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. In contrast, most campaign discourse focuses entirely on the potential negative effects of lobbying: it is hard to imagine a campaign emphasizing how its candidate's cozy relationship with lobbyists will make her more effective in office. In this paper, we propose an explanation for this contrast: as long as the possibility for corruption exists, politicians may try to signal that they are non-corrupt, or 'sincere,' by taking a combative stance toward interest groups even when this stance adversely affects their ability to govern.

Specifically, we develop a game-theoretic model of electoral competition in which two candidates vie for office, committing themselves to either banning or granting interest group access should they win. Candidate choices over group access can provide valuable information to voters in terms of politician type – 'sincere' or 'corrupt.' Sincere politicians simply want to implement 'good' policies that benefit the public. Corrupt politicians, in contrast, seek to extract benefits from interest groups and are therefore susceptible to bribery or capture. Once a politician wins office an interest group, if access was granted, interacts with the winning candidate. The group can engage in two types of lobbying by either providing policy-relevant information through signaling or engaging in vote-buying through direct transfers. 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 to allow for more informed policymaking. 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 candidates. This, unfortunately, comes at the cost of information as sincere politicians will often ban interest group access to attempt to communicate their sincerity to voters. Thus, ironically, sincere politicians will often maximize their chances of winning, which benefits voters, by precluding their ability to acquire policy-relevant information

from lobbyists once they take office, which harms voters through the sincere politician's decreased ability to govern effectively.

To illustrate our argument, consider a hypothetical election in which banking regulation is a central issue. During the campaign, the candidates can commit themselves to a policy which either allows or denies access to Wall Street interest groups. For instance, some candidates 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 candidates may even support similar regulations while maintaining different positions toward interest group participation. Now suppose that some proportion of politicians seek office as a means of securing lucrative revolving-door jobs on 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 in search of information that could help them act in the voters' best 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.

This paper contributes to the political economy literatures on special interest politics and on electoral accountability more generally. Theories of interest group influence can be categorized into contribution-based and information-based models. In contribution-based models, groups receive political favors in return for contributing resources to politicians. This may occur as a form of exchange between politicians and interest groups as in the money-for-favors models of Persson and Tabellini (2000) or Grossman and Helpman (2001).[1] In information-based models, interest groups are influential to the extent that they transmit policy-relevant information to policymakers (Austen-Smith, 1995; Cotton, 2012; Schnakenberg, 2016; Bennedsen and E. Feldmann, 2002; Wright, 1996; Austen-Smith and Wright, 1992, 1994; Potters and Van Winden, 1990, 1992).[2] This

[1]More optimistically, contributions may lead to influence because they serve as a legislative subsidy, relaxing the time constraints of like-minded politicians and allowing them to return their attention to policy (Hall and Deardorff, 2006). We do not directly address legislative subsidy here. However, the essential components of our model are simply that multiple lobbying tactics are available, some of which are good for voters and some of which are not. Thus, a version of legislative subsidy could be included in our theory without fundamentally altering our argument.

[2]Contributions-based and information-based models are not mutually exclusive. In Austen-Smith (1995) and Cot-

paper recognizes that both tactics are available to interest groups at any given time and analyzes how the interplay between contribution-based and information-based influence may affect policymaking.

At least two other papers juxtapose multiple lobbying tactics within a single game-theoretic model. In Wolton (2016), groups may give political contributions and also engage in grassroots lobbying. In some equilibria, contributions serve as signals of the interest group's strength at grassroots lobbying. Thus, influence through contributions is indirect: contributions cause politicians to believe they will face grassroots opposition if they choose a policy that is contrary to the group's preferred policy. In Ellis and Groll (2017), the interest groups can engage in informational lobbying or give contributions in the form of legislative subsidy. The choice of tactic depends on the prior beliefs of the policymaker as well as on the interest group's informational advantage. In contrast to 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 can distort policymaking by discouraging productive interactions with interest groups.

This paper also relates to the recent political economy literature on over-accountability, which emphasizes the potential for perverse unintended consequences of electoral accountability mechanisms.[3] This literature shows that, when voters are uncertain about policies as well as characteristics of the candidates, electoral accountability may incentivize politicians to choose suboptimal policies in order to signal their types.[4] For instance, work on pandering shows that politicians may disregard private information that discourages adoption of popular policies in order to avoid looking incompetent (Ashworth and Shotts, 2010; Canes-Wrone, Herron and Shotts, 2001; Prat, 2005). Similar concerns may also lead to posturing, a situation in which politicians attempt to signal competence by attempting bold but ill-advised policies (Canes-Wrone, Herron and Shotts, 2001; Fox and Stephenson, 2011; Levy, 2004, 2005). Finally, politicians are incentivized to be

ton (2012), for instance, financial contributions inform politicians about private information held by the group.

[3] Gersen and Stephenson (2014) provide a useful overview of the over-accountability problem in political economy.

[4] See Banks and Sundaram (1998); Barro (1973); Ferejohn (1986); Fearon (1999) for seminal electoral models. Ashworth (2012) provides a recent review of work focused on electoral accountability.

overly persistent if voters interpret reversing course by choosing a different policy as a signal of incompetence (Majumdar and Mukand, 2004; Prendergast and Stole, 1996).[5]

In all of the over-accountability models reviewed above, the unknown characteristic of the politicians is competence, usually operationalized as the politicians' ability to learn policy-relevant information. In our model, this type of competence is endogenous and is modeled as the result of interactions between interest groups and honest politicians. Instead, voters are uncertain about whether or not a politician is sincere. Sincere politicians may be reluctant to acquire competence from interest groups when doing so leads the voter to believe that the politician is corrupt and is allowing access to interest groups for personal gain.[6]

1 Access and Reform

Our model considers candidates choices between a policy which grants access to lobbyists and a "reform" policy that effectively denies access. In some cases, politicians quite literally make this choice. Barack Obama's campaign promise that lobbyists would not run his White House led to an executive order eliminating lobbyists' influence in the executive branch and banning them from serving in certain government positions.[7] While some provisions were altered, the incoming Trump administration also focused on issues of lobbyist access by continuing many of the rules instituted under President Obama (Schmidt and Lipton, 2017). Similarly, in 2016 Senator Elizabeth Warren pushed to add a "no bankers" pledge to the Democratic platform, which would keep Wall

[5] Patty and Turner (2016) also highlight a similar accountability pathology in which agents disregard (their superior) policy-relevant information by exaggerating the extremity of policy-environmental conditions when facing ex post review. While they focus on general ex post review mechanisms such as judicial or executive review, their results are relevant for electoral models.

[6] Some recent work argues that voters may not benefit from competence of politicians when that competence can also be used for activities that are not productive for the voter. For instance, Buisseret and Prato (2016) use a principal-agent model with multiple agents and multiple tasks to show that increased competence may weaken electoral control for the voters. Our argument diverges from this work in that, for much of the parameter space, the voters would be better off if the sincere politicians would grant access to interest groups and acquire competence, but the politicians fail to do so because of informational problems.

[7] See Thurber (2011) for an overview of these reforms. Though many have observed that this ban was less limiting than appearances suggested because of loopholes in the Lobbying Disclosure Act, these rules are generally agreed to have reduced access of lobbyists to the executive branch. Leech's (2013) interviews with Washington lobbyists include several discussions of this point. For instance, the President of the American League of Lobbyists (ALL), a trade association for the lobbying industry, laments that these rules made it more difficult for qualified individuals to hold important posts (Leech, 2013, Chapter 1).

Street bankers out of regulatory jobs (Warmbrodt, 2016). This pledge is an apparent response to the perception that regulated industries had too much access to the rulemaking process.

Interpreted less literally, the "reform" position in our model may be interpreted as the pursuit of a populist, outsider-style campaign that emphasizes the candidate's distaste or disregard for lobbyists in contrast to politics as usual, which presumably takes place at the behest of lobbyists and donors. Such pronouncements raise the costs to that politician of taking meetings with lobbyists while in office, and therefore may be interpreted by voters as implicit commitments to reduce lobbyists' access. Furthermore, when policy relevant to a particular industry is at stake, a candidate may take such a strong stand against that industry that cooperation with industry lobbyists is unlikely. For instance, a candidate who builds his or her electoral identity around taking on big banks is an unlikely target of lobbyists from the banking industries. Notably, two candidates advocating the same policy on industry regulation could take on very different styles with respect to interactions with industry representatives. Our broader point is that a number of decisions made by candidates during a campaign serve as implicit or explicit commitments to either limit or preserve potential interactions with interest groups.

In the next section we present the electoral model we use to develop our argument. Then we turn to analysis of interest group and policymaking interactions. Following that we analyze how those interactions, combined with voters' voting strategies, structure the incentives for candidates to institute reform by banning interest group access. Once we characterize the equilibria to the game, we analyze voter welfare conditional on the type of equilibrium. We also discuss how the results speak to voters' ability to commit to behavioral voter strategies to attempt to improve their welfare, and extend the model to explore the conditions under which the interest group may benefit from public policy banning the potential for vote-buying bribery. The final section concludes. All formal proofs can be found in the supplemental appendix.

2 The model

We model a four player game between two candidates (A and B), a representative voter V, and an interest group G. Candidates are either sincere or corrupt. Voters prefer sincere candidates but do not know the type of any particular candidate. During the campaign, the candidates commit to allow access to the interest group or to deny access. Once the winning candidate takes office, he must decide whether or not to enact a new policy. If the interest group has access to the politician, it may attempt to influence this choice either by paying a bribe or by engaging in informational lobbying.

2.1 Sequence of play

The sequence of play is as follows. First, Nature draws each candidate's type $\tau_i \in \{S, C\}$. The prior probability that each candidate is sincere is $\pi \equiv \Pr[\tau_i = S]$.[8] Nature also draws a state of the world $\theta \in \{0, 1\}$ that determines which policy will be 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 the regulation to pass if it will not severely limit access to credit but prefers the regulation to fail if it would make it too difficult for consumers to borrow money. Prior beliefs are that $\Pr[\theta = 0] = q > \frac{1}{2}$. The value of θ is private information to the interest group, which specializes in the policy area at hand. Next, both politicians publicly announce whether they will grant access to special interests should they win the election. This choice is denoted by $a \in \{0, 1\}$ where $a = 0$ represents no interest group access and $a = 1$ represents access being granted. Following candidate access announcements a representative voter elects candidate A or candidate B, $v \in \{A, B\}$.

