of:

A. v when $\hat{q} \geq 0$ and $\hat{q} \leq v/\lambda$.
B. $\lambda\hat{q} = \lambda(\alpha - \theta)$ when $\hat{q} \geq 0$ and $\hat{q} > v/\lambda$.
C. $v + \hat{q} = v - \lambda(\theta - \alpha)$ when $\hat{q} < 0$ and $\hat{q} \leq v/\lambda$.
D. 0 when $\hat{q} < 0$ and $-\hat{q} > v/\lambda$.

At $\lambda = 0$, $EU_{PM} = v$. When $\hat{q} \geq 0$, the PM's expected payoff is first constant at v and eventually strictly increasing in issue importance λ. When $\hat{q} < 0$, the PM's expected payoff is first decreasing in issue importance λ falling from v to 0, and then it remains constant at 0.

If the PM becomes fully informed, he implements the first best policy in equilibrium. When $\tau = 1$, then his payoff is v if $\lambda(1-\theta) \leq v$ (in which case he collects contributions), or $\lambda(1-\theta)$ if $\lambda(1-\theta) > v$ (in which case he collects no contributions). When $\tau = 0$, then his payoff is $v - \lambda\theta$ if $\lambda\theta < v$ (in which case he collects contributions), or 0 if $\lambda\theta > v$ (in which case he collects no contributions). He expects equilibrium payoffs of:

1. $\alpha v + (1-\alpha)(v - \lambda\theta) = v - (1-\alpha)\lambda\theta$ when $v/\lambda \geq \max\{\theta, 1-\theta\}$.
2. αv when $v/\lambda < \theta$ and $v/\lambda \geq 1-\theta$.
3. $\alpha\lambda(1-\theta) + (1-\alpha)(v - \lambda\theta) = (1-\alpha)v + \lambda(\alpha - \theta)$ when $v/\lambda \geq \theta$ and $v/\lambda < 1-\theta$.
4. $\alpha\lambda(1-\theta)$ when $v/\lambda < \theta$ and $v/\lambda < 1-\theta$.

Payoff 1. is strictly increasing in v and strictly decreasing in λ. Payoff 2. is strictly increasing in v and independent of λ. Payoff 3. is strictly increasing in v and strictly increasing in λ when $\hat{q} > 0$, and strictly decreasing in λ when $\hat{q} < 0$. Payoff 4. is strictly increasing in λ and independent of v.

When $\theta > 1-\theta$, payoffs 1., 2. and 4. are relevant. In this case, the PM's expected payoff starts off at v when $\lambda = 0$, and then falls to αv as λ increases from 0 to v/θ. It remains constant at αv as λ continues to increase until $\lambda = v/(1-\theta)$, after which the PM's expected payoff is strictly increasing in λ. The payoffs are continuous in all $\lambda > 0$.

When $\theta < 1-\theta$, payoffs 1., 3. and 4. are relevant. In this case, the PM's expected payoff starts off at v when $\lambda = 0$, and is decreasing in λ up until $\lambda = v/(1-\theta)$. For all λ from $v/(1-\theta)$ to v/θ, the PM's expected payoff is strictly increasing in λ if $\hat{q} > 0$ and strictly decreasing in λ if $\hat{q} < 0$. The PM's expected payoff is strictly increasing in all $\lambda > v/\theta$. The payoffs are continuous in all $\lambda > 0$.

When $\theta = 1-\theta$, only payoffs 1. and 4. are relevant, with the PM's payoffs first decreasing and then increasing in λ.

Notice that the PM's payoff 1. when fully informed is strictly less than either payoff A. or C. when uninformed. This means that whenever λ is close enough (but not equal to) to 0, the PM prefers to remain uninformed.

Notice also that payoff 4. when fully informed is strictly higher than payoff B. or D. when uninformed. This means that whenever λ is high enough, the PM prefers to become fully informed.

Next, we show that for $\lambda > 0$ there is single crossing of the payoff functions in the cases of full information and the case of no information.

Consider the case where $\hat{q} < 0$. For this case, the PM's payoff is strictly decreasing in λ and then 0 when uninformed, and first strictly decreasing in λ and then strictly increasing in λ when fully informed. We know from the above analysis that payoff C. is greater than payoff 1. for any λ. Therefore, the payoff from remaining uninformed starts off above the payoff from full information. Single crossing of the two functions is guaranteed from the fact that the payoff from being uninformed starts out above and ends up below the payoff function under full information, the fact that the payoff function when uninformed is linear in λ, and the fact that the payoff from full information is convex.

Next, consider the case where $\hat{q} \geq 0$. When the PM is uninformed, his payoff is constant at v until $\lambda = v/\max\{\theta, 1-\theta\}$. Payoff v is greater than his payoff from full information when λ is low, and below his payoff from full information when $\lambda = v/\max\{\theta, 1-\theta\}$. For all $\lambda > v/\max\{\theta, 1-\theta\}$, his payoff from being uninformed remains below his payoff from full information. This implies that the payoff functions cross between λ small and $\lambda = v/\max\{\theta, 1-\theta\}$. The constant utility from no information and the concavity of the payoff function from full information on this range implies single crossing. ■

Analysis for Section 4: When $\hat{\mathbf{q}} \geq 0$. If $v/\lambda \geq 1-\theta$, then PM chooses Q to maximize

$$\int_{\max\{-\theta,-\frac{v}{\lambda}\}}^{0} f(q)(v+q\lambda)dq + \int_{0}^{1-\theta} f(q)(q\lambda+v-q\lambda)dq =$$

$$(1-F(\max\{-\theta,-\frac{v}{\lambda}\}))v + \lambda\int_{\max\{-\theta,-\frac{v}{\lambda}\}}^{0} f(q)qdq$$

subject to the constraint that $EQ = \hat{q}$.

Notice that $\lambda \int f(q)qdq$ is strictly negative when integrated over $q < 0$. Thus, PM utility is maximized when Q puts no probability on realizations of $q < 0$. All distributions Q such that $EQ = \hat{q}$ and $f(q) > 0$ only if $q \geq 0$ are feasible and return the same $EU_{PM} = v$. Any such distribution is in the set of preferred distributions.

