Signaling with Reform: How the Threat of Corruption Prevents Informed Policymaking

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Abstract

Lobbying is a potential source of corruption but is also a valuable source of information for policymakers. We analyze a game-theoretic model that shows how the threat of corruption affects the incentives of non-corrupt politicians to enlist the help of lobbyists to make more informed decisions. Politicians face a dilemma because voters cannot always tell whether a politician allows access to lobbyists in order to solicit corruption or to seek information. Thus, a non-corrupt politician may deny access to lobbyists to signal that she is non-corrupt even though doing so impedes her ability to make good policy. This signaling may decrease the welfare of the voters depending on the value of the lost policy information relative to the value of screening out corrupt politicians.

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Political scientists are usually skeptical of blanket statements about the evils of special interest groups. Though corruption may explain some lobbying behavior (Grossman and Helpman, 2001), interest groups can also provide helpful policy information (Austen-Smith and Wright, 1992, 1994; Wright, 1996), increase the work-capacity of legislators (Hall and Deardorff, 2006), and provide a connection between the public and the policy process. However, most campaigns focus on the potential negative effects of lobbying: it is hard to imagine a candidate emphasizing how her cozy relationship with lobbyists will make her more effective in office. In this article, we propose an explanation for this contrast: politicians may try to signal that they are non-corrupt by taking a combative stance toward interest groups even when this adversely affects their ability to govern.

We develop a game-theoretic model of electoral competition in which two politicians vie for office, committing themselves to either banning or granting interest group access should they win. politician choices over group access can inform voters about whether or not politicians are corrupt. Once a politician wins office an interest group, if access was granted, interacts with the winning politician. The group can engage in two types of lobbying by either providing policy-relevant information or engaging in quid pro quo. The type of politician in office dictates which lobbying tactic is most effective. The best case scenario from voters' perspective is to elect a honest politician that grants interest group access for informational lobbying. However, the voters are uncertain about which politicians are honest and which are corrupt and therefore use access decisions to attempt to 'screen out' corrupt politicians. This comes at the cost of information as sincere politicians will often ban interest group access to attempt to communicate their sincerity to voters.

To illustrate our argument, consider a hypothetical election in which banking regulation is a central issue. During the campaign, the politicians can commit themselves to a policy which either allows or denies access to Wall Street interest groups. For instance, some politicians may indicate a need to work with the industry while others may emphasize a belief that the regulatory process is rigged in favor of moneyed interests and promise a closed-door policy toward industry lobbyists. These politicians may even support similar regulations while maintaining different positions toward interest group participation. Now suppose that some proportion of politicians seek access

to secure campaign contributions from Wall Street. These politicians will always grant access to interest groups and will ultimately act in the interests of the industry. The problem is that voters cannot tell the difference between politicians who grant access because they are corrupt and those who grant access to better serve the voters' interests. Thus, sincere politicians may deny themselves the information needed to make good policy by shutting out interest groups in order to convince voters that they are not corrupt.

1 Related literature

1.1 Lobbying tactics

Our model builds on the idea that lobbying includes multiple tactics with opposite implications for voter welfare. We will focus on two well-studied lobbying tactics. Unproductive lobbying will be modeled as a quid pro quo exchange between interest groups and politicians. Socially productive lobbying will be modeled as policy-relevant information transmission. These two lobbying tactics are chosen because they have an important place in the lobbying literature and have an unambiguous relationship to voter utility in our model.[1]

Quid pro quo lobbying. Quid pro quo lobbying is most often modeled as an exchange of something valuable (i.e., money) in exchange for policy favors (Baron, 1989; Denzau and Munger, 1986; Grossman and Helpman, 1994). Evidence of quid pro quo bargaining is necessarily indirect and varies across countries and contexts. For instance, outside of the United States, firms experience to significant financial return on political connections and pursue these connections more aggressively in countries where corruption is high (Faccio, 2006; Fisman, 2001).[2] Some theoretically informed research has focused on the question of whether legislators can credibly commit to

[1] In principle, either quid pro quo or informational transmission could be replaced by some other notion of lobbying and the main insights of the model would be similar. The most important assumptions needed are that (a) the socially productive lobbying method produces a good valued by the voter as well as by non-corrupt politicians, (b) socially destructive lobbying produces a good valued only by the corrupt type of politician and imposes costs on voters and non-corrupt politicians, and (c) the lobbying tactic chosen in equilibrium depends mainly on whether or not the elected politician is corrupt.

[2] Evidence of this is not as strong in the United States (e.g. Fowler, Garro and Spenkuch, 2018) though the United States has low levels of corruption from a global perspective (*Corruption Perceptions Index 2018*, 2018).

deliver on promised policy favors after payments for interest groups have changed hands (McCarty and Rothenberg, 1996). We are interested in the implications of quid pro quo exchanges rather than the conditions under which they are possible, so we sidestep this issue by assuming that corrupt politicians have a preference for reciprocity (see Lambsdorff, 2012).

Informational lobbying. In information-based models, interest groups are influential to the extent that they transmit policy-relevant information to policymakers Potters and Van Winden (1990) demonstrated the effectiveness of informational lobbying in a dynamic game between one interest group and one legislator. Potters and Van Winden (1992) showed how lobbying costs may expand the set of circumstances in which informational lobbying is credible. Austen-Smith and Wright (1992, 1994) analyzed models in which two interest groups attempt to persuade a policymaker and draw implications for patterns of lobbying in the face of competition. Austen-Smith (1995) and Cotton (2012) show how campaign contributions may be used to signal information causing lobbies to be granted access for the purpose of informational lobbying. In each of these papers, information transmission improves the quality of the policymakers' decisions, as it does in this model. An exception to this rule occurs when multiple policymakers make decisions by voting as in Schnakenberg (2016).

Informational lobbying is a prominent explanation of lobbying behavior in empirical work. Interest group surveys show that a great deal of lobbyists' time is spent conducting research and presenting arguments to elected officials (Schlozman and Tierney, 1986; Baumgartner et al., 2009). Case studies also support informational lobbying. For instance, Hansen (1991) argued that the farm lobby's influence was attributable in large part to informational lobbying.

Much of the existing literature focuses on the conditions under which information transmission is credible in a lobbying environment. Our purpose is to build on existing theoretical and empirical work by focusing on the cases in which both quid pro quo and informational lobbying are possible and illustrating the resulting trade-offs that politicians face. To that end, our treatment of informational lobbying focuses on the case of verifiable information. Other important papers on lobbying with verifiable information include Cotton (2012) and Caillaud and Tirole (2007).

Mixed lobbying tactics. A handful other papers juxtapose multiple lobbying tactics within a single game-theoretic model. In Wolton (2016), political contributions are influential because the signal a group's strength at grassroots lobbying. In Ellis and Groll (2017), the interest groups can engage in informational lobbying or give contributions in the form of legislative subsidy. Unlike both of these studies, we do not focus primarily on the interest group's choice of tactic, which in our model is a simple matter of matching the tactic to the type of politician. Instead, we focus on how the voter's uncertainty about the type of lobbying solicited by the politicians affects politicians' incentives to signal to voters. Bennedsen and Feldmann (2006) how acquiring information creates externalities that raise the cost of bribing politicians. Dahm and Porteiro (2008) analyze a model in which interest groups can provide information and apply political pressure and show how attitudes toward risk affect the choice of tactics. In contrast these papers, our interest groups always pursue only contributions or only information provision, depending on the type of the politician, and the focus is on politicians' signals to voters.

1.2 Pandering and populism

This article also relates to the political economy literature on pandering. Pandering refers to the policymaker's decision to ignore relevant information and instead take the action ex ante preferred by the voters. Politicians may engage in this behavior in order to signal congruence with the voter (Maskin and Tirole, 2004; Morelli and Weelden, 2013; Morris, 2001) or to signal competence (Ashworth and Shotts, 2010; Canes-Wrone, Herron and Shotts, 2001; Prat, 2005). Our results are similar in that signaling concerns lead the politician to forgo acquiring information at all in order to show that they are non-corrupt.

The comparisons of our model to pandering are most evident in the dynamic model in Section 3.2 which shares more features with these models. First, pandering typically requires that policy choices are observed but outcomes (i.e. success or failure) are concealed from the voter with some probability. Our main existence result in Section 3.2 do not depend on the probability that the voter learns whether the policy was successful. Furthermore, signaling with reform is more often

incentive compatible than pandering because access decisions are made when the politician does not yet know the consequences. A pandering politician knows that a policy is wrong and chooses to pursue it anyway. When the politician chooses never to seek out information he knows his default policy will be correct over half of the time despite this choice.

Acemoglu, Egorov and Sonin's (2013) model of populism features an argument similar to ours. In their model corrupt politicians can be influenced by a wealthy elite with preferences to the right of the median voter. Honest politicians signal that they are incorruptible by choosing a policy to the left of the median voter. Thus, the desire to signal honesty can lead to policies that harm the welfare of the voter as in our model. Duggan and Martinelli (2015) show that this negative effect of signaling can occur whenever voter preferences are single-peaked but politicians' marginal utilities for policy are ordered by type, obtaining the Acemoglu, Egorov and Sonin (2013) setup of a special case of their model. We obtain a similar result but where effects on voter welfare are driven by information acquisition rather than spatial concerns. These previous models do not explain information acquisition or direct decisions about interest group access.

2 Baseline model

The model captures a situation in which an interest group lobbies for a policy which, depending on its private information, may or may not be in the best interests of the voters. Private information is captured by a variable θ which determines the policy preferred by a majority of voters. The interest group, however, would prefer the same policy no matter what it believed about θ. For instance, if it were known that unregulated financial derivatives would crash the economy, a majority would support regulation. However, a firm specializing in these derivatives would still like to keep them unregulated. The interest group can engage in one of two tactics, which we term "informational lobbying" (e.g. creating a white paper) or "bribes" (e.g. offering campaign contributions). The types of the politicians determine their susceptibility to each tactic, with sincere types persuaded by information and corrupt types persuaded by contributions. The behavior of the politicians is

driven by their need to demonstrate to the voters that they are sincere.