If the winning candidate did not grant access to the interest group, that candidate will simply choose a policy $x \in \{0, 1\}$ to implement. If the winning candidate does grant access, lobbying occurs before a policy is chosen. In the lobbying stage, the interest group learns the candidates

[8] In the online appendix we also provide analysis in which the probabilities of being sincere/corrupt are asymmetric across candidates. The results from that model are qualitatively similar to the symmetric model analyzed in the main text. We summarize the differences across the two models in the discussion section below.

type and then chooses between two different lobbying tactics. The interest group can pay a bribe ($b = 1$) or engage in substantive lobbying ($m = 1$). If it chooses to do neither, or is denied access by the winning politician, then $b = 0$ and $m = 0$. 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 interpreted as an attempt to persuade the politician that its preferred policy is in the best interests of the voter by mobilizing members, writing letters, conducting research, or writing briefs. Once the interest group's lobbying choice is made, the politician updates her beliefs about θ and chooses a policy $x \in \{0,1\}$.

2.2 Preferences and equilibrium

The preferences of the voter are represented by the utility function

$$u_V(x,\theta) = -|x-\theta|. \tag{1}$$

That is, the voter is better off when the chosen policy matches the state of the world. In contrast, the interest group's policy preferences are independent of the state: the interest group always prefers $x = 1$ whether or not that policy is good for the voter. Furthermore, the interest group pays a cost for both lobbying tactics. The interest group's preferences are represented by the utility function,

$$u_G(x,\theta,m,b) = \begin{cases} x - \alpha_1 m - \kappa b & \text{if } \theta = 1 \\ x - \alpha_0 m - \kappa b & \text{if } \theta = 0, \end{cases} \tag{2}$$

where $0 < \alpha_1 < 1 < \alpha_0$ and $\kappa \in (0,1)$. Equation 2 also illustrates a key difference between substantive lobbying and bribes: substantive lobbying is less costly when the interest group's preferred policy is better for the voter (as represented by our restrictions on α_1 and α_0). The candidates' preferences depend on their types. Our assumptions about candidate 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 solicit contributions in exchange for policy.

Candidates' preferences are represented by the utility function,[9]

$$u_i(\theta, x, b) = \begin{cases} -|x-\theta| & \text{if } \tau_i = S \\ bx-(1-b)x & \text{if } \tau_i = C. \end{cases} \tag{3}$$

We analyze symmetric pure strategy perfect Bayesian equilibria in weakly undominated strategies, which requires that all players are maximizing their payoffs given other players' strategies, and beliefs are consistent with Bayes' rule where applicable. Additionally, we focus on equilibria that satisfy the Intuitive Criterion (Cho and Kreps, 1987). We will refer to equilibria that meet the above requirements as simply or 'equilibria.'

2.3 Comments on modeling assumptions

We have aimed to make the formal model as simple as possible while still including the main elements necessary to explore our argument. Of course, the model differs from its empirical referents in a number of ways. One limitation is that we restrict attention to symmetric equilibria in a symmetric model. This involves three restrictions: (a) the candidates are ex ante equally likely to be corrupt types, (b) the candidates use the same type-dependent strategies, and (c) the voter treats the candidates symmetrically, which implies in part that the voter has an equal probability of choosing either candidate when the posterior probability distributions of the candidates' types are the same. Assumptions (a) and (b) are entirely for convenience and are fully relaxed in the online supplemental appendix.[10] The results are shown to be qualitatively similar to the model presented,

[9] We do not explicitly model office-specific benefits because it would simply complicate exposition with little gain in insight. That is, we could attach a parameter to represent office motivations for the candidates, but office motivations already operate in the model through policy considerations that indirectly provide incentives to win office. Sincere politicians are office motivated in that they want to win to be able to set policy to match the state (conditional on their information), whereas corrupt politicians are office motivated in that they want to win office to extract rents from the interest group. Therefore, explicitly modeling office motivations would not qualitatively alter the results we describe below. The model could be straightforwardly extended to include explicit office motivations.

[10] Additionally, relaxation of assumption (a) makes the pooling access equilibrium more difficult to support. Whichever candidate is ex ante disadvantaged due to a lower probability of being sincere has stronger incentives to separate when he is sincere by banning access. Thus, the conditions to support an access equilibrium are more demanding when $\pi_A \neq \pi_B$. Details can be found in section B.1 in the online appendix. In this study, we focus on characterizing the two types of strategies and how they affect voters rather than explaining differences between candidates in the same election. For that reason, the asymmetric model is relegated to the appendix and the simpler, symmetric

with the key differences being that one candidate may play a separating strategy while the other plays a pooling strategy. Assumption (c) is made more deliberately: the case where the voter acts without bias for or against either candidate is a useful benchmark, since we will show in Section 6 that the voter may wish to introduce a bias in favor of an arbitrary candidate in order to induce the candidates to play different equilibrium strategies.

For the sake of simplicity, we also chose a model with a very stark contrast between sincere and corrupt types of politicians: sincere politicians care only about matching the policy to the state and corrupt politicians care only about opportunities for exchange with interest groups. This starkness is a virtue of the model. Our intention was to provide a clear contrast between a corrupt politician (as voters imagine them) and one that wishes to act in the voters' best interests. Additionally, a key result will be that the candidate types separate by banning access when the voter would rather them pool. This result is most surprising in the situation where voters get the maximum benefit from distinguishing between candidate types, which occurs when sincere types are perfectly aligned and corrupt types are perfectly corrupt. The key assumption needed to support our argument is less restrictive. If candidates' preferences vary by type enough that types respond differently to each type of lobbying then candidates are incentivized to signal to voters that they are more sincere.

3 Interest group access and informed policymaking

In this section we analyze the policymaking game between the interest group and winning politician. The winning candidate's policy choice depends on whether interest group access was granted during the electoral stage and on the group's lobbying strategy. The group's lobbying strategy, in turn, depends on the policy that a given type of politician will choose in response.

First, note that any time interest group access was banned all candidates will set $x = 0$. Corrupt politicians choose $x = 0$ because they only respond to bribes and absent that have no incentive to choose $x = 1$ instead. Sincere politicians are not influenced by potential bribes, but they can be influenced through informational lobbying. Since the interest group cannot engage in lobbying

model is presented here.

sincere politicians do not learn anything new about θ. In response, they simply set policy in accordance with their prior information, which suggests it is more likely that $x = 0$ is the correct choice. Thus, any time interest group access is banned policy outcomes do not vary since $x = 0$ regardless of which politician won office.[11] This further implies that with probability $1 - q$ the wrong policy, from the voter's and sincere candidate's perspective, will be implemented.

Policy choices do vary when the interest group has the opportunity to engage in bribery or informational lobbying. Consider the case of a corrupt candidate who granted interest group access and won office. He is solely motivated by rent-seeking and therefore will choose the interest group's preferred policy, $x = 1$, only if he receives a bribe from the group. It is strictly dominant for corrupt politicians to set $x = 0$ any time $b = 0$ and $x = 1$ when $b = 1$.[12] The interest group understands corrupt politicians' incentives and therefore also knows that a bribe will lead to its most preferred policy, $x = 1$, being implemented and that any lobbying expenditure ($m = 1$) is simply burning money since corrupt politicians do not respond to that form of influence. In equilibrium, the interest group prefers to follow this strategy and thus when it learns that a corrupt candidate has won office it pays the bribe. This strategy is optimal regardless of the value of θ.[13]

In contrast to corrupt candidates, sincere candidates' policy choices potentially respond to lobbying, but not bribery. This implies that the interest group has no incentive to engage in bribery with sincere politicians. They do not respond to b, and therefore this would generate a net loss from the interest group's perspective since it is costly and garners no influence. If the interest group chooses the same lobbying expenditure regardless of θ (either $m(\theta) = 0$ or $m(\theta) = 1, \forall\theta$) then the politician learns nothing new about the state of the world. In this case he follows his prior information just as in the case of banning group access. This implies that any time the interest group pools on one lobbying message sincere politicians choose $x = 0$ based on their prior information.

[11] We show below that in equilibrium only sincere candidates ever win office after banning interest group access. That is, sincere politicians are the only ones that choose to ban access on the equilibrium path.

[12] Formally, a corrupt politician's payoff for setting $x = 1$ when $b = 1$ is $u_i(\theta, 1, 1) = 1(1) + (1-1)1 = 1$ whereas his payoff for setting $x = 0$ is $u_i(\theta, 0, 1) = 1(0) - (1-1)0 = 0$. Full details can be found in the proof of Proposition 1 in the supplemental appendix.

[13] Details of this case can be found in the supplemental appendix.

However, the interest group can instead reveal θ to the politician by separating with its lobbying choices so that $m(\theta) = \theta$. In response, sincere politicians match policy to the state ($x(m) = m(\theta) = \theta$). This is clearly optimal from the politician's perspective given his payoffs; he can ensure zero policy loss by following the signal provided by the interest group's lobbying choice. Any time $\theta = 1$ the interest group can induce the politician to set its most preferred policy, $x = 1$, by utilizing informational lobbying to reveal the state. The group's payoff for spending $m = 1$ on lobbying, which induces $x = 1$, is $1 - \alpha_1 > 0$. If it were to instead forego lobbying so that $m = 0$ the politician chooses $x = 0$ and the group's payoff is simply zero. Therefore, if the interest group observes $\theta = 1$ then it strictly prefers to engage in lobbying to induce its most preferred policy.[14] Of course, in order to support this lobbying strategy it must also be the case that when the interest group observes $\theta = 0$ it prefers $m = 0$ to acting as if it observed $\theta = 1$ by lobbying ($m = 1$). To see why this lobbying behavior can be supported in equilibrium, recall that it is more costly to lobby when the group learns the state of the world is unfavorable to their preferred policy (i.e., $\theta = 0$). If the group chooses $m = 0$ following observation of $\theta = 0$ the politician will set $x = 0$ and the group simply receives zero. If the group instead signals $m = 1$ the politician will set $x = 1$ but the group will then receive a negative payoff of $1 - \alpha_0 < 0$ since the state is unfavorable to group interests.[15] Upon observing $\theta = 0$ the interest group strictly prefers $m = 0$ while when $\theta = 1$ it strictly prefers $m = 1$. Thus, we have the conditions necessary to support this separating lobbying behavior in equilibrium. Finally, the interest group prefers this separating lobbying strategy to pooling on either signal when a sincere candidate wins office since in the former case its most preferred policy, $x = 1$, will be implemented in equilibrium whereas the pooling lobbying strategy precludes $x = 1$ from ever being implemented in equilibrium.

The analysis above yields a unique equilibrium to the stage of the game involving the interest group and winning candidate, which is formalized in the following proposition.

Proposition 1. *The unique equilibrium to the interest group–politician policymaking stage consists*

[14]The group's payoff for $m = 1$ when $\theta = 1$ is given by $u_G(1,1,1,0) = 1 - \alpha_1(1) = 1 - \alpha_1 > 0$. In contrast, its payoff for $m = 0$ when $\theta = 1$ is $u_G(0,1,0,0) = 0 - 0 = 0$. Clearly $u_G(1,1,1,0) > u_G(0,1,0,0)$.

[15]Formally, the group's payoff for $m = 0$ when $\theta = 0$ is given by $u_G(0,0,0,0) = 0 - 0 = 0$ while its payoff for $m = 1$ when $\theta = 0$ is $u_G(1,0,1,0) = 1 - \alpha_0 < 0$.

of the following collection of strategies when access was granted.