If $\theta \leq v/\lambda < 1-\theta$, then the PM chooses Q to maximize

$$\int_{-\theta}^{0} f(q)(v+q\lambda)dq + \int_{0}^{v/\lambda} f(q)(q\lambda+v-q\lambda)dq + \int_{v/\lambda}^{1-\theta} f(q)(q\lambda)dq =$$

$$v + \lambda\int_{-\theta}^{0} f(q)qdq + \lambda\int_{v/\lambda}^{1-\theta} f(q)(q-v/\lambda)dq = \tag{4}$$

$$F(v/\lambda)v + \lambda\hat{q} - \lambda\int_{0}^{v/\lambda} f(q)qdq \tag{5}$$

subject to $EQ = \hat{q}$.

Choosing any Q such that such that $f(q) > 0$ iff $q \in [0, v/\lambda]$ results in $\int_0^{v/\lambda} f(q)qdq = \hat{q}$, and in the PM earning expected payoff of v.

From Eq. (4), we can see that the PM will do even better if he can shift probability weight from realizations $q \in [0, v/\lambda]$ to realizations greater than v/λ while maintaining $EQ = \hat{q}$. The PM will be better off shifting any probability mass from realizations $q \in (0, v/\lambda]$ to an alternative distribution that produces realizations $q = 0$ and $q > v/\lambda$. Concentrating probability mass on realizations on $[0, v/\lambda]$ on $q = 0$, allows for the greatest shift in weight to values $q > v/\lambda$ while maintaining $EQ = \hat{q}$. By shifting to a probability distribution with realizations $q = 0$ and $q > v/\lambda$, the PM can achieve expected utility $v + \lambda \int_{v/\lambda}^{1-\theta} f(q)(q - v/\lambda)dq > v$. We can write the PM's optimization problem over such distributions in terms of expected q conditional on $q > v/\lambda$, denoted $\tilde{q} = E(q|q > 0)$, and the probability of $q > v/\lambda$, denoted r:

$$\max_{r,\tilde{q}} (1-r)v + r\lambda\tilde{q} \text{ s.t. } r\tilde{q} = \hat{q}.$$

The problem is maximized when $\tilde{q} = 1 - \theta$ and $r = \hat{q}/(1-\theta)$. Thus, the PM prefers the binary distribution where

$$Pr(q = 0) = 1 - \hat{q}/(1-\theta) \quad and \quad Pr(q = 1-\theta) = \hat{q}/(1-\theta) \tag{6}$$

to all other distributions over $q \geq 0$.

Finally, the PM could shift probability mass to realizations of $q < 0$ in order to increase the mass he can put on values of $q > \hat{q}$ (including $q = 1-\theta$) while maintaining $EQ = \hat{q}$. However, from Eq. (5) we see that such a shift in probability distribution will decrease the expected payoff, as it will reduce the probability mass under v/λ without decreasing the probability mass on $(0, v/\lambda)$.

Thus, when $\theta \leq v/\lambda < 1-\theta$, Eq. (6) gives the preferred Q over all distributions of $q \in [-\theta, 1-\theta]$ conditional on $EQ = \hat{q}$. This results in expected payoff

$$v(1-\alpha)/(1-\theta) + \lambda(\alpha - \theta).$$

If $v/\lambda < \min\{\theta, 1-\theta\}$, then the PM chooses Q to maximize

$$\int_{-v/\lambda}^{0} f(q)(v + q\lambda)dq + \int_{0}^{v/\lambda} f(q)(q\lambda + v - q\lambda)dq + \int_{v/\lambda}^{1-\theta} f(q)(q\lambda)dq =$$
$$v(1 - F(-v/\lambda)) + \lambda \int_{-v/\lambda}^{0} f(q)q dq + \lambda \int_{v/\lambda}^{1-\theta} f(q)(q - v/\lambda)dq \tag{7}$$

subject to $EQ = \hat{q}$.

When choosing a distribution over $q \geq -v/\lambda$, the PM faces the same incentives as he did in the case where $\theta \leq v/\lambda < 1-\theta$. The PM will still prefer a distribution over $q = 0$ and $q = 1-\theta$ to all other distributions on this support. The difference in this case is that the PM may prefer to shift probability mass to some $q < -v/\lambda$, which was not feasible when $v/\lambda > \theta$.

From Eq. (7), it follows that the PM would never put probability mass on $q \in [-v/\lambda, 0)$, as he could shift this mass to values of $q \geq 0$ while maintaining $EQ = \hat{q}$ and improve his expected payoff. Additionally, it follows that the PM would prefer to shift probability mass from $q \in (-\theta, -v/\lambda)$ to $q = -\theta$ and $q = 1-\theta$ while maintaining $EQ = \hat{q}$, as this will also increase the PM's expected payoff. This, combined with the analysis of $q \geq 0$ from the case where $\theta \leq v/\lambda < 1-\theta$, implies that the PM chooses between the distribution given by Eq. (6), and a distribution that shifts probability mass from $q = 0$ to $q = -\theta$ and $q = 1-\theta$. If this later option is preferred, the PM engenges in the collection of full information and earns expected payoff $EU_{PM} = \alpha(1-\theta)\lambda$. The PM prefers to become fully informed when

$$\alpha(1-\theta)\lambda > \frac{1-\alpha}{1-\theta}v + \lambda(\alpha-\theta) \iff v/\lambda < \theta(1-\theta).$$

Notice that $\theta \in [0,1]$ means that $v/\lambda < \theta(1-\theta)$ implies that $v/\lambda < \min\{\theta, 1-\theta\}$.

Analysis for Section 4: When $\hat{\mathbf{q}} < 0$. If $v/\lambda \geq \max\{\theta, 1-\theta\}$, then PM chooses Q to maximize

$$\int_{-\theta}^{0} f(q)(v+q\lambda)dq + \int_{0}^{1-\theta} f(q)(q\lambda + v - q\lambda)dq = v + \lambda \int_{-\theta}^{0} f(q)qdq =$$

$$v + \lambda\hat{q} - \int_{0}^{1-\theta} f(q)qdq.$$

subject to the constraint that $EQ = \hat{q}$.