The players are two politicians (A and B), a representative voter V, and an interest group G. Politicians are either sincere or corrupt. During the campaign, politicians commit to platforms that effectively allow or deny access to the interest group.[3] Once the winning politician takes office, he decides whether to enact a new policy. If the interest group has access to the politician, it may influence policy by either providing information or paying a bribe.

Sequence of play. The sequence of play is as follows. First, nature draws each politician's type $\tau_i \in \{S, C\}$ (sincere or corrupt). The prior probability that a politician is sincere is $\pi \equiv Pr[\tau_i = S]$ and is private information.[4] Nature also draws a state of the world $\theta \in \{0, 1\}$ that determines which policy is best for the voter. For instance, if the policy is a banking regulation, θ may represent information on how the new regulation will affect lending practices. The voter prefers regulation if it will not severely limit access to credit but not if it would make it too difficult for consumers to borrow money. Prior beliefs are that $Pr[\theta = 0] = q > 1/2$.[5] The state θ is private information to the interest group, which specializes in the policy area. Next, both politicians publicly announce their campaign platforms. Each politician can either run on a reform platform ($p = 0$) that effectively bans group access should the politician take office or an access platform ($p = 1$) that leads to interaction with the group after winning office.[6] Following politician announcements a representative voter elects politician A or B.

If the winning politician ran on a reform platform then he will simply choose a policy $x \in$

[3] In section 3 we relax this assumption by analyzing two alternative models: one substitutes costly campaign announcements for platform commitment and the other analyzes a dynamic political agency model in which campaign announcements are cheap talk. We show that our main insights carry through in those alternative models that relax platform commitment.

[4] The private nature of types implies that voters do not know a politician's but, additionally, politicians also do not know their opponents' types. The idea is that on politicians are known to be corrupt until they make campaign or policy choices in their capacity as politicians. It is possible to relax this assumption in which case sincere types have an even stronger incentive to signal to voters when their opponents are corrupt and no incentive when their opponents are sincere.

[5] We assume $q > \frac{1}{2}$ to focus on the case where the interest group's position is *ex ante* less likely to be the optimal policy. This is the most relevant case because otherwise the politicians would choose the interest group's position by default and the interest group is better of not engaging in informational lobbying.

[6] The access platform can be thought of as a platform that does not emphasize the need to rid the policymaking process of special interests.

$\{0,1\}$ to implement. If the winning politician ran on an access platform lobbying occurs before policy is chosen. In the lobbying stage, the interest group learns the politician's type,[7] the interest group's information about θ is revealed and it can choose to offer the politician a bribe, which is represented by $b \in \{0,1\}$ where $b = 1$ denotes a bribe.[8] If the politician in office ran on a reform platform then $b = 0$ and the group's information about θ is not revealed.[9] The bribe may be interpreted as a literal bribe, an implied revolving door job offer, or anything else that materially benefits the politician but does not aid in policymaking. Substantive lobbying is captured through the verifiable information about θ that is revealed by the interest group through white papers or the like. Once the lobbying stage concludes, the politician updates her beliefs about θ and chooses a policy.

Preferences and equilibrium. The voter wants the chosen policy to match the state of the world. Her preferences are given by the following utility function,

$$u_V(x,\theta) = -|x-\theta|.$$

The interest group's policy preferences are independent of the state: it always prefers $x = 1$ whether or not that policy is good for the voter. Furthermore, the interest group pays a cost, $\kappa \in (0,1)$ for bribes.[10] The interest group's utility function is

$$u_G(x,\theta,b) = x - \kappa b.$$

[7]The assumption that the interest group learns the politician's type before lobbying is useful in that it allows the lobbying tactic to be matched to the type of the politician. This assumption is not strong given our assumptions about preferences because both types of politician have a strict incentive for his type to be revealed to the interest group. Thus, if types were not revealed they could easily be transmitted by cheap talk or by allowing the interest group to give the politician a choice between an informational report or a bribe.

[8]We simply assume that the group's information is revealed if it has access. Alternatively, the group could choose whether or not to reveal the information in which case it would reveal when $\theta = 1$ and therefore non-revelation would allow the politician to infer that $\theta = 0$. For simplicity, we leave this choice out of the model since it would not change the results, though this dynamic is present in the costly campaign announcements game analyzed below.

[9]This verifiable information set-up is equivalent to a costly signaling game in which it is less costly for the interest group to signal the politician when information is favorable to the group's interests ($\theta = 1$) than when information is unfavorable ($\theta = 0$). We utilize this approach for simplicity and because we are interested in how the possibilities of both quid pro quo and informational lobbying impact electoral incentives rather than whether either tactic is possible.

[10]We assume the cost of bribes, κ, is less than one to simply ensure the costs of inducing politicians to implement the group's preferred policy $x = 1$ does not exceed the benefit of doing so.

Politician preferences depend on their types. Our assumptions about politician preferences are designed to make the contrast between types as stark as possible: sincere types only want to choose the policy that is best for the voter and corrupt types only want to pursue exchanges with the group for policy. Politician preferences are represented by the utility function,[11]

$$u_i(x,\theta,b) = \begin{cases} -|x-\theta| & \text{if } \tau_i = S, \\ bx-(1-b)x & \text{if } \tau_i = C. \end{cases}$$

We analyze symmetric pure strategy perfect Bayesian equilibria in weakly undominated strategies.[12] We also focus on equilibria that satisfy the Intuitive Criterion (Cho and Kreps, 1987).

2.1 Interest group access and informed policymaking

In this section we analyze the policymaking game between the interest group and winning politician. First, note that any time interest group access was banned all politicians set $x = 0$. Corrupt types choose $x = 0$ because they are not bribed and sincere types choose $x = 0$ because their priors place a higher probability on $\theta = 0$. The further implies that with probability $1-q$ the wrong policy from the voter's perspective, will be implemented.

When the interest group does have access policy choices vary. Consider a corrupt politician that won office after running on an access platform. He is solely motivated by rent-seeking and therefore will choose the group's preferred policy, $x = 1$, only if he receives a bribe. It is strictly dominant for corrupt politicians to set $x = 0$ any time $b = 0$ and $x = 1$ when $b = 1$. The group understands corrupt politicians' incentives and therefore also knows that a bribe will lead to its most preferred policy being implemented. In equilibrium, the interest group prefers to follow this strategy and, thus, when it learns that a corrupt politician has won office it optimally pays the bribe.

Sincere politicians' policy choices respond to information, but not bribery. This implies that

[11] This assumption is for simplicity but is stronger than needed. The results are similar as long as different types are more easily swayed by different tactics.

[12] In section A.3 of the online appendix we show that our results are robust to allowing asymmetric probabilities of corruption and allowing politicians to play asymmetric strategies.

the interest group has no incentive to engage in bribery with sincere politicians. Since the group's private information about θ is verifiable any time a sincere politician wins office after running on an access platform he learns θ and is able to match policy to the state, $x(\theta) = \theta$.

Thus, when a sincere politician runs on an access platform and wins office he is able to match policy to the state, an outcome that is optimal for him as well as the voter. When a corrupt politician runs on an access platform and wins office he is bribed by the group and policy is always set to $x = 1$, which harms voter welfare with probability $1 - q$. The foregoing analysis yields a unique equilibrium to the stage of the game involving the interest group and winning politician.

Proposition 1. *The unique equilibrium to the interest group–politician policymaking stage consists of the following collection of strategies when access was granted.*

- *The interest group reveals θ to sincere politicians and bribes corrupt politicians, $b = 1$.*
- *Corrupt politicians implement the interest group's preferred policy, $x = 1$, only if $b = 1$ and implement $x = 0$ otherwise.*
- *Sincere politicians implement the interest group's preferred policy, $x = 1$, only if they learn $\theta = 1$ and implement $x = 0$ otherwise.*

To summarize Proposition 1, when access was granted the interest group always bribes a corrupt politician and always reveals θ to a sincere politician. A corrupt politician sets $x = 1$ if and only if he is bribed and a sincere politician sets $x = \theta$ after learning the state.

2.2 Signaling with reform

In this section we characterize platform decisions, which are structured in part by the voter's equilibrium voting behavior. There are two types of (pure strategy) equilibria: *reform equilibrium* and *access equilibrium*. A reform equilibrium is a separating equilibrium in which sincere politicians run on reform platforms and corrupt politicians run on access platforms. Voters are able to infer sincerity in this case and can screen out corrupt politicians, but sincere politicians sacrifice policy-relevant information by banning group participation. An access equilibrium is a pooling

equilibrium in which all politicians run on access platforms. In this case the voter cannot infer politician types, but *if* a sincere politician wins the election he is able to make better informed policy choices. Therein lies the fundamental trade-off at the heart of this article: improved screening for corruption comes at the cost of informed policymaking.

Equilibrium voting. The voter attempts to elect sincere over corrupt politicians. In a reform equilibrium she can perfectly infer politician types. If both politicians run on reform and ban group access then she is indifferent since both are sincere and $x = 0$ is implemented regardless of who she elects. If both politicians run on access then she knows that both are corrupt and is again indifferent since $x = 1$ will ultimately be implemented. Finally, when one politician is sincere and runs on reform and one is corrupt and runs on access she votes for the sincere politician that will implement $x = 0$ over the corrupt politician that will implement $x = 1$. Since $\theta = 0$ is ex ante more likely this choice yields higher expected utility than electing a corrupt politician.

In an access equilibrium the voter cannot infer politician types and retains her prior belief, implying that either politician is equally likely to be sincere. In that case the voter can do no better than voting for either politician with equal probability. She expects to lose nothing on policy with probability π since in that case the politician is sincere and policy is implemented to match the state. In contrast, with probability $1 - \pi$ the winning politician is corrupt and $x = 1$ is implemented for sure, leading to an expected policy loss proportional to the probability that $\theta = 0$.

Equilibrium platforms. To illuminate the issues at stake when considering platform decisions, consider again the case of banking regulation discussed in the introduction. For corrupt politicians, public office is seen as an avenue for private rents and therefore this type of politician will always grant access to banking groups and subsequently choose policy that is favorable to those groups. For sincere politicians, there is a trade-off involved. Granting access to banking groups (i.e., enlisting their advice in crafting policy) carries significant informational benefits. In fact, the informational advantage of those in the banking industry over lawmakers is seen as an important reason for these groups to be included in the regulatory process (e.g., Omarova, 2010). However, consulting with interest groups may lead voters to question whether the politician is sincere.