- *The interest group always bribes corrupt politicians, $b = 1$, and chooses to lobby ($m = 1$) sincere politicians in favorable states ($\theta = 1$) and forego lobbying ($m = 0$) in unfavorable states ($\theta = 0$).*

- *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 $m = 1$ and implement $x = 0$ otherwise.*

To summarize Proposition 1, policy choices only vary when access was granted by the winning candidate. If access was banned then all politicians implement $x = 0$. However, if access was granted then it depends on both the type of politician that won office and, conditional on politician type, whether the state of the world is favorable from the interest group's perspective. Corrupt politicians are bribed by the group and always implement its most-preferred policy, $x = 1$. This is a case where information plays no role in policymaking, only rent-seeking and corruption do. In contrast, sincere politicians are able to implement policy to match the state. In this case policymaking is well-informed due to the interest group's lobbying of sincere politicians. In the next section we characterize when each type of policymaking occurs in equilibrium.

4 Signaling with reform

In this section we characterize candidate access decisions, which are structured in part by the voter's equilibrium voting behavior. There are two types of (pure strategy) equilibria presented below: (1) *reform equilibrium*, and (2) *access equilibrium*. A reform equilibrium is a separating equilibrium in which different types of candidates differ in their access decisions. Sincere candidates always institute reform by announcing they will ban interest group access should they win the election. Corrupt candidates always announce that they will grant interest group access. Voters are able to infer sincerity (and corruption) in this case and can screen out corrupt politicians, but

sincere candidates sacrifice policy-relevant information by banning group participation. An access equilibrium is a pooling equilibrium in which both types of candidate grant interest group access and forego reform. In this case the voter cannot infer politician types, but *if* a sincere candidate wins the election he is able to make better informed policy choices. Therein lies the fundamental trade-off at the heart of this paper: improved screening for corruption comes at the cost of informed policymaking.

Equilibrium voting behavior. The voter attempts to elect sincere over corrupt candidates. In a reform equilibrium she can perfectly infer politician types. If both candidates institute 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 candidates grant access then she knows that both are corrupt and is again indifferent since $x = 1$ will ultimately be implemented by either. Finally, in the case in which one candidate is sincere and bans access and one is corrupt and grants access she votes for the sincere politician that will implement $x = 0$ over the corrupt candidate that will implement $x = 1$. Since $\theta = 0$ is ex ante more likely this choice yields higher expected utility than electing a corrupt candidate that has granted group access (since $q > 1/2$).

In an access equilibrium the voter cannot infer politician types and retains her prior belief that either candidate is equally likely to be sincere (or corrupt). In that case the voter can do no better than voting for either candidate with equal probability. She can expect to lose nothing on policy with probability π since in that case the politician is sincere, the interest group reveals θ, 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 $\theta = 0$.[16]

This again highlights the fundamental trade-off we are interested in. In a reform equilibrium the voter is able to perfectly infer whether a candidate is corrupt and elect sincere politicians (if they are available). However, in order to identify themselves as sincere, politicians give up their ability to acquire policy-relevant information from the interest group since they had to ban access

[16]Lemma 1 in the supplemental appendix formally characterizes the voter's optimal voting behavior.

to credibly signal their type. In the access equilibrium sincere candidates are well-informed when they win office and implement policy perfectly in line with voter preferences. However, the voter is unable to differentiate candidate types and therefore risks election of a corrupt politician, which leads to policy losses proportional to the probability that $\theta = 0$.

Equilibrium interest group access. When will sincere candidates eschew the potential to acquire policy-relevant information by banning interest group access in pursuit of revealing that they are not corrupt to win office? Conversely, when do sincere candidates prefer allowing access and keeping the avenue for information acquisition open to winning the election with certainty? To begin answering these questions first consider the incentives for corrupt candidates to commit to interest group access during the campaign. Since they only respond to bribes corrupt candidates' maximum payoff for banning group access is zero when they preclude the group's ability to pay bribes. In contrast, if corrupt candidates always grant interest group access then, depending on the type and strategy of their opponent, there is a positive probability that they will win office and receive a bribe from the group. Thus, it is weakly dominant for corrupt candidates to always grant interest group access.[17]

Sincere candidates have different incentives since they pursue policy rather than bribes. Consider the reform equilibrium environment in which candidates separate with their access decisions. Corrupt candidates grant group access while sincere candidates ban access. A sincere candidate i's expected payoff for banning access in this environment is given by,[18]

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

The implemented policy outcome when two sincere candidates compete against one another is the same: either will implement $x = 0$ without any further information provided from the interest

[17] Also see Lemma 2 in the supplemental appendix.

[18] Full derivations for the analysis in this section can be found in the proof of Proposition 2 in the supplemental appendix.

group. This yields an expected policy loss of $-(1-q)$ (i.e., the probability that $x \neq \theta$ given that $x = 0$), which occurs with probability π.[19] If instead he faces a corrupt candidate he wins the election for sure since his access choice credibly revealed his type, but again he does not gain any additional information since the interest group is banned from lobbying. Again, the sincere candidate implements $x = 0$ which yields an expected payoff of $-(1-q)$. Overall, then, a sincere candidate's expected payoff for banning interest group access as in the reform equilibrium yields an expected payoff of $-(1-q)$.

If instead sincere candidate i chose to deviate from the posited strategy and grant interest group access his expected payoff would be,

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

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

For a sincere politician to stick with the equilibrium access strategy of banning group access, given that corrupt politicians will always grant access, incentive compatibility requires that,

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

[19] 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.

This inequality is satisfied for all $\pi \in (0,1)$ when $q \geq \frac{2}{3}$. Combined with the fact that corrupt politicians always prefer to grant interest group access in this environment, this yields the necessary and sufficient condition to support a reform equilibrium. Define this condition as $q^{\text{Reform}}(\pi) \equiv \frac{2}{3}$. So long as $q \geq q^{\text{Reform}}(\pi)$ — i.e., the ex ante probability that $\theta = 0$ is sufficiently high — there is a separating equilibrium in which different politician types make different access commitments, the voter elects the sincere politician if one is available and votes for either candidate with equal likelihood when both are of the same type, and interest group and policymaking behavior are as described in Proposition 1.

Now consider the access environment in which all politicians commit to granting interest group 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 candidates and may elect a corrupt politician in light of that uncertainty. Corrupt candidates have even stronger incentives to stick with granting interest group access in this case since they will no longer lose with certainty when facing a sincere politician.

Sincere candidates would prefer to grant interest group access for its informational value conditional on winning the election. However, doing so precludes the sincere candidate from revealing he is sincere and therefore he risks losing the election to a corrupt politician. A sincere candidate i's expected payoff from continuing to grant group access, given that corrupt politicians do also, is

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

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 not match the state with probability q, yielding his expected policy losses in that case. If a sincere candidate instead deviates to banning interest group 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.[20] This deviation yields the following expected payoff,

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

Regardless of what type of politician his opponent is, the sincere candidate will win the election but by virtue of banning group access 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 candidate 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 candidates prefer granting interest group access when sincere politicians also do so, this incentive compatibility condition is necessary and sufficient to support an access equilibrium. Define this condition as $q^{\text{Access}}(\pi) \equiv \frac{2}{3-\pi}$. As long as $q \leq q^{\text{Access}}(\pi)$ — the ex ante probability that $\theta = 0$ is sufficiently low — there is a pooling equilibrium in which all candidates commit to interest group access, the voter elects any two candidates with equal probability, and the interest group and winning candidate behave as described in Proposition 1.

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. Specifically, for any $q \in \left[q^{\text{Reform}}(\pi), q^{\text{Access}}(\pi)\right]$ both types of equilibria are possible. The following result captures all of these equilibrium conditions.

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

Proposition 2. *Define* $q^{Reform}(\pi) \equiv \frac{2}{3}$ *and* $q^{Access}(\pi) \equiv \frac{2}{3-\pi}$. *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, $[q^{\text{Reform}}(\pi), q^{\text{Access}}(\pi)]$, 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 low. Substantively, this implies that when information is highly valuable all politicians prefer to grant interest group access while when information is not particularly valuable, sincere politicians prefer to identify themselves as sincere by instituting 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. All

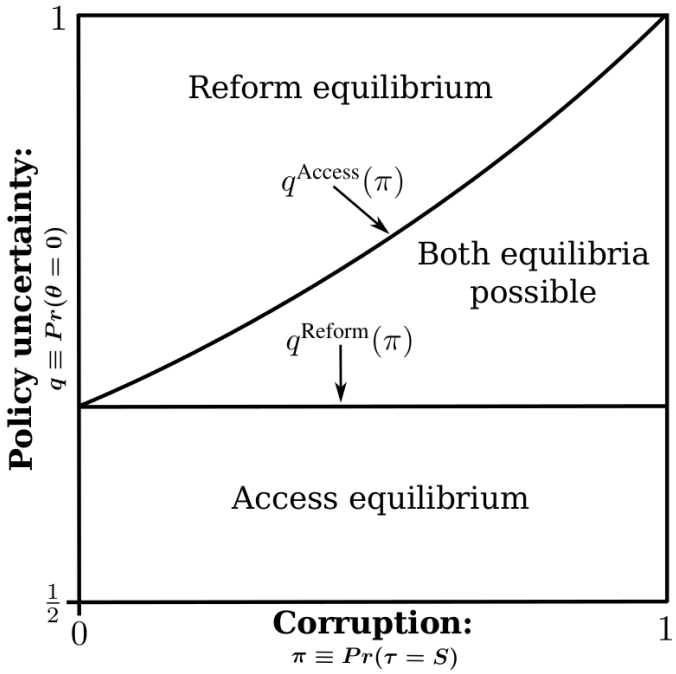


Figure 1: Equilibrium regions based on π and q.

Note: The y-axis denotes q, the probability that $\theta = 0$. 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 candidate is sincere, π. When π is low there is a high likelihood of corruption and when π is high there is a low likelihood of corruption. Additionally, $q^{\text{Access}}(\pi) \equiv \frac{2}{3-\pi}$ and $q^{\text{Reform}}(\pi) \equiv \frac{2}{3}$.

players, 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.

5 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 behavior by candidates. In one equilibrium, all candidates grant access to interest groups, so sincere politicians will have good information if they are elected but voters cannot distinguish sincere politicians from corrupt ones. In another equilibrium, sincere politicians signal their types to voters by denying access to interest groups, so voters know whether or not candidates are sincere but the 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?

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

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

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 candidates 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,

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

Since the voter cannot differentiate between sincere and corrupt candidates in this environment she elects either candidate 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, since access was granted, and sets policy accordingly. However, with probability $1-\pi$ the winning candidate will be corrupt. In this case, since access was granted, 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 in that case.