Given $\hat{q} < 0$, the PM earns $v + \lambda\hat{q}$ from any distribution Q such that $f(q) > 0$ only if $q \leq 0$. Any such distribution is optimal for the PM when $\hat{q} < 0$. Any distribution putting probability on $q > 0$ reduces EU_{PM}.

If $\theta \leq v/\lambda < 1-\theta$, then PM chooses Q to maximize

$$\int_{-\theta}^{0} f(q)(v+q\lambda)dq + \int_{0}^{v/\theta} f(q)(q\lambda + v - q\lambda)dq + \int_{v/\theta}^{1-\theta} f(q)q\lambda dq =$$

$$\hat{q}\lambda + vF(v/\lambda) - \lambda \int_{0}^{v/\lambda} f(q)qdq.$$

subject to the constraint that $EQ = \hat{q}$.

For the above expression for EU_{PM}, we see that the PM can earn $v + \hat{q}$ from any Q such that $f(q) > 0$ only if $q \leq 0$. A distribution that puts positive mass on realizations $q > 0$ results in a lower payoff. Thus, the PM prefers the concentrate all probability mass on $q \leq 0$.

If $(1-\theta) \leq v/\lambda < \theta$, then the PM earns $EU_{PM} = 0$ for any realization $q \leq -v/\lambda$, $EU_{PM} = v + q\lambda < v$ for any realization $q \in [-v/\lambda, 0]$, and $EU_{PM} = v$ for any realization $q \geq 0$.

In this case, the PM will never prefer a distribution with positive mass on $q > 0$. If Q involves $q > 0$ with positive probability, then the PM could shift this mass some probability mass from realizations $q < \hat{q}$ to 0, improving EU_{PM} while maintaining $EQ = \hat{q}$. Given this, the PM chooses a distribution Q with support $[-\theta, 0]$ to maximize

$$\int_{-v/\lambda}^{0} f(q)(v+q\lambda)dq = v + \hat{q}\lambda - \int_{-\theta}^{-v/\lambda} f(q)(v+q\lambda)dq \qquad (8)$$

subject to $EQ = \hat{q}$.

From Eq. (8), we see that the PM will never prefer a distribution with a positive probability of $q \in [-v/\lambda, 0)$. Suppose there is a realization q' with positive probaiblity where $-v/\lambda \leq q' < 0$; then the PM can shift mass from q' to $q = 0$ and $q > -v/\lambda$ to increase EU_{PM} while maintainaing $EQ = \hat{q}$.

Thus, the PM's optimal distribution puts puts probability mass on $q = 0$ and $q > -v/\lambda$. WE can rewrite the PM's optimization problem in terms of $\tilde{q} = E(q|q < -v/\lambda)$ and $r = Pr(q < -v/\lambda)$:

$$\max_{\tilde{q},r}(1-r)v \text{ s.t. } \tilde{q}r = \hat{q},$$

which is maximized at $\tilde{q} = -\theta$ and $r = -\hat{q}/\theta$. Thus, in the case where $1 - \theta \leq v/\lambda < \theta$, the PM's optimal distribution is

$$Pr(q = -\theta) = -\hat{q}/\theta \quad \text{and} \quad Pr(q = 0) = 1 + \hat{q}/\theta. \tag{9}$$

which returns $EU_{PM} = (1 + \hat{q}/\theta)v$.

If $v/\lambda < \min\{\theta, 1-\theta\}$, then the PM earns $EU_{PM} = 0$ for any realization $q \leq -v/\lambda$, $EU_{PM} = v + q\lambda < v$ for any realization $q \in [-v/\lambda, 0]$, $EU_{PM} = v$ for any realization $q \in [0, v/\lambda]$, and $EU_{PM} = q\lambda$ for any $q > v/\lambda$.

The analysis of the optimal q is unchanged from the previous case for realizations of $q \leq v/\lambda$. Here, however, there is the possibility of realizations $q > v/\lambda$, which was not a possibility when $v/\lambda > 1 - \theta$. From the above analysis, we know that the PM prefers Eq. (9) to any other distribution over $[-\theta, v/\lambda]$. Here, the PM can choose that distribution, or he can shift probability mass from realizations of $q = 0$ to put additional weight on $q = -\theta$ and weight on $q > v/\lambda$. Keeping the probability mass on 0 results in $EU_{PM} = v$ from these realizations. Shifting it to $q = -\theta$ and $q > v/\lambda$ results in expected payoffs equal to $r\tilde{q}\lambda$, where we redefine $\tilde{q} = E(q|q > v/\lambda)$ and $r = Pr(q > v/\lambda)$. The shift in distribution must maintain the same expected value as the original realization $q = 0$, and thus $r\tilde{q} - (1-r)\theta = 0$ or $r(\tilde{q} + \theta) = \theta$. Payoff $r\tilde{q}\lambda$ is maximized with respect to the constraint by a choice of $\tilde{q} = 1 - \theta$ and $r = \theta$. Therefore, the PM prefers a full information strategy with $q \in \{-\theta, 1-\theta\}$ to any distribution in which $q \in [v/\lambda, 1-\theta)$. The full information strategy again returns expected payoff $EU_{PM} = \alpha(1-\theta)\lambda$.

The PM prefers full information when it yeilds a higher expected payoff than when Q is defined by Eq. (9), which is the case when

$$\alpha(1-\theta)\lambda > (1 + \hat{q}/\theta)v \iff \alpha(1-\theta)\theta > (\theta + \alpha(1-\theta) - \theta(1-\alpha))v/\lambda \iff$$

$$v/\lambda < \theta(1-\theta),$$

the same condition underwhich the PM preferred fully informative signals when $\hat{q} \geq 0$.

Analysis for Section 4: When priors are unbiased. Here, we walk through the additional analysis for the case analyzed in Section 4.4 where $\theta = \alpha = 1/2$. In this case, the PM's expected equilibrium policy payoff is

$$E[\max\{q,0\}] = \int_0^{1/2} f(q)qdq = \int_{-1/2}^{1/2} qf(q)dq - \int_{-1/2}^{0} qf(q)dq = \hat{q} + \int_{-1/2}^{0} F(q)dq,$$

noting that the final transformation follows from integration by parts.