This may motivate campaign behavior such as the "no bankers" pledge to drive bankers out of the lawmaking process. When will sincere politicians eschew the potential to acquire policy-relevant information by running on reform in pursuit of revealing that they are sincere to win office?

To begin answering this question, first consider the incentives for corrupt politicians to run on access platforms. Since they only respond to bribes corrupt politicians' maximum payoff for running on reform is zero since that precludes the group's ability to pay bribes. In contrast, if corrupt politicians run on access platforms, depending on the type of their opponents, they may win office and receive a bribe from the group. Thus, it is always beneficial for corrupt politicians to run on an access platform.[13]

Sincere politicians have different incentives since they pursue policy rather than bribes. Consider the reform equilibrium environment in which politicians separate with their platforms. Corrupt politicians run on access while sincere politicians run on reform and ban access. A sincere politician's expected payoff for banning access in this environment is given by,

$$\begin{aligned} EU_i(p_i^* = 0 | \tau_i = S, p_{-i}^*, m^*, x^*) &= \pi(-(1-q)) + (1-\pi)(-(1-q)), \\ &= -(1-q). \end{aligned}$$

The implemented policy outcome when two sincere politicians compete against one another is the same: either will implement $x = 0$ without any further information provided from the interest group. This yields an expected policy loss of $-(1-q)$, which occurs with probability π.[14] If instead he faces a corrupt politician he wins the election for sure, but receives no additional information since lobbying is banned. Again, the sincere politician implements $x = 0$ which yields an expected payoff of $-(1-q)$. Overall, then, a sincere politician's expected payoff for running on a reform platform and banning interest group access yields an expected payoff of $-(1-q)$.

[13] For formal details see lemma A.2 in the online appendix.

[14] Because sincere politicians only care about policy they also gain and lose utility based on the policy chosen by their opponent following an electoral loss.

If instead a sincere politician chooses to deviate and run on access his expected payoff is,

$$\begin{aligned} EU_i(p_i = 1 | \tau_i = S, p^*_{-i}, m^*, x^*) &= \pi(-(1-q)) + (1-\pi)\left(\frac{1}{2}(0) + \frac{1}{2}(-q)\right), \\ &= -\pi(1-q) - \frac{1}{2}(1-\pi)q. \end{aligned}$$

In this case the politician loses the election if he runs against another sincere politician since now his platform signals to the voter that he is corrupt. In this case the politician expects to lose $-(1-q)$ since that is the likelihood that the uninformed sincere politician that won office will fail to match policy to the state. If he faces a corrupt politician then the voter elects either with equal probability since she believes both are corrupt. If the sincere politician wins then he is able to perfectly match policy to the state since the group has access and provides information about θ. If he loses then the corrupt winner will implement $x = 1$ which, in expectation, will fail to match the state with probability q.

Incentive compatibility for a sincere politician to play the equilibrium strategy of running on reform requires that,

$$-(1-q) \geq -\pi(1-q) - \frac{1}{2}(1-\pi)q.$$

This inequality is satisfied for all $\pi \in (0,1)$ when $q \geq \frac{2}{3}$. Combined with the fact that corrupt politicians always run on access in this environment, this yields the necessary and sufficient condition to support a reform equilibrium. Define this condition as $q^{\text{Reform}}(\pi) \coloneqq \frac{2}{3}$. So long as $q \geq q^{\text{Reform}}(\pi)$ — i.e., the ex ante probability that $\theta = 0$ is sufficiently high — there is a reform equilibrium.

Now consider the access equilibrium environment in which all politicians run on access. The upside to this situation is that sincere politicians, if they win, are able to make fully informed policy. The downside is that the voter cannot differentiate politicians and may elect a corrupt politician in light of that uncertainty. Corrupt politicians have even stronger incentives to run on access in this case since they no longer lose with certainty when facing a sincere politician.

Sincere politicians would prefer to run on access for its informational value, conditional on winning the election. However, doing so precludes the sincere politician from revealing he is

sincere and therefore he risks losing the election to a corrupt politician. A sincere politician's expected payoff from running on access, given that corrupt politicians do also, is,

$$\begin{aligned} EU_i(p_i^* = 1 | \tau_i = S, p_{-i}^*, m^*, x^*) &= \pi\left(\frac{1}{2}(0) + \frac{1}{2}(0)\right) + (1-\pi)\left(\frac{1}{2}(0) + \frac{1}{2}(-q)\right), \\ &= -\frac{1}{2}(1-\pi)q. \end{aligned}$$

If he faces another sincere politician (which occurs with probability π) then regardless of who wins policy is implemented to match the state and he receives zero. If he runs against a corrupt politician (which occurs with probability $1-\pi$) then he runs the risk of losing and having $x = 1$ implemented for sure, which will mismatch the state with probability q, yielding his expected policy losses in that case. If a sincere politician instead deviates to running on reform and banning access he foregoes the opportunity to make informed policy should he win, but ensures that he will win the election with certainty since the voter correctly believes he is sincere.[15] This deviation yields the following expected payoff,

$$\begin{aligned} EU_i(p_i = 0 | \tau_i = S, p_{-i}^*, m^*, x^*) &= \pi(-(1-q)) + (1-\pi)(-(1-q)), \\ &= -(1-q). \end{aligned}$$

Regardless of what type of politician his opponent is, the sincere politician will win the election but will learn nothing about θ. Thus, he will follow his prior information, implement $x = 0$, and policy will not match the state with probability $1-q$, yielding his expected policy loss for deviation. To support the posited sincere politician behavior in the access equilibrium incentive compatibility requires that,

$$-\frac{1}{2}(1-\pi)q \geq -(1-q),$$

which is satisfied for all $\pi \in (0,1)$ so long as $q \in \left(\frac{1}{2}, \frac{2}{3-\pi}\right]$. Since corrupt politicians always run on access platforms, this incentive compatibility condition is necessary and sufficient to support an

[15] This is the only off-path voter belief that survives Intuitive Criterion refinement.

access equilibrium. Define this condition as $q^{\text{Access}}(\pi) \coloneqq \frac{2}{3-\pi}$. As long as $q \leq q^{\text{Access}}(\pi)$ — the ex ante probability that $\theta = 0$ is sufficiently low — there is an access equilibrium.

These two sets of conditions on q — to support the separating reform and the pooling access equilibria — are not distinct. In fact for any $\pi \in (0,1)$ there exists a region of the parameter space in which both reform and access equilibria are possible: $q \in \left[q^{\text{Reform}}(\pi), q^{\text{Access}}(\pi)\right]$. The following result captures all of these equilibrium conditions.

Proposition 2. *Define $q^{Reform}(\pi) \coloneqq \frac{2}{3}$ and $q^{Access}(\pi) \coloneqq \frac{2}{3-\pi}$. Then for all $\pi \in (0,1)$ we have the following equilibria conditional on the magnitude of q.*

- *If $q^{Reform}(\pi) \leq q^{Access}(\pi) < q$ then the separating reform equilibrium is unique.*
- *If $q < q^{Reform}(\pi) \leq q^{Access}(\pi)$ then the pooling access equilibrium is unique.*
- *If $q^{Reform}(\pi) < q < q^{Access}(\pi)$ then both the separating reform and the pooling access equilibria can be supported.*

The range of q in which reform and access equilibria both exist also varies in the likelihood of corruption, π. Specifically, the upper bound of the region, $q^{\text{Access}}(\pi)$, is increasing in π. This implies that the range in which both equilibria exist is also increasing in π. As the threat of corruption in the political system decreases (high π) both equilibria exist for a wider range of q. Conversely, if the political system is replete with corruption (low π) then which type of equilibrium can be supported is based simply on the likelihood that $\theta = 0$, q. These comparative statics yield the following corollary.

Corollary 1. *As $\pi \to 0$ corruption is almost certain and we have either a reform equilibrium or an access equilibrium depending on whether $q \gtrless \frac{2}{3}$. As $\pi \to 1$ there is little chance of corruption and an access equilibrium always exists, whereas a reform equilibrium only exists if $q \geq \frac{2}{3}$.*

As corruption becomes increasingly likely there is little overlap in the regions that support both reform and access equilibria. That is, when it is almost certain that politicians are corrupt either there is a reform equilibrium, if q is sufficiently high, or an access equilibrium, if q is sufficiently

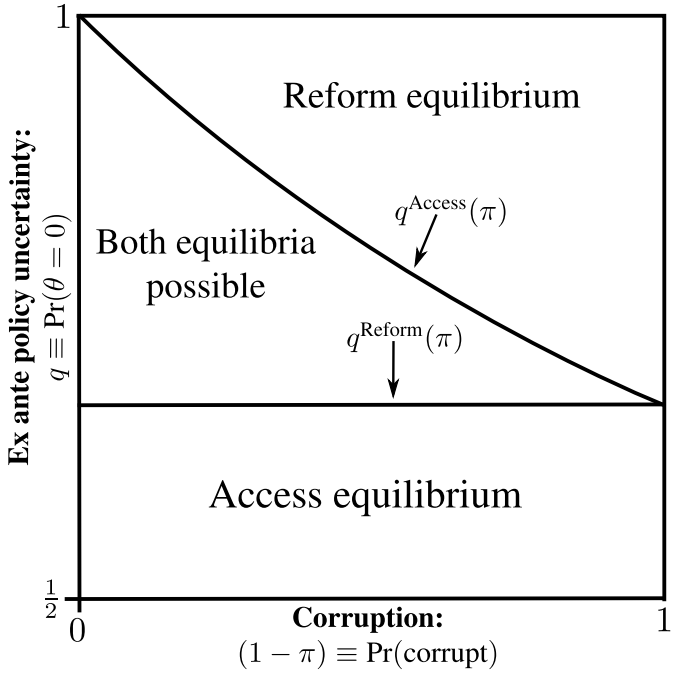


Figure 1: Equilibrium regions based on π and q.