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

$$-(\pi^2+2\pi(1-\pi))(1-q)-(1-\pi)^2q>-(1-\pi)q. \tag{4}$$

If inequality 4 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.

Proposition 3. *Define* $q^{Welfare}(\pi)\equiv\frac{\pi-2}{2\pi-3}$. *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 type of equilibrium most 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 (i.e., $q>q^{\text{Welfare}}(\pi)$) information about the state is relatively less valuable and therefore the voter benefits from improved ability to differentiate between sincere and corrupt politicians in the election. Thus, the separating reform equilibrium is welfare-preferred. However, when q is not high enough (i.e., $q<q^{\text{Welfare}}(\pi)$) information is relatively more valuable and the voter benefits from risking election of corrupt politicians in exchange for improved policymaking when sincere candidates take office. Moreover, $q^{\text{Welfare}}(\pi)$ is increasing in π. This implies that the value of information has to decrease as the threat of corruption increases for the benefits of improved screening to outweigh the benefits from potentially better informed policymaking.

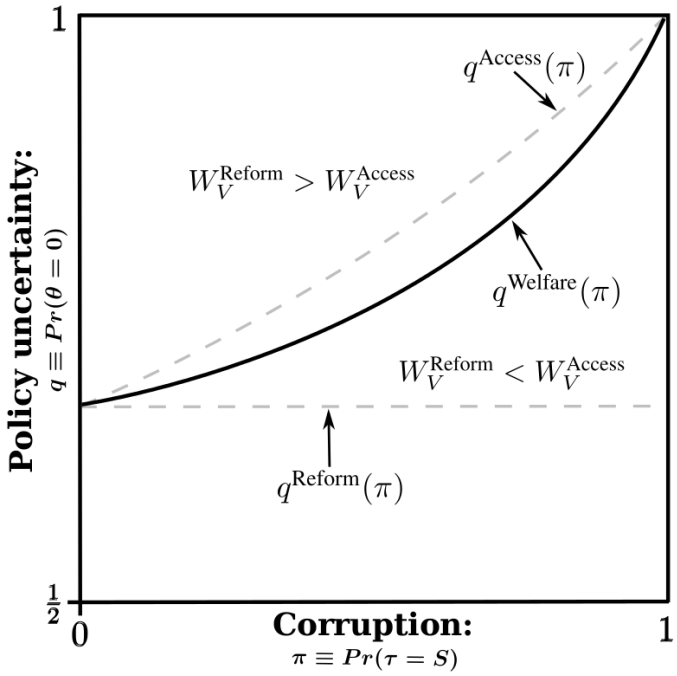


Figure 2: Voter welfare in reform versus access equilibria, conditional on q and π.

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

6 Strategies for improving voter welfare

We now consider ways that voter welfare might be improved if some players are allowed to pre-commit to playing certain strategies. We focus especially on approaches that select the voter-preferred equilibrium when multiple equilibria exist. For instance, undesirable reform equilibria may be avoided if the voter simply refused to pay attention to the events of the campaign. Furthermore, we describe situations in which the interest group may prefer to unilaterally pre-commit to a ban on corrupt lobbying strategies.

6.1 Rational ignorance

We first consider the scenario in which, though multiple equilibria exist, the players find themselves in the reform equilibrium when the voter would prefer the access equilibrium. The problem

in these cases is that, in the current equilibrium, the politicians have overpowered incentives to communicate to the voter. If the voter could pre-commit to the strategy associated with the access equilibrium then the politicians' incentives would be in line with the strategies preferred by the voter.

One way for the voter to pre-commit to the voting strategy associated with the access equilibrium is for the voter to simply not pay attention to the access decisions of the candidates. If the voter does not notice whether or not the candidates allowed access to interest groups, the voter's beliefs and voting strategy will not depend on the access decisions of the candidates. Thus, both types of candidates should grant access to the interest group and the voter would remain indifferent between the candidates as in the access equilibrium. Thus, voters may exhibit rational ignorance in such situations. This is generally in line with the observation that voters have trouble recalling the campaign pronouncements of candidates and with other theoretical work showing that voters may benefit from inattentiveness (Ashworth and de Mesquita, 2014; Prato and Wolton, 2016, 2017).

The opposite situation is also possible: Though multiple equilibria exist, the players find themselves in the access equilibrium when voters would prefer the reform equilibrium. This case is more difficult. This equilibrium was supported under the assumption that the candidates believe that the voter would, off the path of play, select any candidate who chose to ban access. Thus, shifting from an unfavorable access equilibrium to a reform equilibrium is not a simple matter of committing to the voting strategy associated with the reform equilibrium, which the candidates already assume that the voter has done. Instead, the unfavorable equilibrium occurs as a result of common conjectures between the candidates: given that a candidate's opponent grants access no matter his type, he is equally likely to lose to a sincere or corrupt type of opponent. In contrast, if a candidate believes his opponent will deny access when he is a sincere type, then the sincere type of candidate believes that if he denies access he will only lose to corrupt types, which implies he has a stronger incentive to deny access as well. Thus, candidates should play the same strategy that they expect their opponents to play. In this case, the voter cannot force the candidates to play a more desirable equilibrium simply by changing her own behavior.

6.2 Interest group self-regulation

Is there a scenario in which the interest group may benefit from self-regulating by "tying its own hands" and committing to *not* bribing corrupt politicians? We answer this question by comparing an interest group's ex ante expected welfare from keeping its option to bribe open and committing to never bribing corrupt politicians.[21] Whether the group benefits depends on whether the environment is conducive to a reform equilibrium or an access equilibrium.

In an access equilibrium the interest group never benefits from self-regulation. If a sincere candidate wins then the group substantively lobbies and its most-preferred policy, $x = 1$, is implemented if and only if $\theta = 1$. However, if a corrupt politician wins office and the group has committed itself to not bribing then the group incurs a net loss since in that case the corrupt politician always implements $x = 0$. Thus, when all candidates grant access the interest group cannot benefit from self-regulation since it precludes its most-preferred policy from ever being implemented in the event a corrupt politician wins office.[22]

An interest group can benefit from self-regulation in reform equilibrium environments. An ex ante commitment by the group to not bribing corrupt politicians alters the subsequent access behavior by sincere candidates. While corrupt candidates still benefit from always granting access, sincere candidates now have weaker incentives to deny group access for signaling purposes. In fact, sincere candidates now prefer to grant access to the interest group as well. Thus, the interest group weighs its welfare from continuing to be able to bribe, which will sustain a reform equilibrium, against committing to no bribery, which will induce all candidates to grant access.[23]

The group benefits from self-regulation when the probability of sincere candidates, π, is sufficiently high.[24] The key trade-off for the group is having sincere candidates grant access, which allows them to lobby and induce implementation of their preferred policy when the state is favorable, versus precluding their ability to bribe corrupt politicians. The less likely it is that a given

[21] Detailed analysis is in the online appendix, section B.2. We focus on presenting intuition here.

[22] Formally, the group derives a benefit of $(1-\pi)(1-\kappa)$ from being able to bribe corrupt politicians in an access equilibrium.

[23] Formally, the condition that must be satisfied for the group to benefit is $\pi((1-q)(1-\alpha_1)) - (1-\pi)^2(1-\kappa) > 0$.

[24] The technical condition can be found in the online appendix, section B.2.

candidate is corrupt, the more the interest group benefits from self-regulation because it induces sincere candidates to grant access. Thus, so long as the probability of a candidate being corrupt is sufficiently low the interest group will tie its own hands so that sincere candidates will grant them access. Intuitively, when bribery is relatively more costly than substantive lobbying — i.e., $\kappa > \alpha_1$ — and the probability the true state is unfavorable from the group's perspective is lower — i.e., as $q \to \frac{2}{3}$ — it is more likely that the conditions for the interest group to benefit from self-regulation will be satisfied. In short, when these conditions are met the interest group prefers to self-regulate and give itself a chance to have its most-preferred policy implemented through substantive lobbying when sincere candidates win office than to retain its ability to engage in bribing corrupt politicians.[25]

7 Conclusions

We have analyzed a model 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 types by denying access to interest groups. Notably, equilibria in which candidates deny access to interest groups may exist even when the probability of corruption is extremely 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. 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 candidates.

[25] In section B.2 of the online appendix we also provide conditions for when the interest group will self-regulate when either equilibrium is possible. To do so we introduce a probability measure that one type of equilibrium will obtain relative to the other.

References

Ashworth, Scott. 2012. "Electoral Accountability: Recent Theoretical and Empirical Work." *Annual Review of Political Science* 15:183–201.

Ashworth, Scott and Ethan Bueno de Mesquita. 2014. "Is Voter Competence Good for Voters?: Information, Rationality, and Democratic Performance." *American Political Science Review* 108(3):565–587.

Ashworth, Scott and Kenneth W. Shotts. 2010. "Does Informative Media Commentary Reduce Politicians' Incentive to Pander?" *Journal of Public Economics* 94:838–847.

Austen-Smith, David. 1995. "Campaign Contributions and Access." *American Political Science Review* 89(3):566–581.

Austen-Smith, David and John R. Wright. 1992. "Competitive lobbying for a legislator's vote." *Social Choice and Welfare* 9(3):229–257.

Austen-Smith, David and John R. Wright. 1994. "Counteractive Lobbying." *American Journal of Political Science* 38(1):25–44.

Banks, Jeffrey S. and Rangarajan K. Sundaram. 1998. "Optimal Retention in Agency Problems." *Journal of Economic Theory* 82(2):293–323.

Barro, Robert J. 1973. "The Control of Politicians: An Economic Model." *Public Choice* 14(1):19–42.

Bennedsen, Morten and Sven E. Feldmann. 2002. "Lobbying Legislatures." *Journal of Political Economy* 110(4):919–946.

Buisseret, Peter E. and Carlo Prato. 2016. "Electoral Control and the Human Capital of Politicians." *Games and Economic Behavior* 98(July):34–55.

Canes-Wrone, Brandice, Michael C. Herron and Kenneth W. Shotts. 2001. "Leadership and Pandering: A Theory of Executive Policymaking." *American Journal of Political Science* 45(3):532–550.

Cho, In-Koo and David M. Kreps. 1987. "Signaling Games and Stable Equilibria." *Quarterly Journal of Economics* 102(2):179–221.

Cotton, Christopher. 2012. "Pay-to-play politics: Informational lobbying and contribution limits when money buys access." *Journal of Public Economics* 96(3-4):369–386.

Ellis, Christopher J. and Thomas Groll. 2017. "Strategic Legislative Subsidies: Informational Lobbying and the Cost of Policy." *Unpublished Manuscript. Columbia University* .
URL: *http://www.columbia.edu/~tg2451/research/Info%20Lobbying_Legislative%20Subsidy_April2017_online.pdf*

Fearon, James D. 1999. Electoral Accountability and the Control of Politicians: Selecting Good Types Versus Sanctioning Poor Performance. In *Democracy, Accountability, and Representation*, ed. Adam Przeworski, Susan C. Stokes and Bernard Manin. New York: Cambridge University Press.