Suppose that the PM chooses a posterior belief random variable Q' with CDF $F'(q)$, and Q' is second order stochastic dominated by Q. By the definition of second order stochastic dominance, we have $\int_{-1/2}^{0} F(q)dq \leq \int_{-1/2}^{0} F'(q)dq$. This implies that the PM expects higher policy payoff with Q'. Ganuza and Penalva (2010) establishes that for the case of binary states, if two posterior belief random variables have the same mean and one posterior belief random variable second order stochastic dominates the other, then the dominated posterior belief random variable is more informative in the sense of Blackwell. This implies that when the PM becomes more informed about the reform, he expects a higher policy payoff.

Acquiring more information, however, also decreases political contributions. For example, when $v/\lambda \geq 1/2$, the expected political contributions equal

$$\begin{aligned}\int_{-1/2}^{0} f(q)(v+q\lambda)dq + \int_0^{1/2} f(q)(v-q\lambda)dq &= v + \lambda \int_{-1/2}^{0} f(q)qdq - \lambda \int_0^{1/2} f(q)qdq \\ &= v - 2\lambda \int_{-1/2}^{0} F(q)dq - \lambda\hat{q}\end{aligned}$$

Suppose that the PM chooses a posterior belief random variable Q' with CDF $F'(q)$, and Q' is second order stochastic dominated by Q. By the definition of second order stochastic dominance, we have $\int_{-1/2}^{0} F(q)dq \leq \int_{-1/2}^{0} F'(q)dq$. This implies that the PM expects lower political contributions with Q'.

One can show that this analysis carries over for the case where $v/\lambda < 1/2$. The difference is that for realizations of q such that $|q| \in [v/\lambda, 1/2]$, revenue is 0.

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Online Appendix for "Clueless Politicians"

Christopher Cotton and Cheng Li

In this online appendix, we show that our basic results are robust to an alternative version of the model in which the signal realization is privately observed by the policymaker.

A Model of Private Policymaker Information

A policymaker must choose between two alternative policies, which are respectively backed by two interest groups. We use $i \in \{1, 2\}$ to denote both a policy and its interest group. The policymaker cares about both policy quality and political contributions. When the policymaker implements policy i, she receives utility

$$U_P(q_i, c_i) = \lambda q_i + c_i,$$

where q_i is the quality or net benefits associated with policy i, c_i are the political contributions the policymaker receives from interest group i when she implements policy i, and λ captures the political importance of the issue on which the policymaker is selecting policy.

The quality of each policy is an independent realization of a Normally distributed random variable: $q_i \sim N(\mu, 1)$. Neither the policymaker nor the interest groups observe q_i ex ante, although the distribution is common knowledge.

Interest groups are advocates in favor or their own preferred policy: they receive benefit v when the policymaker implements their policy and do not benefit when the policymaker implements the other policy alternative. When policy i is chosen, interest group $i \in \{1, 2\}$ receives payoff $u_i = v - c_i$, and when policy i is not chosen, interest group i receives payoff $u_i = 0$.

The game takes place in three stages. In the first stage of the game, the policymaker chooses how much information or expertise to acquire about the quality of the alternative policies. We model this information acquisition by assuming that the policymaker controls the variance of a signal she observes about the quality of each policy alternative. For each policy alternative i, the policymaker observes a realization s_i of random variable $S_i \sim N(q_i, \sigma^2)$. The realization of s_i is on average equal to the true quality of the policy. When $\sigma = 0$, the policymaker perfectly learns the true quality of each proposal. As σ increases, the policymaker's information about each policy becomes less informative in the sense of Blackwell. When $\sigma \to \infty$, the policymaker learns no additional information about the state of the world and must rely only on the priors when making future decisions. We assume that the policymaker's signal realization s_i is not observed by the interest groups. But the interest groups can observe the policymaker's general level of expertise on the issue, and therefore observe σ.

In the second stage of the game, the two interest groups engage in monetary lobbying. Interest groups simultaneously make contribution offers to the policymaker. Specifically, each interest group makes an offer c_i to the policymaker, which it commits to pay if the policymaker implements policy i.

In the third stage, the policymaker observes the contribution offers c_1 and c_2, as well as the signal realizations from the first stage. She then implements whichever policy provides her the higher expected utility, accounting for the promised contributions and expected policy quality.

We solve the Perfect Bayesian Equilibrium strategies of the game described above. In this game, there is no campaign contribution limit so interest groups can make any non-negative contribution offer to the policymaker. We first derive the probability that each policy is chosen by the policymaker, and then consider interest groups' decision in political contributions. After that, we consider the policymaker's decision on how much information or expertise to acquire.

Monetary lobbying subgame. After observing signal realization $S_i = s_i$, the policymaker updates her belief about q_i. Given that $q_i \sim N(\mu, 1)$ and $S_i|q_i \sim N(q_i, \sigma^2)$, the policymaker's posterior belief regarding q_i given a particular signal realization s_i is

$$q_i|S_i = s_i \sim N(\frac{s_i + \mu\sigma^2}{1+\sigma^2}, \frac{\sigma^2}{1+\sigma^2}).$$

Therefore, the expected constituent welfare generated by policy i given signal realization s_i is the mean of this distribution

$$E(q_i|S_i = s_i) = \frac{s_i + \mu\sigma^2}{1+\sigma^2}.$$

Given signal realization s_i and contribution offer c_i, the policymaker chooses interest group 1's policy when

$$\lambda E(q_1|S_1 = s_1) + c_1 > \lambda E(q_2|S_2 = s_2) + c_2.$$

This is equivalent to

$$\frac{s_1 + \mu\sigma^2}{1+\sigma^2} - \frac{s_2 + \mu\sigma^2}{1+\sigma^2} > \frac{c_2 - c_1}{\lambda}. \tag{10}$$

Given that the signal regarding q_i is stochastic, neither group can choose contribution offers to guarantee that inequality (10) holds or fails to hold. Therefore, the probability that policy 1 is selected equals the probability inequality (10) is satisfied.