Note: The y-axis denotes q, the ex ante probability that $\theta = 0$. From the politicians' ex ante perspective, as q decreases there is more policy uncertainty and as q increases there is less policy uncertainty. The x-axis denotes the probability a given politician is corrupt, $(1-\pi)$. When π is high there is a low likelihood of corruption and when π is low there is a high likelihood of corruption. The likelihood of corruption is *increasing* left-to-right. Additionally, $q^{\text{Access}}(\pi) := \frac{2}{3-\pi}$ and $q^{\text{Reform}}(\pi) := \frac{2}{3}$.

low. Substantively, this implies that when information is highly valuable all politicians prefer to run on access to preserve the possibility of learning about θ from the interest group while when information is not particularly valuable, sincere politicians prefer to identify themselves by running on reform and banning group access. Conversely, as corruption becomes highly unlikely there is almost always an access equilibrium while the conditions to support a reform equilibrium remain unchanged. As it becomes more likely that all politicians are sincere there are weaker incentives to signal sincerity through reform. The politicians and the voter prefer access to be granted for informational purposes conditional on there being no corruption in the political system. Figure 1 displays the results from proposition 2 and corollary 1 graphically.

2.3 Voter welfare: when is reform better than access?

Our analysis so far suggests that, for many situations, there are two plausible equilibria with very different political behavior. In one equilibrium, all politicians run on access, so sincere politicians will have good information if they are elected but voters cannot distinguish sincere from corrupt politicians. In another equilibrium, sincere politicians signal their types to voters by running on reform, so voters know whether or not politicians are sincere but sincere politicians lack valuable information that they could have obtained from interest groups. Multiple equilibria are often seen as a disadvantage from a positive perspective since they do not allow point predictions. However, from a normative perspective multiple equilibria can be seen as an opportunity since the model may be used to think about how to select among multiple plausible outcomes in order to maximize voter welfare. Thus, we turn our attention to a key normative question: under what circumstances will one type of equilibrium improve voter welfare relative to the other?

The welfare implications of the equilibria are not immediately obvious because both types of equilibria provide different advantages to voters. In the case of banking regulation for instance, the voter has two interests. First, the voter may want help in distinguishing between politicians who are truly interested in which regulations most benefit consumers from those seeking private rents from office. In this way, the reform equilibrium is good for the voter because it perfectly sorts these types of politicians. Second, the voter is interested in sincere politicians' ability to make good policy once in office. For this purpose, the voter would benefit from having sincere politicians and banking industry representatives in the same room to discuss market conditions and match the right regulations to the current economic climate. In this way, the access equilibrium is good for the voter because it allows sincere politicians to take full advantage of industry expertise when making decisions. The welfare implications of a reform versus an access equilibrium depend on the relative weight placed on these two forces, as we further explain below.

To begin the analysis, consider the voter's ex ante welfare from the reform equilibrium:

$$W_V^{\text{Reform}}(p,x) = -(\pi^2 + 2(1-\pi)\pi)(1-q) - (1-\pi)^2 q.$$

Since the reform equilibrium is a separating equilibrium in which the voter can perfectly infer sincerity the voter's ex ante welfare simply depends on whether a sincere politician is running for office. This occurs with probability $\pi^2 + 2(1-\pi)\pi$. In this case the voter elects a sincere politician, but still expects policy to mismatch the state with probability $1-q$, since access was denied and the interest group cannot lobby and reveal θ. With probability $(1-\pi)^2$ both politicians are corrupt, in which case the winner will receive a bribe and implement $x = 1$ for sure. When this happens policy does not match the state with probability q.

In comparison, the voter's ex ante welfare in an access equilibrium is given by,

$$W_V^{\text{Access}}(p,x) = -(1-\pi)q.$$

Since the voter cannot differentiate between sincere and corrupt politicians in this environment she elects either politician with equal probability. Any given politician is sincere with probability π, which leads to zero policy loss since in this case a sincere politician that wins office learns θ from the interest group and sets policy accordingly. However, with probability $1-\pi$ the winning politician will be corrupt. In this case, the interest group bribes the corrupt politician to implement $x = 1$, which in expectation does not match the state with probability q. Thus, the voter can expect to lose utility equal to the product of the probability a given politician is corrupt and the probability that policy will not match the state.

Taken together, these two expressions imply that a reform equilibrium is preferred to an access equilbrium from the perspective of voter welfare if,

$$-(\pi^2 + 2\pi(1-\pi))(1-q) - (1-\pi)^2 q > -(1-\pi)q. \tag{1}$$

If inequality 1 is satisfied then the voter benefits from the reform equilibrium instead of the access equilibrium. If the inequality is reversed then the access equilibrium is preferred to the reform equilibrium. Which equilibrium is preferred depends on the relative importance of screening out corruption compared to the value of information in policymaking.

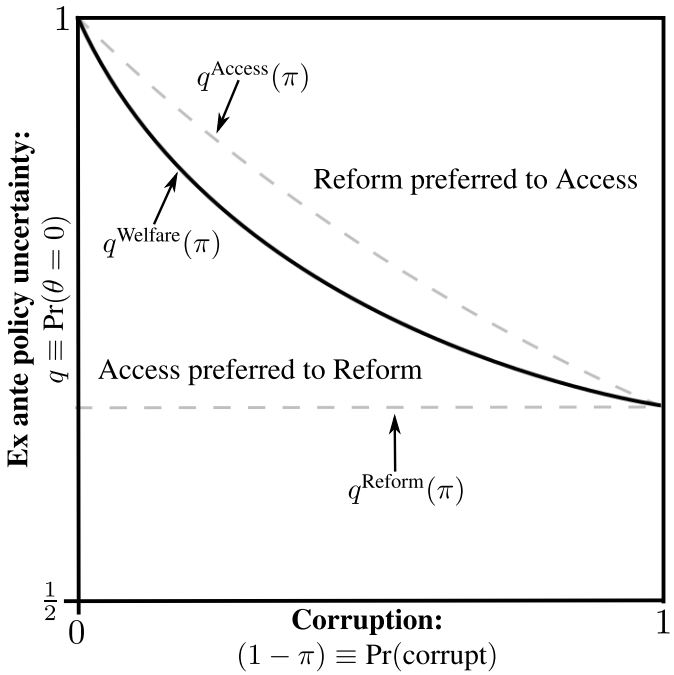


Figure 2: Voter welfare in reform versus access equilibria, conditional on q and π.

Note: The solid black line is $q^{\text{Welfare}}(\pi) := \frac{\pi-2}{2\pi-3}$. If q is above the line then the voter prefers the reform equilibrium and if q is below the line the voter prefers the access equilibrium. The gray dashed lines are $q^{\text{Reform}}(\pi)$ and $q^{\text{Access}}(\pi)$ as described in Figure 1.

Proposition 3. *Define* $q^{Welfare}(\pi) := \frac{\pi-2}{2\pi-3}$. *From the perspective of ex ante voter welfare, the reform equilibrium is preferred to the access equilibrium if* $q > q^{Welfare}(\pi)$*, otherwise the access equilibrium is welfare-preferred to the reform equilibrium. Moreover,* $\frac{d}{d\pi}\left(q^{Welfare}(\pi)\right) > 0$.

Figure 2 displays the result in Proposition 3 graphically. Which equilibrium benefits the voter depends on the relationship between q and π. To see the intuition behind the result consider what q and π jointly represent from the voter's perspective. When q is sufficiently high information about the state is relatively less valuable and therefore the voter benefits from improved ability to differentiate politician types in the election. Thus, the separating reform equilibrium is welfare-preferred. However, when q is relatively low information is more valuable and the voter benefits from risking election of corrupt politicians in exchange for improved policymaking when sincere politicians take office. Moreover, $q^{\text{Welfare}}(\pi)$ is increasing in π. This implies that the value of infor-

mation has to decrease as the threat of corruption increases for the benefits of improved screening to outweigh the benefits from better informed policymaking.

2.4 Interest group self-regulation

Is there a scenario in which interest groups may benefit from self-regulating by becoming accountable to *not* bribing corrupt politicians? The American League of Lobbyists (ALL) was a trade association for lobbyists.[16] In addition to other activities, it lobbied Congress on behalf of the lobbying industry. The ALL's advocacy largely focused on strengthening lobbying and campaign finance regulation, including closing loopholes to avoid registration and strengthening campaign finance policies. The basic goal was to strengthen the regulation of lobbying to help repair the image of lobbyists as negative participants in the American policymaking process (Leech, 2013, chapter 1). Our model provides an instrumental foundation for why interest groups may support legislation that beefs up enforcement and penalties for impropriety, as well as why it may be beneficial to join trade associations with more stringent internal enforcement. Since the possibility of bribery can lead sincere politicians to effectively ban special interest participation interest groups can benefit from supporting policies that effectively remove the possibility of bribery which may induce sincere politicians, whom the group wants to influence with information, to allow special interests a seat at the table.[17]

The interest group never benefits from self-regulating when politicians play access equilibrium strategies. In this case the only thing that self-regulation does is preclude the ability to induce corrupt politicians to implement $x = 1$, with no effect on sincere politicians that win office. Thus, the group only loses utility from self-regulation in an access equilibrium.

However, when politicians play reform equilibrium strategies the interest group can benefit

[16]The ALL later changed its name to the Association of Government Relations Professionals in 2013, which closed its doors in 2016. There is now a similar association, National Institute for Lobbying and Ethics, that does many of the same things the ALL used to do.

[17]Obviously bribery is illegal. The broader question is whether existing penalties and inspection rates are sufficient to actually deter bribery. Even though we model this by analyzing when the interest group will commit to not bribing, this can be interpreted as a way to understand why an interest group would support legislation that moves from a regime that does not effectively prevent bribery to one that does. For instance, lobbying disclosure improves enforcement by making it easier to investigate suspicious activities and enhanced campaign finance regulations are designed to help prevent quid pro quo exchanges.

from policies that make bribery infeasible. This follows from the effects self-regulation has on sincere politician incentives. Corrupt politicians still have no strict incentive to run on reform. Sincere politicians benefit from abandoning reform and running on access when groups self-regulate. Sincere politician incentives change because the risk of $x = 1$ always being implemented due to bribery is removed when group's self-regulate. Thus, there is only upside to sincere politicians deviating to access platforms when groups self-regulate: they benefit by increasing the probability they are able to match policy to the state.