Ferejohn, John. 1986. "Incumbent Performance and Electoral Control." *Public Choice* 50(1):5–25.

Fox, Justin and Matthew C. Stephenson. 2011. "Judicial Review as a Response to Political Posturing." *American Political Science Review* 105(2):397–414.

Gersen, Jacob E. and Matthew C. Stephenson. 2014. "Over-accountability." *Journal of Legal Analysis* 6(2):185–243.

Grossman, Gene M. and Elhanan Helpman. 2001. *Special Interest Politics*. Cambridge, MA: MIT Press.

Hall, Richard L. and Alan V. Deardorff. 2006. "Lobbying as Legislative Subsidy." *American Political Science Review* 100(1):69–84.

Leech, Beth L. 2013. *Lobbyists at Work*. New York, NY: Springer.

Levy, Gilat. 2004. "Anti-herding and Strategic Communication." *European Economic Review* 48(3):503–525.

Levy, Gilat. 2005. "Careerist Judges and the Appeals Process." *Rand Journal of Economics* 36(2):275–297.

Majumdar, Sumon and Sharun W. Mukand. 2004. "Policy Gambles." *American Economic Review* 94(4):1207–1222.

Patty, John W. and Ian R. Turner. 2016. "Ex Post Review and Expert Policymaking: When Does Oversight Reduce Accountability." *Unpublished Manuscript. Texas A&M University* .
URL: *https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2781750*

Persson, Torsten and Guido Tabellini. 2000. *Political Economics: Explaining Economic Policy*. Cambridge, MA: MIT Press.

Potters, Jan and Frans Van Winden. 1990. "Modelling political pressure as transmission of information." *European Journal of Political Economy* 6(1):61–88.

Potters, Jan and Frans Van Winden. 1992. "Lobbying and asymmetric information." *Public Choice* 74(3):269–292.

Prat, Andrea. 2005. "The Wrong Kind of Transparency." *American Economic Review* 95(3):862–877.

Prato, Carlo and Stephane Wolton. 2016. "The Voters' Curses: Why We Need Goldilocks Voters." *American Journal of Political Science* 60(3):726–737.

Prato, Carlo and Stephane Wolton. 2017. "Rational Ignorance, Elections, and Reform." *Unpublished Manuscript. Columbia University* .
URL: *https://ssrn.com/abstract=2285852*

Prendergast, Canice and Lars Stole. 1996. "Impetuous Youngsters and Jaded Old-Timers: Acquiring a Reputation for Learning." *Journal of Political Economy* 104(6):1105.

Schmidt, Michael S. and Eric Lipton. 2017. "Trump Toughens Some Facets of Lobbying Ban and Weakens Others." New York Times.
URL: *https://www.nytimes.com/2017/01/28/us/politics/trump-toughens-some-facets-of-lobbying-ban-and-weakens-others.html*

Schnakenberg, Keith E. 2016. "Informational Lobbying and Legislative Voting." *American Journal of Political Science* pp. n/a–n/a.
URL: *http://dx.doi.org/10.1111/ajps.12249*

Thurber, James. 2011. "The Contemporary Presidency: Changing the Way Washington Works? Assessing President Obama's Battle with Lobbyists." *Presidential Studies Quarterly* 41(2):358–374.

Warmbrodt, Zachary. 2016. "Warren's no-bankers push makes it into Dem platform.". [Online; posted 12-July-2016].
URL: *http://www.politico.com/story/2016/07/elizabeth-warren-no-bankers-democratic-platform-225406*

Wolton, Stephane. 2016. "Lobbying, Inside and Out: How Special Interest Groups Influence Policy Choices." *Unpublished Manuscript. London School of Economics* .
URL: *https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2190685*

Wright, John R. 1996. *Interest Groups and Congress: Lobbying, Contributions, and Influence*. Boston, MA: Allyn and Bacon.

A Supplemental appendix

A.1 Proof of results

Proof of Proposition 1. Corrupt politicians' payoffs, given $b^* = 1$, are given by,

$$\begin{aligned} u_i(x|\tau_i = C, b^*) &= bx - (1-b)x, \\ &= x. \end{aligned}$$

A corrupt politician optimally sets $x_i^*(b^*) = 1$ because he receives a payoff of one, rather than a payoff of zero for $x(b^*)_i = 0$, in this case. In contrast, corrupt politicians' payoffs when $b = 0$ are given by,

$$\begin{aligned} u_i(x|\tau_i = C, b = 0) &= bx - (1-b)x, \\ &= -x. \end{aligned}$$

Clearly it is optimal to set $x_i^*(b) = 0$ in this case since $x_i(b) = 1$ leads to a loss of -1. Thus, when $b = 1$ corrupt politicians implement $x = 1$ and when $b = 0$ they implement $x = 0$.

Now consider the interest group's strategy when a corrupt politician wins office. Since corrupt politicians do not respond to substantive lobbying (i.e., m does not appear in their payoffs) the group always sets $m = 0$ regardless of θ when it observes a corrupt politician in office. The group's payoff when a corrupt politician is in office then reduces to,

$$u_G(b, m = 0|\tau_i = C, x_i^*) = x - \kappa b.$$

If the group bribes the politician then $x_i^*(1) = 1$ (from above). This leads to a payoff of $u_G(b = 1, m = 0|\tau_i = C, x_i^*) = x - \kappa b = 1 - \kappa$, which is strictly positive since $\kappa \in (0,1)$. In contrast, $b = 0$ will induce the corrupt politician to implement $x_i^*(0) = 0$, yielding a payoff of $u_G(b = 0, m = 0|\tau_i = C, x_i^*) = x - \kappa b = 0$. Thus, the interest group will always bribe corrupt politicians, $b^*(\tau_i = C) = 1$,

for all θ.

Sincere politician's respond to substantive lobbying, but not bribery (i.e., m enters into their payoffs and b is not). Suppose that the interest group lobbies sincere politicians according to the posited strategy: $m = 1$ if $\theta = 1$ and $m = 0$ if $\theta = 0$. The group's choice of m reveals θ to the politician in this case. This implies that sincere politicians' payoffs when $m = 1$ are given by,

$$\begin{aligned} u_i(x|\tau_i = S, m = 1) &= -|x - \theta|, \\ &= -|x - 1|. \end{aligned}$$

It is optimal then to implement $x_i^*(m) = 1$ to obtain zero rather than -1 if $x = 0$. It is easily verified that an analogous argument shows the optimality of $x_i^*(m) = 0$ when $m = 0$.

To verify that it is optimal for the interest group to separate with its lobbying decisions based on θ_1 and θ_0 as described above first notice that when a sincere candidate has taken office the interest group never bribes, $b^*(\tau_i = S) = 0$. This reduces the group's payoffs when a sincere politician is in office to,

$$u_G(m, b = 0|\tau_i = C, x_i^*, \theta) = \begin{cases} x_i^* - \alpha_1 m & \text{if } \theta = 1, \\ x_i^* - \alpha_0 m & \text{if } \theta = 0. \end{cases}$$

Suppose that $\theta = 1$. If the group is separating and it lobbies, $m^*(\theta) = 1$, then $x_i^*(m) = 1$. This yields a payoff of $1 - \alpha_1 > 0$ (since $\alpha_1 \in (0, 1)$) compared to a payoff of 0 if it instead chose not to lobby, $m = 0$. Thus, when $\theta = 1$ it is optimal for the group to lobby sincere politicians given that when $\theta = 0$ it does not lobby. Now suppose that $\theta = 0$. If the group foregoes lobbying then $m^*(\theta) = 0$ and $x_i^*(m) = 0$. This yields a payoff of 0. If the group were to deviate and instead message $m(\theta) = 1$ when $\theta = 0$ it would induce $x^*(m) = 1$ but its payoff would be $1 - \alpha_0 < 0$. Thus, the group prefers to set $m(\theta) = 0$ when $\theta = 0$.

Uniqueness follows from application of the Intuitive Criterion. We must rule out a pooling equilibria on $m = 0$ (it is already clear that there can be no pooling equilibrium on $m = 1$ since $\theta = 0$ types would always deviate). Both types of G get an equilibrium payoff of 0 in this profile.

To apply the intuitive criterion we note two things: (1) the $\theta = 0$ type would never deviate from this equilibrium to $m = 1$ because it is dominated by the equilibrium payoff, and (2) the $\theta = 1$ type would deviate to $m = 1$ as long as it persuaded the policymaker that she was not a $\theta = 0$ type. Thus, this pooling equilibrium would fail the intuitive criterion. ■

The next result formally characterizes the voter's equilibrium voting strategy.

Lemma 1. *The voter chooses a candidate according to the following strategy,*

$$v^*(a_A, a_B) = \begin{cases} A & \text{if } Pr(\tau_A = S|a_A, a_B) > Pr(\tau_B = S|a_A, a_B), \\ B & \text{if } Pr(\tau_A = S|a_A, a_B) < Pr(\tau_B = S|a_A, a_B), \\ \left(\frac{1}{2}A, \frac{1}{2}B\right) & \text{if } Pr(\tau_A = S|a_A, a_B) = Pr(\tau_B = S|a_A, a_B). \end{cases}$$

Proof of Lemma 1. We need to show two cases: (1) the voter does not want to deviate from voting for the candidate that is more likely to be sincere, and (2) the voter does not want to deviate from voting for each candidate with equal probability when she believes both are equally likely to be sincere. Denote the voter's updated belief that candidate i is sincere given his access decision as $\hat{\pi}_i \equiv Pr[\tau_i = S|a_i]$.