Given that $q_i \sim N(\mu, 1)$ and $S_i|q_i \sim N(q_i, \sigma^2)$, we have $S_i \sim N(\mu, 1+\sigma^2)$. This implies that

$$\frac{s_i + \mu\sigma^2}{1+\sigma^2} \sim N(\mu, \frac{1}{1+\sigma^2}).$$

To simplify exposition, we define

$$\gamma \equiv \sqrt{\frac{2}{1+\sigma^2}}.$$

Because γ is strictly decreasing in $\sigma \geq 0$, and Blackwell informativeness is strictly decreasing in signal variance σ, it follows that informativeness is strictly increasing in γ. The higher is γ, the more informed the policymaker is about the quality of the policies. γ takes on its maximum value at $\gamma = \sqrt{2}$ when $\sigma = 0$ and policymaker signals are fully informative, and takes on its minimum value at $\gamma = 0$ when $\sigma \to \infty$ and policymaker signals are fully uninformative.

Therefore,

$$\frac{s_1 + \mu\sigma^2}{1+\sigma^2} - \frac{s_2 + \mu\sigma^2}{1+\sigma^2} \sim N(0, \gamma^2).$$

This implies that the policymaker chooses the policy proposed by interest group 1 with probability

$$\Phi(\frac{c_1 - c_2}{\lambda\gamma}),$$

where function $\Phi(\cdot)$ represents the cumulative distribution function of the standard normal random variable $N(0, 1)$.

In the second stage of the game, interest groups engage in monetary lobbying, each simultaneously making political contribution offers to the policymaker, anticipating how their promised contributions affect the policymaker's policy decision. Interest group i receives payoff $u_i = v - c_i$ when its policy is chosen by the policymaker, and receives payoff $u_i = 0$ otherwise. The expected payoff of interest group 1 is therefore

$$E(u_1) = \Phi(\frac{c_1 - c_2}{\lambda\gamma})(v - c_1).$$

The derivative of this function with respect to c_1 is

$$\frac{\partial E(u_1)}{\partial c_1} = -\Phi(\frac{c_1 - c_2}{\lambda\gamma}) + \frac{1}{\lambda\gamma}\phi(\frac{c_1 - c_2}{\lambda\gamma})(v - c_1).$$

This expression illustrates the tradeoff that interest groups face when choosing which level of political contributions to offer the policymaker. If an interest group marginally increases its contribution, then it experiences a marignal cost whenever it wins the competition. This cost is reflected in the first term. However, increasing political contributions also increases the probability the interest group's policy is chosen by the policymaker. This is represented by the second term.

There are two possible subgame equilibria, depending on the policymaker's choice of signal informativeness in the first stage of the game. First, the equilibrium contribution offer c^* is positive for both interest groups. In this case, each interest group chooses a level of political contributions such that the marginal benefits of increasing political contributions equal the marginal cost of doing so, given the equilibrium contribution strategy of the other interest group. This is the case when the policymaker chooses a relatively uninformative signal at the beginning of the game. Second, there is the possibility that both groups contribute $c^* = 0$ in equilibrium. This is the case when the policymaker chooses a sufficiently informative signal in the first stage of the game. The following lemma summarizes the unique equilibrium contribution choice.

Lemma 3 (Equilibrium political contributions)**.** *In the unique equilibrium, interest groups offer the same level of political contributions to the politician: $c_1^* = c_2^* = c^*$, where*

$$c^* = \begin{cases} v - \frac{\sqrt{2\pi}}{2}\lambda\gamma & \text{if } \gamma < \frac{\sqrt{2\pi}v}{\pi\lambda} \\ 0 & \text{if } \gamma \geq \frac{\sqrt{2\pi}v}{\pi\lambda} \end{cases}$$

Variable γ can take on a maximum value of $\sqrt{2}$. Therefore if $\sqrt{2\pi}v/(\pi\lambda) \leq \sqrt{2}$ or equivalently $\lambda \geq v/\sqrt{\pi}$, then both $c^* = 0$ and $c^* > 0$ are possible in equilibrium. If, alternatively, $\lambda < v/\sqrt{\pi}$, then for all feasible γ, the only equilibrium involves $c^* > 0$.

Figure 3 illustrates the relationship between equilibrium political contributions and signal informativeness for the case where $\lambda > v/\sqrt{\pi}$ and therefore $\sqrt{2\pi}v/(\pi\lambda) < \sqrt{2}$. In this case, for all $\gamma \in [0, \sqrt{2\pi}v/(\pi\lambda))$, equilibrium political contributions are decreasing in the quality of policymaker information, γ. For all $\gamma \in [\sqrt{2\pi}v/(\pi\lambda), \sqrt{2}]$, equilibrium political contributions always equal zero. Therefore, political contributions are always maximized when $\gamma = 0$.

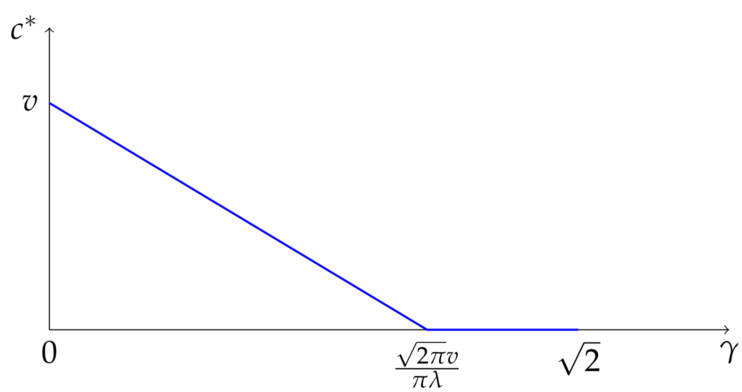

Figure 3. Equilibrium political contributions and signal informativeness with no contribution limit (an example given $\lambda > v/\sqrt{\pi}$)

When the policymaker chooses a completely uninformative signal, the policies remain indistinguishable on their merits. In this case, the policymaker's decision over policy will be based exclusively on political contributions. Specifically, she will choose the policy preferred by the interest group that offers the highest level of political contribution. In this case, the competition over political contributions is most fierce and both interest groups offer the highest level of political contribution to the policymaker. When the policymaker chooses an informative signal, however, she receives additional information on the merits of the policies. In this case, offering a smaller contribution than the other interest group does not necessarily lose the competition. This is because an informed policymaker is able to perceive the differences in policy quality, and the information she uncovers may reveal one interest group's policy to be of sufficiently high quality to overcome its contribution disadvantage. The interest groups react to the anticipated revelation of information about policy quality by contributing less. In equilibrium, an informative signal undermines the incentive for interest groups to contribute, resulting in fewer political contributions. When the policymaker receives sufficiently accurate information about policy quality, she receives no political contributions from the interest groups.