Sincere politician behavior when the interest group self-regulates implies that when politicians play reform equilibrium strategies the group's choice to self-regulate depends on whether it benefits from sincere politicians running on reform or access. Consider the interest group's ex ante welfare if they do not self-regulate and politicians play reform equilibrium strategies,

$$\begin{aligned} W_G(\text{Bribes}|\text{Reform}) &= \pi^2(0) + (2(1-\pi)\pi)(0) + (1-\pi)^2(1-\kappa), \\ &= (1-\pi)^2(1-\kappa). \end{aligned}$$

A sincere politician runs for, and wins, office with probability $(\pi^2 + 2(1-\pi)\pi)$, but since that politician won office by running on reform $x = 0$ always and the group receives zero. With probability $(1-\pi)^2$ both politicians are corrupt, ensuring a corrupt politician wins office. In this case the group induces the politician to implement $x = 1$ by bribing, leading to a payoff of $1-\kappa$.

In contrast, the group's welfare from self-regulating and inducing access equilibrium politician behavior is given by,

$$\begin{aligned} W_G(\text{No bribes}|\text{Access}) &= \pi(q(0) + (1-q)1) + (1-\pi)(0), \\ &= \pi(1-q). \end{aligned}$$

In this case, either politician wins with equal probability. The winning politician is sincere with probability π and, because the group has access, the politician implements $x(\theta) = \theta$ which benefits the group when $\theta = 1$ yielding a payoff of $(1-q)$. If a corrupt politician wins office then the group

receives zero since it cannot bribe. Combining these expressions yields the condition for the group to benefit from self-regulation,

$$\pi(1-q) > (1-\pi)^2(1-\kappa),$$

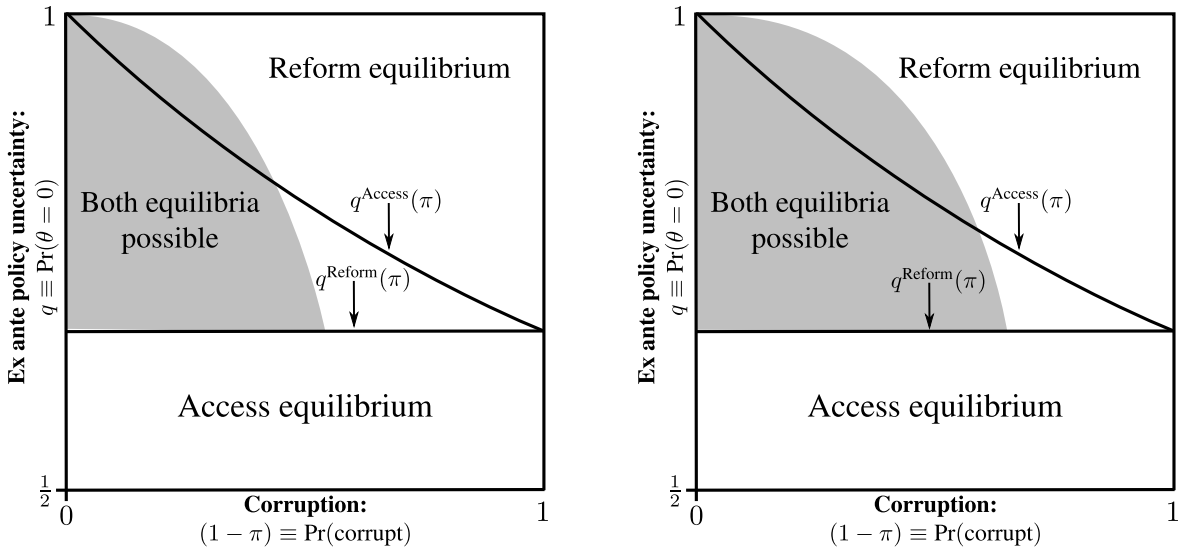
which is satisfied when $\frac{1}{2}\left(\frac{2\kappa+q-3}{\kappa-1} - \sqrt{\frac{(q-1)(4\kappa+q-5)}{(\kappa-1)^2}}\right) := \pi_G^{\text{Regulate}}(q,\kappa) < \pi < 1$.

Proposition 4. *Suppose politicians play reform equilibrium strategies when the interest group can bribe. The interest group benefits from self-regulation if* $\pi > \pi_G^{Regulate}(q,\kappa)$. *Moreover,* $\pi_G^{Regulate}(q,\kappa)$ *is increasing in* q *and decreasing in* κ.

Proposition 4 shows the interest group benefits from self-regulation when the probability of sincere politicians, π, is sufficiently high. The key trade-off for the group is having access to sincere politicians, which allows them to provide information and induce implementation of their preferred policy when $\theta = 1$, versus precluding their ability to bribe corrupt politicians. The less likely it is that a given politician is corrupt, the more the group benefits from self-regulation because it induces sincere politicians to grant access. Thus, so long as the probability of a politician being corrupt is sufficiently low the group prefers tying its own hands so that sincere politicians will grant access.[18] Additionally, as q increases the condition is less likely to be satisfied, implying that the more likely it is that the true state cuts against group interests the less likely the group is to forego bribing corrupt politicians to induce access from sincere politicians. Intuitively, the more costly bribery becomes the more likely it is that the group benefits from self-regulation.

Figure 3 displays these intuitions graphically. The gray regions denote the range of the parameter space in which the interest group benefits from self-regulation, which induces sincere politicians to run on access platforms rather than reform platforms. Figure 3a is an example with relatively low bribery costs and figure 3b is an example with relatively high bribery costs.

[18] Corollary A.1 in the online appendix also provides conditions for when the interest group will self-regulate when politicians play either equilibrium with positive, complementary probability.



(a) Low cost of bribery: $\kappa = \frac{1}{4}$

(b) High cost of bribery: $\kappa = \frac{3}{4}$

Figure 3: Examples of when the interest group prefers self-regulation, conditional on κ.

Note: The gray shaded area represents the region in which the interest group benefits from bribes being banned given a separating reform equilibrium, which induces a pooling access equilibrium.

3 Relaxing platform commitment

In the baseline model we assumed that politicians could commit to platforms that effectively ban (or allow) interest group access following the election. While that facilitates concise communication of our main insights, full commitment is a stringent assumption. In this section we relax this assumption and show that our main insights continue to hold. First, we analyze a model similar to the baseline model replacing platform commitment with costly campaign announcements. Second, we analyze a dynamic model in which we eliminate campaign announcements entirely and instead analyze incumbent choices regarding interest group access.[19] In both cases our main results are qualitatively similar to the baseline model.

[19]Essentially, the first alternative model retains the campaign stage by conceptualizing campaign announcements as costly signals while the second alternative model conceptualizes campaign announcements as cheap talk, which renders any campaign stage meaningless.

3.1 Costly campaign announcements

In this section we analyze an alternative model that does not assume platform commitment. Instead, we model platforms as *costly campaign announcements*. Politician platform choice affects the cost of access that interest groups must pay to interact with incumbents. Access costs are higher when the politician in office ran on a reform platform.[20] This makes platform choices costly to politicians by lowering the probability they will interact with the interest group if they take office after running on reform, which harms sincere politicians' ability to learn policy-relevant information and corrupt politicians' ability to solicit exchanges. The group's access costs can be understood as absorbing the reputational costs that politicians must bear if they meet with special interests after running on a reform platform. This understanding is consistent with a competitive lobbying market in which interest groups subsidize any costs politicians must bear to meet with them in exchange for access.

As in the baseline model, the game begins with Nature drawing politician types and the state of the world with the same prior probabilities, $\pi = Pr(\tau_i = S)$ and $q = Pr(\theta = 0) > 1/2$. Then politicians announce reform or access platforms, $p_i \in \{0,1\}$, followed by the voter electing one of the politicians. In contrast to the baseline model, once a politician takes office Nature draws a cost of access, $\alpha_G \sim U[0,\overline{\alpha}]$ with $\overline{\alpha} > 1$. This stochastic cost allows the interest group to buy access even if the winning politician ran on reform. Formally, the interest group chooses whether to access the politician ($p_G = 1$) or not ($p_G = 0$). If the group chooses $p_G = 1$ then it pays $(1 - p_i)\alpha_G$. If the politician ran on an access platform, $p_i = 1$, then the group can access the politician without paying α_G and if the politician ran on a reform platform then the group must pay α_G for access. The likelihood that access costs will be realized low enough that the group will pay to access a politician that ran on a reform platform depends on the magnitude of the upper bound of the α_G distribution, $\overline{\alpha}$. The probability that α_G is realized low enough that, in equilbrium, the group pays

[20] As will be seen below, we normalize access costs to zero when the politician in office ran on an access platform. The important point is that it is more costly for interest groups to access politicians that ran on reform platforms than those that did not.

to access politicians that ran on reform is decreasing as $\overline{\alpha}$ increases.[21] Once a politician takes office the interest group observes his type and chooses whether to pay for access. If it does then θ is revealed and the group can choose to offer a bribe, as before. Following this interaction (or lack thereof) the politician sets policy, $x \in \{0,1\}$, as in the baseline.

All players utility functions are the same as in the baseline model, except the interest group. Incorporating the group's access choice and platform-conditional access cost its utility function is,

$$u_G(x,\theta,b,\alpha_G) = x - p_i(1-p_i)\alpha_G - \kappa b.$$

We again analyze symmetric pure strategy perfect Bayesian equilibrium.

3.1.1 Interest group access and informed policymaking

Politician policymaking behavior is equivalent to the baseline model. Sincere politicians match policy to the state when they learn θ and implement $x = 0$ otherwise. Corrupt politicians implement $x = 1$ if bribed and $x = 0$ otherwise. In contrast to the baseline model, the interest group can now pay to access politicians following the election even if they ran on reform platforms.

When the winning politician ran on an access platform, access is costless and the interest group has an incentive to gain access and lobby. If the winner is a corrupt type, the interest group is strictly better off paying a bribe and getting $x = 1$. If the winner is a sincere type then the interest group is strictly better off providing information when $\theta = 1$. When $\theta = 0$ the outcome does not depend on whether or not the interest group provides information since an uninformed sincere politician would set $x = 0$ anyway.