Case (1). In this case the voter believes that one candidate is more likely to be sincere. Without loss of generality let candidate A be the candidate the voter believes is more likely to be sincere. This implies that $a_A \neq a_B$ since if $a_A = a_B$ the voter would have learned nothing about candidate types. Moreover, since $a_i \in \{0, 1\}$ and we have restricted attention to pure strategies, the voter must believe that the candidate more likely to be sincere is sincere with probability one while believing that the other candidate is corrupt with probability one. Thus, in this case $Pr(\tau_A = S|a_A, a_B) = 1$ and $Pr(\tau_B = C|a_A, a_B) = 0$. Suppose first that candidate A chose $a_A = 0$ and candidate B chose

$a_B = 1$. The voter's subjective expected utility for electing A over B is given by,

$$\begin{aligned} EU_V(v = A|\hat{\pi}_A, x_A^*(m), m^*(\tau,\theta)) &= -|x-\theta|, \\ &= -(q|0-0| + (1-q)|0-1|), \\ &= -(1-q). \end{aligned}$$

In contrast, her subjective expected utility for electing candidate B over candidate A is given by,

$$\begin{aligned} EU_V(v = B|\hat{\pi}_B, x_B^*(m), m^*(\tau,\theta)) &= -|x-\theta|, \\ &= -(q|1-0| + (1-q)|1-1|), \\ &= -q. \end{aligned}$$

Thus, it is incentive compatible to elect candidate A if,

$$-(1-q) \geq -q,$$

which is satisfied since $q > \frac{1}{2}$. Now suppose that candidate A announced $a_A = 1$ and candidate B announced $a_B = 0$. In this case the voter's subjective expected utility for electing A is given by,

$$\begin{aligned} EU_V(v = A|\hat{\pi}_A, x_A^*(m), m^*(\tau,\theta)) &= -|x-\theta|, \\ &= -|\theta-\theta|, \\ &= 0. \end{aligned}$$

Her subjective expected utility for electing B is given by,

$$\begin{aligned} EU_V(v = B|\hat{\pi}_B, x_B^*(m), m^*(\tau,\theta)) &= -|x-\theta|, \\ &= -(q|0-0| + (1-q)|0-1|), \\ &= -(1-q). \end{aligned}$$

The voter elects A in this scenario if, $0 \geq -(1-q)$, which holds for all $q \in \left(\frac{1}{2}, 1\right]$. Thus, regardless of the sincere candidate's access announcement the voter never wants to deviate from electing him. Note that by symmetry of the model the same argument shows that when the voter believes candidate B is more likely to be sincere than A, she optimally votes for candidate B over A.

Case (2). In this case the voter believes both candidates are equally likely to be sincere. This implies that $a_A = a_B$. Moreover, since the probability of a given candidate being sincere is independent across candidates both candidate are believed to be sincere with probability π (the voter's prior). This implies the voter's subjective expected utility for electing either candidate is equal and therefore the net benefit from voting for one candidate over another is zero. Thus, the voter has no incentive to deviate from choosing A or B with equal probability. ■

The next lemma is useful for the proofs regarding candidate access strategies.

Lemma 2. *Corrupt politicians always grant interest group access in weakly undominated strategies.*

Proof of Lemma 2. When corrupt politicians grant access there is a positive probability, depending on his opponent's strategy, that he will win office, the interest group will pay the bribe, he will implement $x = 1$, and his payoff will be strictly positive. Suppose that the corrupt politician chooses to ban access. In that case we know that $b = 0$ if he wins for sure and therefore he will implement $x = 0$. If he loses his payoff is always zero. Thus, corrupt politicians' maximum payoff for banning access is zero, whereas, generally, his maximum payoff for granting access is positive. ■

Proof of Proposition 2. Lemma 2 shows that corrupt candidates always prefer to grant access. Thus, we only need to characterize the conditions in which sincere candidates prefer to separate by banning group access and pool by granting access. Consider the first case in which sincere candidates institute reform by banning access, $a_i^* = 0$. His subjective expected utility in that case

is given by,

$$\begin{aligned} EU_i(a_i^* = 0 | \tau_i = S, a_{-i}) &= \pi(\frac{1}{2}(q(-|0-0|) + (1-q)(-|0-1|)) \\ &\quad + \frac{1}{2}(q(-|0-0|) + (1-q)(-|0-1|))) \\ &\quad + (1-\pi)(q(-|0-0|) + (1-q)(-|0-1|)) \\ &= -\pi(1-q)) - (1-\pi)(1-q), \\ &= -(1-q) \end{aligned}$$

In contrast, consider the expected utility for a sincere candidate that deviates to announcing $a = 1$, holding fixed that another sincere politician will still choose $a = 0$, a corrupt politician will choose $a = 1$, and the voter continues to infer that $\tau = S$ when $a = 0$ and $\tau = C$ when $a = 1$,

$$\begin{aligned} EU_i(a_i = 1 | \tau_i = S, a_{-i}) &= \pi(q(-|0-0|) + (1-q)(-|0-1|)) + (1-\pi)(\frac{1}{2}(q(-|0-0|) \\ &\quad + (1-q)(-|1-1|)) + \frac{1}{2}(q(-|1-0|) + (1-q)(-|1-1|))) \\ &= -\pi(1-q) - \frac{1}{2}q(1-\pi). \end{aligned}$$

Thus, given that corrupt candidates choose $a = 1$ and sincere candidates play symmetric strategies, a sincere candidate will continue to institute reform and deny access ($a = 0$) if,

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

which holds so long as $q \in [\frac{2}{3}, 1]$ for all $\pi \in (0,1)$. Let $q^{\text{Reform}}(\pi) \equiv \frac{2}{3}$. $q \geq q^{\text{Reform}}(\pi)$ is necessary and sufficient to support a reform (separating) equilibrium.

Now consider the following equilibrium behavior: sincere and corrupt candidates both pool on granting access $a = 1$. Further, suppose that off-path beliefs are such that if the voter observes a deviation to $a = 0$ she places full mass on that deviation being made by a sincere type. A sincere

candidate's payoff for pooling on $a = 1$ is given by,

$$\begin{aligned} EU_i(a_i = 1|\tau_i = S, a_{-1} = 1) &= \pi\left(\frac{1}{2}(0) + \frac{1}{2}(0)\right) \\ &\quad +(1-\pi)\left(\frac{1}{2}(0) + \frac{1}{2}(q(-|1-0|) + (1-q)(-|1-1|))\right), \\ &= -\frac{1}{2}q(1-\pi). \end{aligned}$$

Finally, consider a sincere candidate's payoff for deviating to $a = 0$, which ensures he will win the election with certainty,

$$\begin{aligned} EU_i(a_i = 0|\tau_i = S, a_{-1} = 1) &= \pi(q(-|0-0|) + (1-q)(-|0-1|) \\ &\quad +(1-\pi)(q(-|0-0|) + (1-q)(-|0-1|)), \\ &= -(1-q). \end{aligned}$$

The sincere candidate will continue to pool so long as,

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

which is satisfied for all $\pi \in (0,1)$ so long as $q \in \left(\frac{1}{2}, \frac{2}{3-\pi}\right]$. Define $q^{\text{Access}}(\pi) \equiv \frac{2}{3-\pi}$. So long as $q \leq q^{\text{Access}}(\pi)$ an access equilibrium in which all candidates announce $a = 1$ is supported. Furthermore, since no type would strictly prefer to deviate from this equilibrium to denying access for any voter beliefs, this survives the application of the Intuitive Criterion.

To support our claim of uniqueness of the separating equilibrium when $q^{\text{Reform}}(\pi) < q^{\text{Access}}(\pi) < q$ we will also show that the pooling equilibrium violates the Intuitive Criterion under these circumstances. To see this, note that (1) The corrupt type of politician should never deviate from the access equilibrium to reform since doing so yields a payoff of at most zero, which is lower than that type's expected payoff in the Access pooling equilibrium, which gives that type a bribe with positive probability, (2) The sincere type would be willing to deviate to denying access if doing

so convinces the voter that it is not a corrupt type (this follows from the fact that a separating equilibrium exists). Thus, in these circumstances the pooling equilibrium violates the Intuitive Criterion.

Finally, note that $q^{\text{Access}}(\pi) = \frac{2}{3-\pi} > q^{\text{Reform}}(\pi) = \frac{2}{3}$ for all $\pi \in (0,1)$. Thus, when $q \in [q^{\text{Reform}}(\pi), q^{\text{Access}}(\pi)]$ both the reform and full-access equilibrium can be supported. ■

Proof of Corollary 1. The corollary follows directly from comparative statics with respect to π applied to the identity of $q^{\text{Pool}} \equiv \frac{2}{3-\pi}$. As $\pi \to 0$, $q^{\text{Access}} \to \frac{2}{3} \equiv q^{\text{Reform}}$. This implies that $\left[\frac{2}{3}, \frac{2}{3-\pi}\right] \to \left[\frac{2}{3}, \frac{2}{3}\right]$. Thus, there is no overlap: access is supported when $q < \frac{2}{3}$ and reform is supported when $q > \frac{2}{3}$. In contrast, as $\pi \to 1$, $q^{\text{Access}} \to 1$. This implies that $\left[\frac{2}{3}, \frac{2}{3-\pi}\right] \to \left[\frac{2}{3}, 1\right]$, which further implies that an access equilibrium always exists (since $q < 1$) and a reform equilibrium only exists when $q \in (\frac{2}{3}, 1]$ (as shown in the proof of Proposition 2). ■

Proof of Proposition 3. First, we derive the welfare expressions presented in text. Second, we set up the condition for the reform equilibrium to dominate the access equilibrium. Finally, we characterize the condition for the inequality to hold in terms of q.

First, in a reform equilibrium the voter is able to identify sincere politicians when there is (at least) one running for office. Recall that in this case sincere politicians ban interest group access and corrupt politicians grant access. Accordingly, if the voter elects a sincere politician then $x = 0$ is implemented for sure and if she elects a corrupt politician (who granted access) then $x = 1$ for sure. Combining these cases yields the voter's ex ante welfare in a reform equilibrium,

$$\begin{aligned} W_V^{\text{Reform}}(a,x) &= Pr(\tau_A = \tau_B = S)(u_V(x=0)) + Pr(\tau_A = S \text{ or } \tau_B = S)(u_V(x=0)) \\ &\quad + Pr(\tau_A = \tau_B = C)(u_V(x=1)), \\ &= \pi^2(-(1-q)) + 2(1-\pi)\pi(-(1-q)) + (1-\pi)^2(-q), \\ &= -(\pi^2 + 2\pi(1-\pi))(1-q) - (1-\pi)^2 q. \end{aligned}$$

In an access equilibrium the voter cannot differentiate between candidates. In this case sincere

politicians, if elected, will always set policy to match the state since the interest group reveals θ. Corrupt politicians will always implement $x = 1$. Since the voter elects either candidate with equal probability, and receives $-q$ if a corrupt politician is elected (which a randomly drawn politician will be with probability $1-\pi$) and receives 0 if a sincere politician is elected (which a randomly drawn politician will be with probability π) we have the following welfare expression:

$$\begin{aligned}
W_V^{\text{Access}}(a,x) &= Pr(A \text{ wins})(Pr(\tau_A = S)(u_V(x=\theta)) + Pr(\tau_A = C)(u_V(x=1))) \\
&\quad + Pr(B \text{ wins})(Pr(\tau_B = S)(u_V(x=\theta)) + Pr(\tau_B = C)(u_V(x=1))), \\
&= \frac{1}{2}(\pi(0) + (1-\pi)(-q)) + \frac{1}{2}(\pi(0) + (1-\pi)(-q)), \\
&= -\frac{1}{2}((1-\pi)q) - \frac{1}{2}((1-\pi)q), \\
&= -(1-\pi)q.
\end{aligned}$$

For the reform equilibrium to welfare-dominate the access equilibrium from the perspective of ex ante voter welfare it must be the case that,

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

Re-arranging this welfare condition in terms of q yields the level of q that supports the reform equilibrium being preferred to the access equilibrium with respect to ex ante voter welfare.

$$\begin{aligned}
-(\pi^2 + 2\pi(1-\pi))(1-q) - (1-\pi)^2 q &> -(1-\pi)q, \\
-\pi^2 + \pi^2 q - 2\pi^2 q + 2\pi^2 + 2\pi q - 2\pi - \pi^2 q + 2\pi q - q + q - \pi q &\geq 0, \\
-\pi[q(2\pi - 3) - \pi + 2] &\geq 0, \\
q(2\pi - 3) - \pi + 2 &\leq 0, \\
q &\geq \frac{\pi - 2}{2\pi - 3}.
\end{aligned}$$

Define $q^{\text{Welfare}}(\pi) \equiv \frac{\pi-2}{2\pi-3}$. If $q > q^{\text{Welfare}}$ then the reform equlibrium provides higher ex ante

welfare to the voter than the access equilibrium and if $q < q^{\text{Welfare}}$ then the opposite is true. Finally, note that

$$\frac{d}{d\pi}\left(\frac{\pi-2}{2\pi-3}\right) = \frac{1}{(2\pi-3)^2} > 0$$

so $q^{\text{Welfare}}(\pi)$ is increasing in π. ■

B Online supplemental appendix

This appendix provides formal analysis that forms the basis of informal discussions in the main body of the paper. First, we relax the assumptions that $\pi_A = \pi_B = \pi$ and that candidates play symmetric strategies. Second, we characterize the conditions under which interest groups benefit from self-regulating so that they can not bribe corrupt politicians.