We use q_s to denote the quality of the selected policy. Lemma 3 shows that in equilibrium both interest groups offer the same level of political contribution to the policymaker. Therefore, in equilibrium the policymaker's policy decision will be based exclusively on expected policy quality. Specifically, she will choose the policy of higher expected quality. The expected quality of the selected policy given signal realizations s_1 and s_2 is

$$E(q_s|s_1, s_2) = max\{\frac{s_1 + \mu\sigma^2}{1+\sigma^2}, \frac{s_2 + \mu\sigma^2}{1+\sigma^2}\}.$$

We have shown that $\frac{s_i+\mu\sigma^2}{1+\sigma^2}$ is distributed according to $N(\mu, \frac{1}{1+\sigma^2})$. Therefore, the expected quality of the selected policy is

$$\begin{aligned} E(q_s) &= E[E(q_s|s_1, s_2)] \\ &= E[max\{Q_1, Q_2\}], \end{aligned}$$

where $Q_i \sim N(\mu, \frac{1}{1+\sigma^2})$.

We can show that this expectation evaluates to

$$E(q_s) = \mu + \frac{1}{\sqrt{2\pi}}\gamma,$$

where γ represents the informativeness of the signal chosen by the policymaker.

Policymaker information acquisition. In the first stage, the policymaker decides how much information or expertise to acquire about alternative policies. For now, we assume that $\lambda > v/\sqrt{\pi}$ or equivalently $\sqrt{2\pi}v/(\pi\lambda) < \sqrt{2}$. In this case, the policymaker anticipates to receive contribution offers $c_1 = c_2 = v - \frac{\sqrt{2\pi}}{2\alpha}\gamma$ when she chooses a signal with informativeness level $\gamma < \frac{\sqrt{2\pi}v}{\pi\lambda}$, and anticipates to receive contribution offers $c_1 = c_2 = 0$ when she chooses a signal with informativeness level $\gamma \geq \frac{\sqrt{2\pi}v}{\pi\lambda}$.

Suppose the policymaker chooses a signal such that $\gamma < \frac{\sqrt{2\pi}v}{\pi\lambda}$. In this case, the policymaker's expected payoff equals

$$\begin{aligned} E(U_P) &= \lambda(\mu + \frac{1}{\sqrt{2\pi}}\gamma) + v - \frac{\sqrt{2\pi}}{2}\lambda\gamma \\ &= \lambda\mu + v + \frac{\lambda}{\sqrt{2\pi}}\gamma - \frac{\pi\lambda}{\sqrt{2\pi}}\gamma. \end{aligned}$$

We can see from the above expression that a more informative signal has two opposite effects on the policymaker's expected payoff. First, it provides more information to the policymaker about the merits of alternative policies. This helps the policymaker make better policy decisions and increases the policymaker's expected payoff. On the other hand, however, a more informative signal reduces the level of political contributions offered by interest groups, which decreases the policymaker's expected payoff. In this case, the marginal return of increasing signal informativeness (i.e. $\lambda/\sqrt{2\pi}$) is lower than its marginal cost (i.e. $\pi\lambda/\sqrt{2\pi}$). Therefore, the policymaker prefers to choose a completely uninformative signal $\gamma = 0$ rather than any other $\gamma < \frac{\sqrt{2\pi}v}{\pi\lambda}$. This leads to a payoff of $\lambda\mu + v$.

When the policymaker chooses $\gamma \geq \frac{\sqrt{2\pi}v}{\pi\lambda}$ in the first stage of the game, she expects zero contribution from the interest groups and her expected payoff equals

$$\begin{aligned} E(U_p) &= \lambda(\mu + \frac{1}{\sqrt{2\pi}}\gamma) + 0 \\ &= \lambda\mu + \frac{\lambda}{\sqrt{2\pi}}\gamma. \end{aligned}$$

In this case, the policymaker's expected payoff is strictly increasing in γ. Therefore, the policymaker prefers to choose a fully informative signal $\gamma = \sqrt{2}$ rather than any other $\gamma \geq \frac{\sqrt{2\pi}v}{\pi\lambda}$. In this case she receives payoff $\lambda\mu + \frac{\lambda}{\sqrt{\pi}}$.

Figure 4 depicts the relationship between the policymaker's expected payoff and her choice of information quality for the case when $\lambda > v/\sqrt{\pi}$. As the value of γ increases, the policymaker's expected payoff first decreases and then increases. So the policymaker chooses between $\gamma = 0$ and $\gamma = \sqrt{2}$. By choosing $\gamma = 0$, the policymaker makes the worst policy decision but attracts the highest level of political contributions from the interest groups. By choosing $\gamma = \sqrt{2}$, the policymaker makes the best policy decision but receives no political contribution from the interest groups. The more the policymaker