Access dynamics change when the politician in office ran on a reform platform since now the group must pay α_G for access. If a sincere politician wins office when $\theta = 1$ the group will pay for access provided the cost of doing so does not exceed the benefit of revealing θ to induce $x = 1$, which requires that $1 > \alpha_G$. If $\theta = 0$ the group strictly prefers to eschew access but if $1 > \alpha_G$ then

[21] When $\overline{\alpha} \to \infty$ the model approaches the baseline model with full platform commitment and when $\overline{\alpha}$ is sufficiently low the group can always access politicians that run on reform platforms. In this sense, costly campaign announcements can also be thought of as qualitatively similar to something like partial platform commitment.

the politician infers θ from the group's decision not to pursue access. Thus, the sincere politician learns θ when α_G is less than 1. Now suppose a corrupt politician wins office. The interest group will pay for access only if after paying α_G it can still afford to pay κ and bribe the corrupt politician to implement $x = 1$. Access is useless for the group unless it can also bribe the corrupt politician and have their preferred policy implemented. This implies that the group pays for access to corrupt politicians only if $1 > \alpha_G + \kappa$, which is a more demanding condition due to κ, than when a sincere politician is in office.

The conditions for the group to buy access also yield the ex ante probabilities of sincere politicians learning θ and corrupt politicians being bribed after running on reform platforms. Since α_G is distributed uniform over $[0, \overline{\alpha}]$, the ex ante probability sincere politicians learn θ after running on reform is $Pr(\alpha_G \leq 1|\overline{\alpha}) = 1/\overline{\alpha}$ and the ex ante probability corrupt politicians are bribed after running on reform is $Pr(\alpha_G \leq 1 - \kappa|\overline{\alpha}, \kappa) = (1-\kappa)/\overline{\alpha}$. Sincere politicians have a higher probability of learning θ even after running on reform than corrupt politicians have of being bribed, which is due to the group's additional cost of bribery.

3.1.2 Signaling with reform

The two pure strategy equilibria in the baseline model also exist in this model – *reform equilibrium* and *access equilibrium*, but we can now support a third equilibrium that we refer to as an *anti-interest group equilibrium*. The anti-interest group equilibrium is a pooling equilibrium in which both types of politicians run on reform platforms. As before, in the reform equilibrium the voter can perfectly infer politician types and in either pooling equilibrium the voter learns nothing about politician types. Thus, equilibrium voting behavior is equivalent to the baseline model.

Reform and access equilibria. Assuming corrupt politicians run on access platforms, the incentives for sincere politicians are similar to the baseline model. When information is relatively less valuable (i.e., when q is sufficiently high) sincere politicians are willing to trade off the likelihood of acquiring information about θ to credibly signal their sincerity and improve their electoral prospects by running on reform platforms. Similarly, when information is relatively more valuable

(i.e., when q is sufficiently low) sincere politicians are willing to run on access platforms and trade off their electoral prospects for learning θ when they win office. Additionally, and analogous to the baseline, the incentives to stick with an access platform are stronger as π decreases, preserving the insight that as the probability of corruption decreases sincere politicians are more likely to value running on access platforms to increase the probability they learn θ when they win office. The impact of the parameter $\overline{\alpha}$ is to strengthen the commitment-like properties of campaign announcements. Thus, as $\overline{\alpha}$ gets larger it becomes harder to induce the sincere types to run on reform but easier to prevent corrupt types from mimicking sincere types.

In contrast to the baseline model, it is not always optimal for corrupt politicians to run on access platforms since there is now a positive probability they will be bribed after running on reform. Assuming sincere politicians run on reform platforms, corrupt types would deviate and mimic sincere types by choosing reform if π is too high relative to the likelihood of gaining access anyway after choosing reform. If π is large then it is very likely a corrupt politician will run against a sincere politician, which leads to an electoral loss. In this case corrupt politicians prefer to mimic sincere politicians to improve their probability of taking office even though it reduces the probability they will be bribed should they win. As the probability that corrupt politicians will be bribed after running on reform decreases, which occurs when $\overline{\alpha}$ and/or κ increases, this condition is easier to satisfy.

Anti-interest group equilibrium. Finally, consider the anti-interest group equilibrium in which all politicians run on reform platforms. In this case the voter places full mass on a politician that deviates to an access platform being corrupt, which implies that a politician that deviates to access loses the election with certainty. For sincere politicians, then, there is no incentive to deviate to an access platform as sticking with reform preserves a positive probability of winning the election and learning θ. Corrupt politicians also have no incentive to deviate since in that case they lose with certainty, cannot be bribed, and receive nothing whereas if they stick with reform then there is a positive probability of winning the election and being bribed. Thus, no politicians have an incentive to deviate from running on a reform platform.

In the baseline model this equilibrium was ruled out by the requirement that in equilibrium players only play weakly undominated strategies. In an environment in which sincere politicians ran on reform corrupt politicians were indifferent between running on a reform platform and an access platform. If they were to run on an access platform then they would lose with certainty to a sincere politician and therefore could not be bribed. If they instead ran on reform then they might win, but since running on reform is a commitment to not interact with the group they still could not be bribed, which rendered them indifferent. By replacing platform commitments with costly campaign announcements this model opens the door for the anti-interest group equilibrium.[22]

Proposition 5 formalizes the preceding arguments. Figure 4 illustrates equilibrium existence when $\overline{\alpha} = 5$ and $\kappa = 1/4$. Derivation and comprehensive discussion of all parameter thresholds for existence can be found in online appendix B.

Proposition 5. *Define* $q_{CC}^{Reform}(\overline{\alpha}) := \frac{2\overline{\alpha}-2}{3\overline{\alpha}-2}$, $\pi_{CC}^{Reform}(\overline{\alpha},\kappa) := \frac{\overline{\alpha}+2\kappa-2}{\overline{\alpha}+\kappa-1}$, $\kappa_{CC}^{Reform}(\overline{\alpha}) := \frac{2-\overline{\alpha}}{\overline{\alpha}}$, $\overline{\alpha}_{CC}^{Access}(\pi) := \frac{2}{1+\pi}$, $q_{CC}^{Access}(\overline{\alpha},\pi) := \frac{2\overline{\alpha}-2}{3\overline{\alpha}-2-\overline{\alpha}\pi}$, *and* $\kappa_{CC}^{Access}(\overline{\alpha}) := \frac{2-\overline{\alpha}}{2}$.

- *A separating reform equilibrium to the costly campaign announcements game exists if* $q \geq q^{Reform}(\overline{\alpha})$, $\pi \leq \pi^{Reform}(\overline{\alpha},\kappa)$, *and* $\kappa > \kappa^{Reform}(\overline{\alpha})$.
- *A pooling access equilibrium to the costly campaign announcements game exists if* $\overline{\alpha} \geq \overline{\alpha}^{Access}(\pi)$, $q < q_{CC}^{Access}(\overline{\alpha},\pi)$, *and* $\kappa \geq \kappa^{Access}(\overline{\alpha})$.

Additionally, a pooling anti-interest group equilibrium in which both sincere and corrupt politicians run on reform platforms always exists in the costly campaign announcements game.

3.1.3 Voter welfare

In this section we show that, similar to the baseline model, sometimes the voter benefits from the reform equilibrium and other times benefits from politicians pooling on campaign platforms. Proposition 6 states the main welfare result and figure 5 provides graphical illustration.

[22] It is worth pointing out that this equilibrium would not exist in a world with no political selection problems. Any institution that eliminates the incentive for sincere politicians to credibly signal sincerity by harming their ability to procure policy-relevant information also eliminates voter incentives to use elections as a screening device. Without those voter incentives sincere politicians would always choose to run on access platforms in order to preserve their ability to acquire information and govern more effectively.

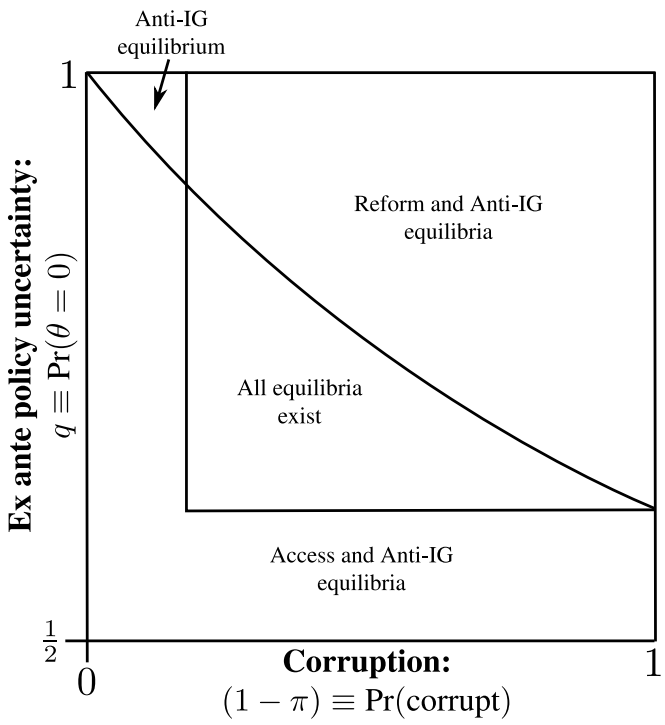
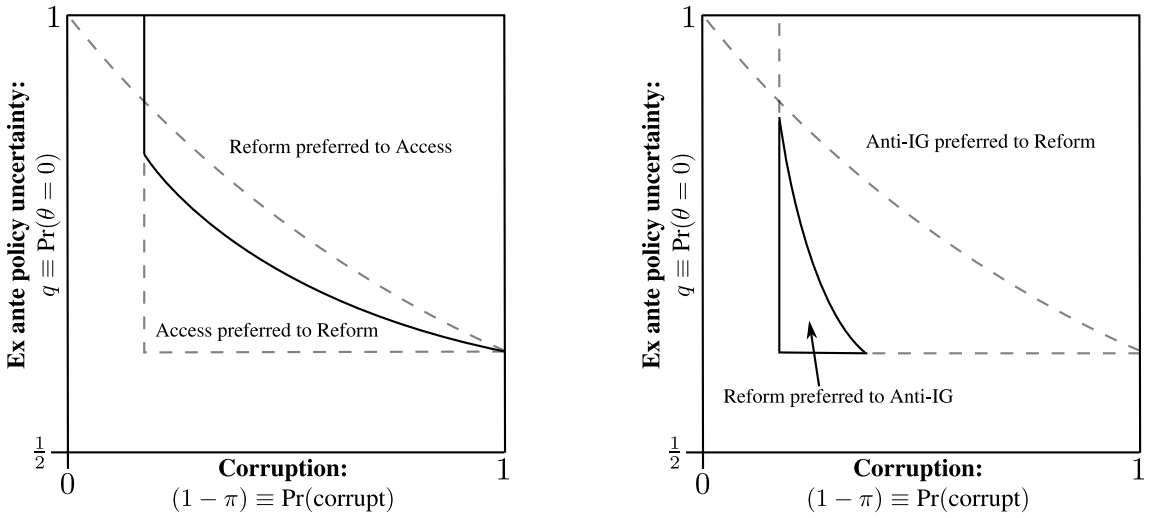


Figure 4: Equilibrium regions when $\overline{\alpha} = 5$ and $\kappa = 1/4$, conditional on π and q.