B.1 Asymmetric corruption

In this section we relax the assumption that each candidate is equally likely to be sincere. We prove analogous results to those presented in the main body of the paper. The main difference is that we relax our focus on symmetric strategies to mirror our relaxation of model symmetry.

Suppose that politician A is more likely to be corrupt than politician B: $\pi_A < \pi_B$. This means that candidate B has an ex ante electoral advantage. That is, in the absence of new information the voter retains her prior beliefs that A and B are sincere/corrupt and therefore elects politician B in that case (as opposed to each candidate being elected with equal probability in the symmetric corruption model). Note also that the policymaking strategies of winning politicians and interest group bribery/lobbying strategies are equivalent because at that point of the game politician type is revealed to the group. So nothing changes from Proposition 1 in the baseline symmetric corruption model presented in text: corrupt politicians implement $x = 1$ if $b = 1$ and $x = 0$ otherwise, sincere politicians implement $x = 1$ when $m = 1$ and $x = 0$ when $m = 0$, and the interest group always bribes corrupt politicians and lobbies sincere politicians only when $\theta = 1$. Moreover, it is still optimal for the voter to simply elect the candidate most likely to be sincere and elect either candidate with equal probability when they are both equally likely to be sincere.

The results do change when analyzing the candidate access decisions. We proceed in a similar manner from the analysis of the symmetric corruption model presented in the main body of the paper. Notice first that Lemma 2 still holds in this setting. Corrupt candidates have no incentive to ban access by the argument in the proof of Lemma 2. This is true regardless of the asymmetry between π_A and π_B since both are still positive and less than one. We proceed by establishing the conditions for a separating reform equilibrium, a pooling access equilibrium, and equilibria in asymmetric strategies in which one candidate pools on access and one separates with reform.

Separating reform equilibrium. The following result provides the conditions required to support a reform equilibrium when $\pi_A < \pi_B$.

Proposition 4. *Suppose $\pi_A < \pi_B$. The conditions to support a separating reform equilibrium are the same as in Proposition 2 (i.e., when $\pi_A = \pi_B = \pi$).*

Proof of Proposition 4. Notice first that the argument in Lemma 2 implies that corrupt candidates always grant access. So we need to show the conditions that support sincere candidates banning access. If candidate A is sincere and plays the posited strategy (banning access) then he wins with probability $\frac{1}{2}$ when B is sincere since both play the same separating strategy and the voter correctly believes both to be sincere. If B is corrupt then A wins for sure. This yields the following expected utility for banning access,

$$\begin{aligned} EU_A(a_A = 0|\tau_A = S, \pi_B) &= -\pi_B\left(\frac{1}{2}(1-q)+\frac{1}{2}(1-q)\right)-(1-\pi_B)(1-q), \\ &= -(1-q). \end{aligned}$$

In contrast, if A deviates to $a = 1$ then he loses for sure when B is sincere since the voter believes he is corrupt and wins with probability one-half if B is corrupt since the voter believes both are corrupt.

$$\begin{aligned} EU_A(a_A = 1|\tau_A = S, \pi_B) &= -\pi_B((1-q))-(1-\pi_B)(\frac{1}{2}(0)+\frac{1}{2}q), \\ &= -\pi_B(1-q)-\frac{1}{2}(1-\pi_B)q. \end{aligned}$$

This yields the following incentive compatibility condition for candidate A to continue to ban access when sincere (given B does the same):

$$-(1-q) > -\pi_B(1-q) - \frac{1}{2}(1-\pi_B)q,$$

which is satisfied for all $\pi_B \in (0,1)$ when $q \in \left(\frac{2}{3}, 1\right)$.

Again, expected utility calculations for candidate B are exactly the same once we substitute in π_A for π_B. This is because we are assuming that both candidates play symmetric strategies in this particular equilibrium even though the probabilities of being corrupt are asymmetric across candidates.

$$\begin{aligned} EU_B(a_B = 0 | \tau_B = S, \pi_A) &= -\pi_A \left(\frac{1}{2}(1-q) + \frac{1}{2}(1-q) \right) - (1-\pi_A)(1-q), \\ &= -(1-q). \end{aligned}$$

$$\begin{aligned} EU_B(a_B = 1 | \tau_B = S, \pi_A) &= -\pi_A \left((1-q) \right) - (1-\pi_A)(\frac{1}{2}(0) + \frac{1}{2}q), \\ &= -\pi_A(1-q) - \frac{1}{2}(1-\pi_A)q. \end{aligned}$$

$$a_B^*(\tau_B = S, \pi_A) = 0 \iff -(1-q) > -\pi_A(1-q) - \frac{1}{2}(1-\pi_A)q.$$

Thus, for all $\pi_A, \pi_B \in (0,1)$ we can support a separating equilibrium where sincere candidates ban access and corrupt candidates grant access, the voter learns candidate types with certainty, and elects the candidate identified as sincere or elects either candidate with equal probability when both are of the same type so long as $q \in \left(\frac{2}{3}, 1\right)$. This is the same condition as in the case in which both candidates are sincere with equal probability: $q > q^{\text{Reform}}(\pi)$. ■

Pooling access equilibrium. The following result provides the conditions required to support an access equilibrium when $\pi_A < \pi_B$. In this case the conditions to support a pooling equilibrium in which all candidates grant interest group access regardless of type are more demanding.

Proposition 5. *Suppose $\pi_A < \pi_B$. Then the conditions to support an access equilibrium are more demanding than when $\pi_A = \pi_B = \pi$. Specifically, instead of $q \in \left(\frac{1}{2}, \frac{2}{3-\pi}\right)$, the relevant condition is $q \in \left(\frac{1}{2}, \frac{1}{2-\pi_B}\right)$ for all $\pi_B \in (0,1)$.*

Proof of Proposition 5. A is ex ante disadvantaged: $\pi_A < \pi_B$. This implies that candidate B wins the election for sure when both candidates pool on granting access because the voter is not able to learn anything about candidate types through access decisions, retains her prior about each candidate, and elects candidate B since he is ex ante more likely to be sincere. Lemma 2 shows that corrupt candidates always want to grant access so we show the conditions for sincere candidates to also grant access.

Candidate B's expected utility for granting access given that A is also granting access regardless of type is given by,

$$\begin{aligned} EU_B(a_B^* = 1 | \tau_B = S, \pi_A) &= -\pi_A(0) - (1-\pi_A)(0), \\ &= 0. \end{aligned}$$

B wins the election and, because he granted access, learns θ, implements policy accordingly and losing nothing in utility. His expected utility for deviating to $a = 0$ is given by (assuming that the voter believes deviations of this sort signal sincere type),

$$\begin{aligned} EU_B(a = 0 | \tau_B = S, \pi_A) &= -\pi_A(1-q) - (1-\pi_A)(1-q), \\ &= -(1-q). \end{aligned}$$

In this case, B still wins the election for sure,[26] but now because interest group access was banned does not receive information regarding θ, implements $x = 0$, and in expectation loses one with probability $(1-q)$. Obviously in this case politician B always wants to pool on $a = 1$ since $0 > -(1-q)$ for all $q \in \left(\frac{1}{2}, 1\right)$.

[26]The same Intuitive Criterion argument in the proof of Proposition 2 applies here: the voter believes that this deviation identifies the candidate as sincere.

Now consider the incentives for candidate A. A's expected utility for continuing to pool on $a = 1$ is given by,

$$\begin{aligned} EU_A(a_A^* = 1 | \tau_A = S, \pi_B) &= -\pi_B(0) - (1-\pi_B)(q), \\ &= -q(1-\pi_B). \end{aligned}$$

In this case, A always loses the election, but if B is a sincere type A loses nothing from a policy perspective since B matches policy to the state. However, when B is corrupt (with probability $1-\pi_B$) A expects to lose on policy with probability q since B will always implement $x = 1$. If A deviates to $a = 0$, and the voter accordingly updates that A is sincere and therefore A will win (again this is the only off-path belief that satisfies the Intuitive Criterion as in Proposition 2), he receives the following expected utility,

$$\begin{aligned} EU_A(a_A = 0 | \tau_A = S, \pi_B) &= -\pi_B(1-q) - (1-\pi_B)(1-q), \\ &= -(1-q). \end{aligned}$$

In this case candidate A can win the election, but this comes at the cost of information once he has won since he had to ban group access to do so. Therefore, he implements $x = 0$ since $q > \frac{1}{2}$ and expects to lose on policy with probability $1-q$. Combining these two expected utility expresses yields the incentive compatibility condition for A to continue to pool on access:

$$-q(1-\pi_B) > -(1-q),$$

which is satisfied for all $\pi_B \in (0,1)$ so long as $q \in \left(\frac{1}{2}, \frac{1}{2-\pi_B}\right)$.

Now, the upper bound has changed from the case of symmetric corruption pooling. In that case, $q < \frac{2}{3-\pi}$ supported pooling and in this case $q < \frac{1}{2-\pi_B}$ is (necessary and) sufficient. Obviously, $\frac{2}{3-\pi} > \frac{1}{2-\pi_B}$, which highlights the fact that the conditions on q to support the access equilibrium are more demanding when $\pi_A < \pi_B$. In both cases this upper bound is increasing in π_i. Also notice

that since in this case B always wants to pool when A does that π_A makes no difference (it does not restrict the range of parameters in which this pooling on access behavior is an equilibrium), so π_B is the relevant corruption probability due to how it restricts A's behavior. That is, only the probability of B being corrupt is relevant to support pooling since A is the politician with the incentive to deviate to a separating strategy. ■

Asymmetric strategy equilibria. The following result characterizes the conditions under which the two candidates play different strategies. That is, one candidate pools on access while the other separates by instituting reform when sincere. We state and prove the result without reference to particular candidate identity because the result holds for any ordering of candidate identity and corruption probabilities by substituting A or B for i or j. Notice that this has to do with relaxation of the symmetric strategies assumption in the model presented in the main body of the paper. This result does not depend on whether probabilities of corruption are equal or different. Thus, this result would also hold in the main analysis.