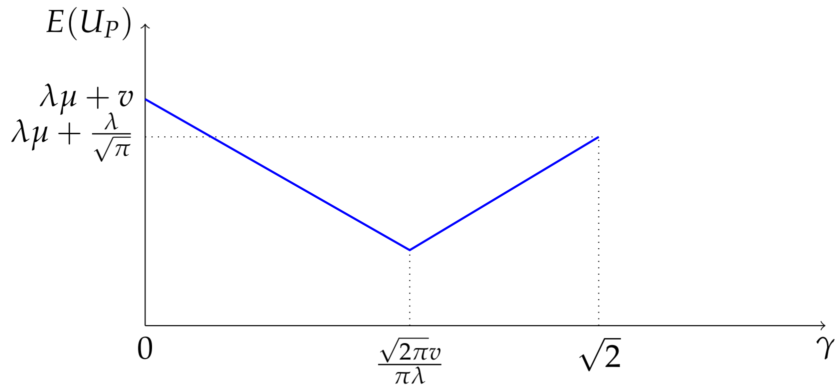

FIGURE 4. The policymaker's expected payoff and signal informativeness with no contribution limit (an example given $\lambda > v/\sqrt{\pi}$)

cares about policy outcomes relative to political contributions, the greater are her incentives to acquire information or expertise. Specifically, the policymaker chooses $\gamma = 0$ when

$$\lambda\mu + v > \lambda\mu + \frac{\lambda}{\sqrt{\pi}} \Leftrightarrow \frac{v}{\sqrt{\pi}} < \lambda < \sqrt{\pi}v,$$

and chooses $\gamma = \sqrt{2}$ when

$$\lambda\mu + v \leq \lambda\mu + \frac{\lambda}{\sqrt{\pi}} \Leftrightarrow \lambda \geq \sqrt{\pi}v.$$

Up until now, we have assumed that $\lambda > v/\sqrt{\pi}$. When $\lambda < v/\sqrt{\pi}$ or equivalently $\sqrt{2\pi v}/(\pi\lambda) > \sqrt{2}$, $\sqrt{2}$ is at the left hand side of $\sqrt{2\pi v}/(\pi\lambda)$ in Figure 4. This implies that the policymaker's expected payoff strictly decreases as the value of γ increases from 0 to $\sqrt{2}$. So for issues such that $\lambda < v/\sqrt{\pi}$, the policymaker prefers to choose $\gamma = 0$.

Therefore, for issues of sufficiently high political importance (i.e. $\lambda \geq \sqrt{\pi}v$), the policymaker chooses $\gamma = \sqrt{2}$ and becomes fully informed about policies. For less politically important issues (i.e. $\lambda < \sqrt{\pi}v$), however, the policymaker chooses $\gamma = 0$ and remains fully ignorant about policies. The following proposition summarizes this result.

Proposition 5 (Equilibrium Informativeness). *In equilibrium, the policymaker chooses to be fully informed and always implements the best policy for issues of high enough political importance (i.e. $\lambda \geq \sqrt{\pi}v$), and chooses to be completely uninformed and sells policy to the highest bidder for issues of less political importance (i.e. $\lambda < \sqrt{\pi}v$).*

Game with contribution Limit. In this section, we consider the impact of a binding contribution limit on equilibrium behavior and policy outcomes. We denote the contribution limit by $\bar{c}$, and assume $\bar{c} \in [0, v)$.

For now, we assume that $\lambda > v/\sqrt{\pi}$ or equivalently $\sqrt{2\pi}v/(\pi\lambda) < \sqrt{2}$. Lemma 3 shows that when the politician chooses $\gamma \geq \sqrt{2\pi}v/(\pi\lambda)$ in the first stage of the game, both interest groups offer zero contribution to the policymaker in the game without contribution limit. In this range of γ, imposing contribution limit $\bar{c}$ has no impact on interest group contribution behavior and the interest groups continue to offer zero contribution to the policymaker.

Lemma 3 also shows that when the policymaker chooses $\gamma < \frac{\sqrt{2\pi}v}{\pi\lambda}$ in the first stage of the game, interest groups offer $c_1 = c_2 = v - \frac{\sqrt{2\pi}}{2}\lambda\gamma$ to the politician in the game without contribution limit. We can show that when contribution limit $\bar{c}$ is imposed, interest groups offer $c_1^* = c_2^* = v - \frac{\sqrt{2\pi}}{2}\lambda\gamma$ to the policymaker when

$$v - \frac{\sqrt{2\pi}}{2}\lambda\gamma < \bar{c} \Leftrightarrow \frac{\sqrt{2\pi}(v - \bar{c})}{\pi\lambda} < \gamma < \frac{\sqrt{2\pi}v}{\pi\lambda},$$

and offer $c_1^* = c_2^* = \bar{c}$ to the policymaker when

$$v - \frac{\sqrt{2\pi}}{2}\lambda\gamma \geq \bar{c} \Leftrightarrow \gamma \leq \frac{\sqrt{2\pi}(v - \bar{c})}{\pi\lambda}.$$

Figure 5 illustrates the relationship between equilibrium political contributions and signal informativeness with contribution limit $\bar{c}$ given $\lambda > v/\sqrt{\pi}$. When the informativeness of the signal is no greater than $\sqrt{2\pi}(v - \bar{c})/(\pi\lambda)$, interest groups always offer $\bar{c}$, the highest level of political contributions allowed by the contribution limit, to the policymaker. When the informativeness of the signal γ is between $\sqrt{2\pi}(v - \bar{c})/(\pi\lambda)$ and $\sqrt{2\pi}v/(\pi\lambda)$, political contributions offered by the interest groups are decreasing in signal informativeness. When γ exceeds $\sqrt{2\pi}v/(\pi\lambda)$, interest groups never provide political contributions to the policymaker.

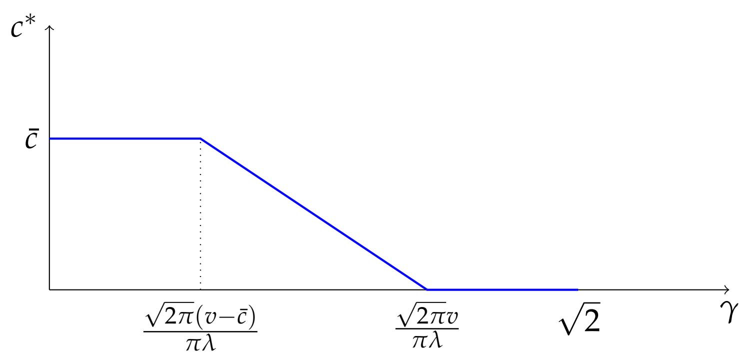

FIGURE 5. Equilibrium political contributions and signal informativeness with contribution limit $\bar{c}$ (an example given $\lambda > v/\sqrt{\pi}$)