Proposition 6. *Define* $q^{Welfare}_{Access}(\overline{\alpha}) := \frac{2\overline{\alpha}-2}{3\overline{\alpha}-2}$, $\pi^{Welfare}_{Access}(\overline{\alpha},q) := \frac{2(1-\overline{\alpha})+q(3\overline{\alpha}-2)}{1-\overline{\alpha}+q(2\overline{\alpha}-1)}$, *and* $\pi^{Welfare}_{Anti\text{-}IG}(\overline{\alpha},q,\kappa) := \frac{1+2q(\overline{\alpha}+\kappa-1)-\overline{\alpha}-\kappa}{1+q(2\overline{\alpha}-1)-\overline{\alpha}}$. *In terms of ex ante voter welfare, reform equilibrium is preferred to access equilibrium if* $q > q^{Welfare}_{Access}(\overline{\alpha})$ *and* $\pi < \pi^{Welfare}_{Access}(\overline{\alpha},q)$ *when both exist and reform equilibrium is preferred to anti-interest group equilibrium if* $\pi > \pi^{Welfare}_{Anti\text{-}IG}(\overline{\alpha},q,\kappa)$ *when both exist.*

As in the baseline model, whether the voter prefers a reform or access equilibrium depends on the value of information relative to improved screening. As q increases the relative value of information decreases and the voter is more likely to benefit from the improved screening facilitated by the reform equilibrium. As q decreases information becomes more valuable and the voter is more likely to benefit from the access equilibrium, even though she sacrifices the ability to discern politician types. Similarly, as π decreases it is more likely that a given politician is corrupt, which increases the likelihood the voter prefers the reform equilibrium and the improved screening it provides. In addition, these dynamics are amplified by the fact that sincere politicians may learn θ even after running on reform. As $\overline{\alpha}$ decreases the probability sincere politicians learn θ after



(a) Voter welfare in reform versus access equilibria (b) Voter welfare in reform versus anti-IG equilibria

Figure 5: Voter welfare in separating equilibrium versus both pooling equilibria, conditional on q and π when $\overline{\alpha} = 5$ and $\kappa = \frac{1}{4}$

running on reform increases, which improves the likelihood the voter benefits from the reform equilibrium since she is better able to screen out corruption without sacrificing as much in terms of information. Figure 5a presents these intuitions graphically when $\overline{\alpha} =$ and $\kappa = 1/4$.

The voter faces a different trade-off when comparing the reform and anti-interest group equilibria. The reform equilibrium still yields improved screening but rather than a focus on the value of information as in the access equilibrium, the anti-interest group equilibrium benefits the voter by reducing the likelihood of corruption since running on reform harms the probability corrupt politicians will be bribed when they take office. In line with this trade-off, the voter is more likely to prefer the reform equilibrium when it is more likely she will be able to elect a sincere politician (i.e., as π increases). As π decreases, the likelihood of politicians are corrupt increases and the voter would prefer the anti-interest group equilibrium so that when a corrupt politician wins office the probability he is bribed is lowered. This dynamic is also amplified by $\overline{\alpha}$: the voter is more likely to prefer the anti-interest group equilibrium as $\overline{\alpha}$ increases because it reinforces the benefits of that equilibrium by lowering the probability corrupt politicians are bribed in office. Figure 5b provides an illustration of these dynamics assuming $\overline{\alpha} = 5$ and $\kappa = 1/4$.

Overall, welfare dynamics are very similar to the baseline model. Voter welfare compares the benefits derived from improved screening in the reform equilibrium for the benefits of improved information in the access equilibrium and the benefits of lower corruption in office from the anti-interest group equilibrium. The foregoing analysis illustrates that platform commitment is not necessary to produce the insights we describe in the baseline as we have provided qualitatively similar results in a model with costly campaign announcements.

3.2 Dynamic no-commitment game

In this section we analyze a model of repeated elections with lobbying. This version of the model falls into the category of political agency models with adverse selection and (potentially) moral hazard. [23] The players are the same as in the baseline model and elections occur over an infinite horizon, with time periods indexed by $t = 1, \ldots$. The first time period begins with a randomly selected incumbent. The sequence of play in each time periods is as follows:

1. Nature chooses the state of the world θ_t for period t, with $\Pr[\theta_t = 0] = q > \frac{1}{2}$. If the incumbent is sincere, Nature makes him corrupt with some probability $\varepsilon \in (0, \min\{\pi, 1-\pi\})$.[24]

2. The incumbent chooses whether to grant access ($p_t = 1$) or not ($p_t = 0$).

3. The state of the world θ_t as well as the incumbent's type are revealed to the interest group. If $p_t = 1$ then lobbying occurs. The lobbying strategies do not substantially change so we simply assume that if $p_t = 1$ and the incumbent is sincere then θ is revealed and if $p_t = 1$ and the incumbent is corrupt then a bribe is paid. We set $b_t = 1$ if a bribe is offered. If $p_t = 0$ then the game simply moves to the next step with no lobbying.

4. The incumbent chooses a policy $x_t \in \{0, 1\}$. An outcome (i.e., the voter's utility) is realized

[23] Besley (2006) provides a useful survey of political agency models.

[24] The probability that sincere politicians become corrupt is consistent with the idea that some politicians may become more corrupt once they are entrenched in office. However, it is also included for technical reasons: if all types persist across periods with probability one then there is no need to continue signaling once one's type is revealed. Any $\varepsilon > 0$ guarantees that beliefs are not degenerate so to make the model more comparable to the baseline model we will consider the limit of equilibria as $\varepsilon \to 0$ in examples. We always assume $\varepsilon < \min\{\pi, 1-\pi\}$ so that a current sincere type is always more likely to be sincere in the next period than a random challenger.

to be $u_V(x_t, \theta_t) = -|x_t - \theta_t|$.

5. With probability r, the voter learns the policy choice as well as her utility. With probability $1-r$ the voter learns neither piece of information. The voter always learns the incumbent's access choice.[25]

6. Nature chooses the type of the challenger to be sincere with probability π and corrupt with probability $1-\pi$. The voter (without observing the challenger's type) decides whether to retain the incumbent or replace her with the challenger.

Stage-game preferences are similar to the baseline model. The voter and sincere politicians receive a payoff of 1 if $\theta_t = x_t$ and 0 otherwise.[26] Corrupt politicians receive a payoff of 1 if they are offered a bribe and choose the IG's preferred policy $x = 1$, and zero otherwise when they are in office. An issue that did not arise in the one-shot game but is relevant to the dynamic model is what payoff the politicians get when they are not in office. We assume that, regardless of type, politicians simply become identical to the voter once they are not in office, receiving a payoff of 1 if the policy matches the state and 0 otherwise. This is natural for the sincere types who already had utility functions identical to the voter. For corrupt types, this is consistent with the idea that corruption is brought out by being in power: Corrupt types may care about policy but are overwhelmed with reciprocity concerns once they hold office.[27] The utility of the voter and of politician i in time t are denoted $u_V(x_t, \theta_t)$ and $u_i(x_t, \theta_t, b_t)$ respectively. At any time period the players maximize the discounted present value of their utilities $\sum_{t=1}^{\infty} \delta^{t-1} u_V(x_t, \theta_t)$ for voters and

[25] We are interested in the signaling value of access choices so focus on the case in which the voter always sees these choices. Revealing this choice only with some probability dilutes the value of the signal to the politician but does not produce substantive differences if the probability of revealing access choices is sufficiently high. We reveal the voter's utility every time we reveal policy choices in order to eliminate the possibility of pandering when the sincere type learns the state of the world.

[26] Since politicians may sometimes change types we added a constant equal to one to the voter and sincere type's payoff, giving them a maximum of 1 rather than 0 and a minimum of 0 rather than -1, to place the payoffs for the different types on the same scale. This makes no difference to voter decisions and makes no difference to the politicians as $\varepsilon \to 0$.

[27] We have evaluated the model using several different assumptions for the corrupt type's payoff out of office, including fixing the utility at zero and fixing it at an exogenous parameter with values between zero and one. These produce different calculations for positive values of ε but, since the relevant incentive compatibility condition for existence of reform equilibria is for the sincere type, the solutions are all identical in the limit as $\varepsilon \to 0$, which is our case of interest.

$\sum_{t=1}^{\infty} \delta^{t-1} u_i(x_t, \theta_t, b_t)$ for politicians, where $\delta \in (0,1)$ is a discount factor. We characterize perfect Bayesian equilibria of the game in which players do not choose weakly dominated strategies.