When the signal informativeness does not exceed $\sqrt{2\pi}(v - \bar{c})/(\pi\lambda)$, interest groups always offer the highest level of political contributions $\bar{c}$ to the policymaker. In this case, acquiring more information strictly increases the policymaker's expected payoff: a more informative signal increases the expected quality of the selected policy without impacting the level of political contributions offered by interest groups. When the signal informativeness is between $\sqrt{2\pi}(v-\bar{c})/(\pi\lambda)$ and $\sqrt{2\pi}v/(\pi\lambda)$, the policymaker's expected payoff is decreasing in signal informativeness. For this range of γ, increasing signal informativeness increases the expected policy quality at the cost of attracting lower level of political contributions. Since the cost of lower political contribution dominates the benefit of better policymaking, the policymaker's expected payoff decreases when she acquired more information or expertise. When the policymaker chooses $\gamma \geq \sqrt{2\pi}v/(\pi\lambda)$, she expects zero contribution from the interest groups. In this case, acquiring more information or expertise increases the expected policy quality without impacting the level of political contributions offered by interest groups. Therefore, the policymaker's expected payoff is strictly increasing in γ. Figure 6 shows the relationship between the policymaker's expected payoff and her choice of signal informativeness when there is contribution limit $\bar{c}$.

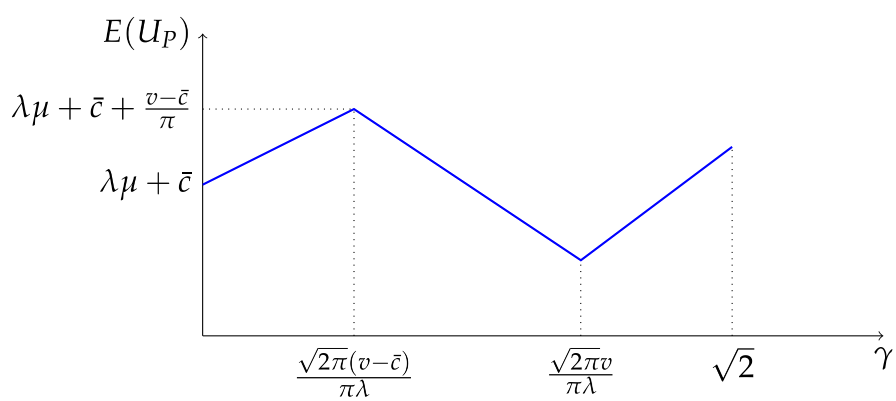

FIGURE 6. The policymaker's expected payoff and signal informativeness with contribution limit $\bar{c}$ (an example given $\lambda > v/\sqrt{\pi}$)

As we can see from Figure 6, when the signal informativeness is no greater than $\sqrt{2\pi}v/(\pi\lambda)$, the policymaker's expected payoff peaks at $\gamma = \sqrt{2\pi}(v-\bar{c})/(\pi\lambda)$. At this level of signal informativeness, the policymaker receives expected payoff $\lambda\mu+\bar{c}+\frac{v-\bar{c}}{\pi}$. When the signal informativeness is higher than $\sqrt{2\pi}v/(\pi\lambda)$, the policymaker's expected payoff is increasing in γ. Therefore, the policymaker prefers to become fully informed and expect payoff $\lambda\mu+\frac{\lambda}{\sqrt{\pi}}$. The policymaker prefers to choose $\gamma = \sqrt{2\pi}(v-\bar{c})/(\pi\lambda)$ when

$$\lambda\mu+\bar{c}+\frac{v-\bar{c}}{\pi} > \lambda\mu+\frac{\lambda}{\sqrt{\pi}} \Leftrightarrow \frac{v}{\sqrt{\pi}} < \lambda < \frac{v+(\pi-1)\bar{c}}{\sqrt{\pi}},$$

and prefers to choose $\gamma = \sqrt{2}$ when

$$\lambda\mu + \bar{c} + \frac{v - \bar{c}}{\pi} < \lambda\mu + \frac{\lambda}{\sqrt{\pi}} \Leftrightarrow \lambda > \frac{v + (\pi - 1)\bar{c}}{\sqrt{\pi}}.$$

Up until now, we have assumed that $\lambda > v/\sqrt{\pi}$. When $\lambda < v/\sqrt{\pi}$ or equivalently $\sqrt{2\pi}v/(\pi\lambda) > \sqrt{2}$, $\sqrt{2}$ is at the left hand side of $\sqrt{2\pi}v/(\pi\lambda)$ in Figure 6. This implies that for $\gamma \in [0, \sqrt{2}]$, the policymaker's expected payoff is maximized at $\gamma = \sqrt{2\pi}(v - \bar{c})/(\pi\lambda)$. Therefore, for issues such that $\lambda < v/\sqrt{\pi}$ the policymaker prefers to choose $\gamma = \sqrt{2\pi}(v - \bar{c})/(\pi\lambda)$.

Proposition 6 (Equilibrium Informativeness with Contribution Limit)**.** *In the game with contribution limit $\bar{c}$, the policymaker chooses a signal with informativeness level $\gamma = \frac{\sqrt{2\pi}(v-\bar{c})}{\pi\lambda}$ for issues such that $\lambda < \frac{v+(\pi-1)\bar{c}}{\sqrt{\pi}}$, and chooses a fully informative signal for issues such that $\lambda \geq \frac{v+(\pi-1)\bar{c}}{\sqrt{\pi}}$.*

For issues of sufficient political importance, the policymaker chooses to be fully informed. For issues of less political importance, the policymaker becomes moderately informed. So with the presence of a contribution limit, the policymaker never remains fully uninformed about policy quality. Decreasing $\bar{c}$ increases the range of issues such that $\lambda \geq \frac{v+(\pi-1)\bar{c}}{\sqrt{\pi}}$ is satisfied and thus the policymaker decides to become fully informed.

Corollary 2. *Imposing a stricter contribution limit (decreasing $\bar{c}$) strictly increases the share of issues on which the policymaker becomes fully informed.*