Reform and access equilibria. In a reform equilibrium, sincere politicians choose $p_t = 0$ at all t and corrupt politicians choose $p_t = 1$. This implies that the voter always learns the incumbent's type on the path of play. Therefore, the voter always retains the incumbent when $p_t = 0$ and never retains the incumbent when $p_t = 1$. Existence of a reform equilibrium is driven by essentially the same factors as in the previous model: when q is sufficiently high and π sufficiently low, sincere politicians consider the risk of being replaced by a corrupt politician high enough and the returns to policy information low enough to deny access in exchange for reelection. Since there is no commitment in this game, signaling is driven by the expectation of staying in office in the future, so existence of reform equilibrium also depends on agents being sufficiently patient and on the probability that the sincere politician is corrupted while serving in office. The result is stated in Proposition 7.

One key difference between the dynamic model and the baseline model, as noted in proposition 7 is that the access equilibrium always exists. In this equilibrium profile, both politician types grant access. Furthermore, the voter makes retention decisions solely on the basis of observed outcomes: as long as access is granted she retains the incumbent when she learns her utility in that period is 1 and replaces the incumbent when she learns her utility in that period is 0. If access is granted and she does not learn the policy choice or outcome from that period (which occurs with probability $1 - r$), she is indifferent between replacing and retaining the incumbent, so will retain the incumbent in this situation. Finally, if the voter observed an incumbent who denied access off the path of play, she would believe that incumbent to be sincere and would retain the incumbent: this is demanded by the Intuitive Criterion since denying access is equilibrium-dominated for corrupt types.

Proposition 7. *Define* $q_D^{Reform}(\pi, \delta, \varepsilon) := \frac{\delta(\varepsilon-1)+1}{(\delta+1)(\delta(\varepsilon-1)+1)+(\delta-1)\delta\pi}$. *A separating reform equilibrium to the dynamic no-commitment game exists if* $q \geq q_D^{Reform}(\pi, \delta, \varepsilon)$. *Additionally, an access equilibrium always exists.*

The reasoning for the existence of the access equilibrium is as follows. First, the argument for corrupt politicians in the separating equilibrium implies that they would not deviate to denying access even if it guaranteed them reelection. For sincere politicians, granting access guarantees the best policy outcome in the current period. Furthermore, since the voter updates solely on policy outcomes (and retains when she learns nothing), this guarantees reelection for sincere politicians. Thus, regardless of type, no politician has an incentive to deviate to denying access.

Voter welfare. In this section we compare voter welfare in the reform and access equilibria when both exist in the dynamic no-commitment game. As in the baseline model and in the other extensions, we show that when the reform equilibrium exists it is sometimes dominated by the access equilibrium and other times it is preferred. Proposition 8 states the main welfare result. First, proposition 8 shows that the reform equilibrium is only preferred to the access equilibrium for sufficiently high values of q holding the other parameters constant. The intuition for this is similar to the intuition for the baseline model. As q gets close to the lower bound of $1/2$ two things happen. First, a sincere politician who denies access is not much better than a corrupt politician who grants access. Second, information about θ_t becomes increasingly valuable. Both of these factors tend to favor the access equilibrium over the reform equilibrium because learning about θ_t becomes relatively more valuable than learning about the types of the politicians. Conversely, as q increases, learning the types of the politicians becomes very important and information about θ_t becomes less valuable, which tends to favor the reform equilibrium. This logic leads to a cutoff for q (conditional on the remaining parameters) such that the reform equilibrium is preferred by the voter if q is above the cutoff and the access equilibrium is preferred if q is below the cutoff.

Additionally, proposition 8 clarifies the impact of r, the probability that the voter learns the policy choice and outcome prior to the next election, on the comparison of the reform and access equilibrium. The parameter r tells us how much moral hazard exists with respect to policy. If r is close to zero the voter faces a severe moral hazard problem and can never update on the incumbent's type in the access equilibrium. If r is close to one there is very little moral hazard and the voter can very effectively remove corrupt types from office even in the access equilibrium when

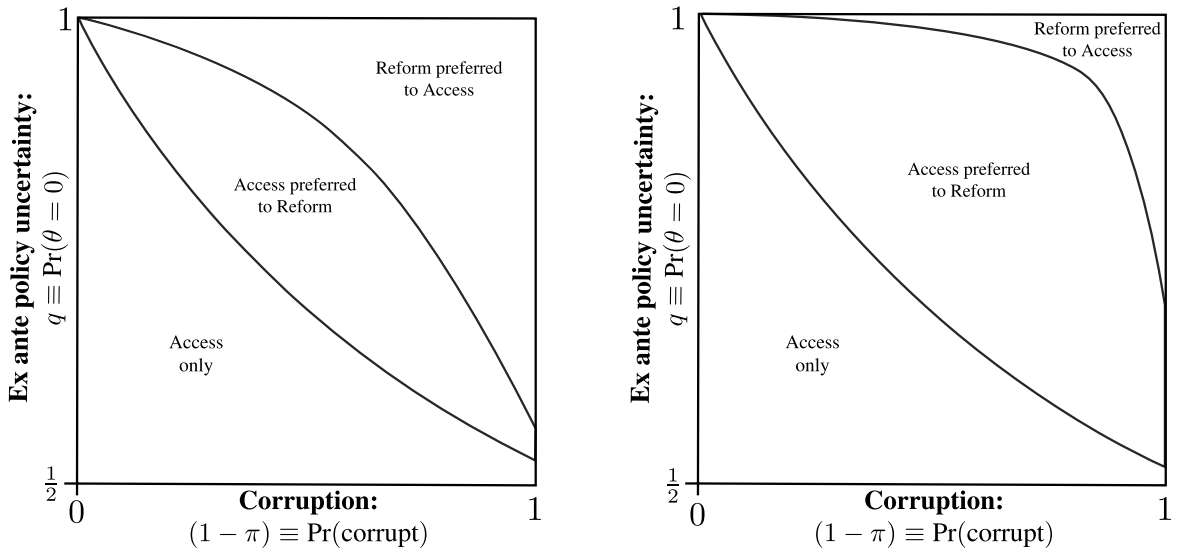
there is no signaling. The welfare comparison of the reform and access equilibria at extreme values of r follow closely from this logic. If $r = 0$ the voter has no ability to detect corrupt politicians and remove them from office except through signaling, so the reform equilibrium is always preferred. If $r = 1$ the voter is very effective at throwing corrupt types out of office without the signal so the access equilibrium is always preferred.

Proposition 8. *There exists a cutoff $q_D^W(\pi, \delta, \varepsilon, r)$ such that the reform equilibrium produces a higher ex ante expected utility to the voter than the access equilibrium if and only if $q \geq q_D^W(\pi, \delta, \varepsilon, r)$. Furthermore, when the reform equilibrium exists, this condition always holds as $r \to 0$ and never holds as $r \to 1$.*

The large number of parameters in the model complicates interpretation. To highlight how the dynamics of the expanded model relate to those of the baseline model, we illustrate the results by fixing parameters other than π and q and visualizing the regions under which reform equilibria exist and are preferred to the access equilibrium. Specifically, we fix δ at .95, set the value of r at two different intermediate values ($1/4$ and $3/4$), and visualize the limit of equilibria as $\varepsilon \to 0$.[28]

Figure 6 displays the results. The horizontal axis of each plot is the probability of a corrupt type $(1 - \pi)$ and the vertical axis is the probability q that $\theta_t = 0$. The lower left region in each plot represents the lowest levels of corruption (high levels of π) and of policy certainty. In this region, the reform equilibrium does not exist. The upper-right regions represent the highest levels of corruption and the highest levels of certainty that $\theta_t = 0$. In this region both equilibria exist and the reform equilibrium is preferred by the voter. The middle region represents the region for which both equilibria exist and the reform equilibrium is dominated by the access equilibrium. Consistent with our intuition from proposition 8 about moral hazard in the access equilibrium, increasing r also increases the size of the region in which the access equilibrium dominates. In the region where the access equilibrium dominates reform we can think of signaling with reform as an accountability trap. This is true despite the fact that corrupt politicians may stay in office for multiple periods in

[28]The equilibria are not valid if $\varepsilon = 0$ since the voter's beliefs would be degenerate in the reform equilibrium after the incumbent has served one term. However, the equilibria are valid for any strictly positive ε so the limit as $\varepsilon \to 0$ is well-defined.



(a) Low probability of revelation: $r = \frac{1}{4}$ (b) High probability of revelation: $r = \frac{3}{4}$

Figure 6: Examples of voter welfare, conditional on q and π.

Note: Figures display voter welfare for different levels of policy/outcome revelation r when $\delta = .95$ and taking the limit of equilibria as $\varepsilon \to 0$

the access equilibrium and never in the reform equilibrium. The policy cost incurred in order to separate sincere from corrupt types is simply not worth the benefits to the voter.

4 Discussion and conclusions

We have analyzed a series of models in which interest group influence may take two forms. If lobbying is directed toward sincere politicians then it may provide valuable policy information that benefits the voter. If lobbying is directed toward corrupt politicians then it may take the form of an economic exchange that tempts the politician away from the policy most likely to benefit the voter. The voter's problem is that she does not know whether a given politician is sincere or corrupt and therefore cannot always predict whether lobbying will be beneficial or harmful. This informational problem gives sincere politicians an incentive to signal their type by running on campaign platforms advocating restrictions to special interests role in the policymaking process. Notably, equilibria of this sort may exist even when the probability of corruption is quite small.

Thus, our model describes one rationale for why politicians may run campaigns on their freedom from lobbyists' influence even in cases where lobbyists' influence is primarily positive. Put another way, the substantive insights we provide in this article suggest one explanation for why politicians seem to find it beneficial to run against special interests: they benefit from signaling they are not the sort of politicians who will be corrupted by those interests and that they share voters' concerns about the corrupting influence of those interests. Furthermore, the model shows why some reform-themed campaigns for getting money out of politics may work to the detriment of voters while others may improve their welfare by helping them select sincere politicians.

Our results highlight yet another social cost of corruption in democratic societies: the perception of corruption and the desire to signal to voters may eliminate avenues for socially productive relationships between interest groups and non-corrupt politicians. This may have particularly troubling normative consequences since institutional factors such as low legislative professionalism have been associated with higher corruption (Meier and Holbrook, 1992) as well as increased demand for information provision by interest groups (Berkman, 2001). The trade-off between preventing corruption and allowing socially productive lobbying should be an ongoing subject of theoretical and empirical research.

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