Proposition 6. *Suppose candidates can play asymmetric strategies. Then when* $q \in \left(\frac{1}{2-\pi_j}, 1\right)$ *we can support an equilibrium in which candidate* i *separates (as in a reform equilibrium) and candidate* j *pools (as in an access equilibrium), for all* $i \neq j$.

Proof of Proposition 6. Lemma 2 implies that corrupt candidates always grant access so we focus on the incentives for sincere candidates. Suppose first that candidate i separates by choosing $a_i^*(\tau_i) = 0$ when $\tau_i = S$ and $a_A^*(\tau_i) = 1$ when $\tau_i = C$. Further, suppose that candidate j pools on access so that $a_B^*(\tau_j) = 1$ for all $\tau_j \in \{S, C\}$. The voter best responds by electing candidate i following observation of $a_i^* = 0$ and electing candidate j if both candidates grant access since in this case the voter correctly believes candidate i is corrupt while candidate j, by virtue of pooling, is sincere with probability $\pi_j > 0$ (i.e., the voter's prior that j is sincere). If both i and j choose to ban access then the voter elects either with equal probability.[27]

[27]The Intuitive Criterion argument in the proof of Proposition 2 implies that if j deviates and bans access then the voter places full mass on j being a sincere type.

First, consider candidate i's expected utility for banning access when he is sincere:

$$\begin{aligned} EU_i(a_i^* = 0 | \tau_i = S, \pi_j) &= -\pi_j(1-q) - (1-\pi_j)(1-q), \\ &= -(1-q). \end{aligned}$$

In this case i always wins the election since j is pooling on access and therefore i is more likely to be sincere from the voter's perspective. However, since i banned access he does not receive any information about θ from the group, implements $x = 0$, and mismatches policy and the state with probability $1-q$. In contrast, candidate i's expected utility for deviating to granting access is given by,

$$\begin{aligned} EU_i(a_i^* = 1 | \tau_i = S, \pi_j) &= -\pi_j(0) - (1-\pi_j)(q), \\ &= -(1-\pi_j)q. \end{aligned}$$

In this case i loses the election for sure because the voter infers he is corrupt. He loses nothing on policy if candidate j is sincere, since in that case j matches policy to the state. If instead candidate j is corrupt, then the group bribes j and he implements $x = 1$ for sure, which in expectation leads to a policy loss with probability q. Thus, candidate i will continue to separate when candidate j pools if,

$$-(1-q) > -(1-\pi_j)q,$$

which is satisfied for all $\pi_j \in (0,1)$ so long as $q \in \left(\frac{1}{2-\pi_j}, 1\right)$.

Now, given that candidate i is separating what are the conditions that support candidate j's pooling on access? First, consider j's expected utility when sincere of granting access given that i is separating:

$$\begin{aligned} EU_j(a_j^* = 1 | \tau_j = S, \pi_i) &= -\pi_i(1-q) - (1-\pi_i)(0), \\ &= -\pi_i(1-q). \end{aligned}$$

In this case, if i is sincere j will lose and have to eat the probability that i mismatches policy to the state given that he will get no further information from the group since access was banned. If i is corrupt then j wins and will match policy to the state thereby losing zero in utility. In contrast, if j deviates and signals $a_j = 0$ his expected utility is,

$$\begin{aligned} EU_j(a_j = 0 | \tau_j = S, \pi_i) &= -\pi_i \left(\frac{1}{2}(1-q) + \frac{1}{2}(1-q) \right) - (1-\pi_i)(1-q), \\ &= -(1-q). \end{aligned}$$

The voter updates that j is sincere (since this is the only off-path belief that survives the Intuitive Criterion) and therefore elects i and j with equal probability when i is sincere and also bans access. In this case whoever wins will mismatch policy to the state with probability $1-q$. If i is corrupt and grants access then j will win for sure but will not learn anything about θ, implement $x = 0$, and this will lead to a loss of one with probability $1-q$. Thus, when j is sincere he always wants to stick to pooling on access given that i is separating since $-\pi_i(1-q) > -(1-q)$ for all $\pi_i \in (0,1)$.

Overall, we have an equilibrium in which i separates with access decisions and j pools on access any time that $q > \frac{1}{2-\pi_j}$, as stated in the result. ■

B.2 Interest group self-regulation

In this section we explore whether and when the interest group may benefit from self-regulation. That is, when will the interest group benefit from committing ex ante to not bribing corrupt politicians? We explore this question from the perspective of interest group ex ante welfare.

Suppose that the interest group has committed to no longer bribe corrupt politicians that win office, but it can still engage in substantive lobbying. So $b = 0$ always. Nothing in the policymaking stage of the game changes *except* that the interest group can no longer bribe corrupt politicians that have won office. Thus, corrupt politicians always implement $x = 0$ since $b = 0$, sincere politicians always implement $x = 1$ when $m = 1$ and $x = 0$ when $m = 0$ because the interest group still prefers to separate by lobbying $m = 1$ if and only if $\theta = 1$ (which implies $m = 0$ when $\theta = 0$). Similarly, the voter's voting strategy still does not change: she votes for the candidate most likely to be

sincere and elects either candidate with equal probability when each candidate is equally likely to be sincere.

To begin the analysis we first show that the interest group never benefits from committing to no bribery when the candidates play access equilibrium strategies.

Lemma 3. *The interest group never benefits from self-regulating by committing to no bribery when candidates play access equilibrium strategies.*

Proof of Lemma 3. First, consider the interest group's welfare when there is no bribery and all candidates grant access. In this case each candidate wins the election with equal probability since the voter cannot differentiate candidate types. If the group cannot bribe corrupt politicians then its ex ante expected welfare in a pooling access equilibrium is given by,

$$\begin{aligned} W_G(\text{No bribes}|\text{Access}) &= \pi(q(0)+(1-q)(1-\alpha_1))+(1-\pi)(0), \\ &= \pi((1-q)(1-\alpha_1)). \end{aligned}$$

With probability π the winning candidate is sincere. In this case the group receives zero if $\theta = 0$ since it will not lobby, $m = 0$, and the candidate will implement $x = 0$. This occurs with probability q. With probability $1-q$, $\theta = 1$, the group will lobby $m = 1$, and the politician will implement $x = 1$. This yields an expected payoff of $(1-\alpha_1)$. With probability $1-\pi$ the winner is corrupt, but since bribery has been banned the group can not affect the politician's implementation of $x = 0$, which yields a payoff of zero. Compare this with the interest group's welfare in the pooling access equilibrium when bribing corrupt candidates is possible:

$$\begin{aligned} W_G(\text{Bribes}|\text{Access}) &= \pi(q(0)+(1-q)(1-\alpha_1))+(1-\pi)(1-\kappa), \\ &= \pi((1-q)(1-\alpha_1))+(1-\pi)(1-\kappa). \end{aligned}$$

The group's expected payoffs when a sincere candidate wins are the same as above. When the winning candidate is corrupt the group pays a bribe $b = 1$ at cost κ, the candidate implements

$x = 1$, and the group receives $1 - \kappa$. This last component of group welfare is the difference between bribery and no bribery. That is, the net welfare from the interest group's perspective when bribery is banned is given by,

$$\begin{aligned} W_G(\text{No bribes}|\text{Access}) - W_G(\text{Bribes}|\text{Access}) &= \pi((1-q)(1-\alpha_1)) - \pi((1-q)(1-\alpha_1)) \\ &\quad -(1-\pi)(1-\kappa), \\ &= -(1-\pi)(1-\kappa). \end{aligned}$$

The group derives a net benefit from being able to bribe corrupt politicians equal to $(1-\pi)(1-\kappa)$ relative to not being able to bribe when all candidates are granting access. Thus, the group always prefers to retain its ability to bribe when candidates will play access equilibrium strategies for sure (e.g., when $q < \frac{2}{3}$). ■

Next, we establish that when the interest group has self-regulated by committing to no bribery sincere candidates no longer have incentives to separate by banning access.

Lemma 4. *Suppose that the interest group has committed to no bribery. Then all candidates grant interest group access.*

Proof of Lemma 4. Corrupt candidates continue to grant group access by the argument in Lemma 2. However, the incentives for sincere candidates to separate by banning access have changed. Consider a sincere candidate's expected payoff for banning access, given that corrupt candidates grant access:

$$\begin{aligned} EU_i(a_i = 0|\tau_i = S, a_{-i}, \pi) &= -\pi\left(\frac{1}{2}(1-q) + \frac{1}{2}(1-q)\right) - (1-\pi)(1-q), \\ &= -(1-q). \end{aligned}$$

If candidate i faces another sincere candidate then no matter who wins $x = 0$ is implemented and fails to match the state with probability $1-q$. Similarly, if i faces a corrupt candidate then he wins for sure, but since access was banned implements $x = 0$ and fails to match policy to the state with

probability $1-q$. In contrast, if a sincere candidate i deviates to granting access then his expected payoff is given by,

$$\begin{aligned} EU_i(a_i = 1|\tau_i = S, a_{-i}, \pi) &= -\pi(1-q) - (1-\pi)\left(\frac{1}{2}(0) + \frac{1}{2}(1-q)\right), \\ &= -\pi(1-q) - \frac{1}{2}(1-\pi)(1-q). \end{aligned}$$

With probability π the sincere candidate loses for sure because he is facing another sincere candidate (who is still separating) and receives an expected payoff of $-(1-q)$. With probability $1-\pi$ the other candidate is corrupt and the sincere candidate wins half of the time and gets to match policy to the state, but half the time he loses and because bribery is banned the corrupt winner implements $x = 0$, which yields an expected payoff of $-(1-q)$. We can no longer support sincere candidates optimally separating however since,

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

for all $q \in \left(\frac{1}{2}, 1\right)$ and $\pi \in (0,1)$. Thus, now that the group committed to no bribery sincere candidates will no longer separate by banning interest group access.

To complete the proof we show that when the interest group cannot bribe sincere politicians prefer to pool on granting access. If a sincere candidate who is granting access faces another sincere candidate also granting access then each win with probability one-half, but no matter who wins policy will ultimately match the state yielding zero policy loss. If a sincere candidate granting access faces a corrupt candidate granting access then each win with probability one-half. If the sincere candidate wins he matches policy to the state. If the corrupt candidate wins he implements $x = 0$ since there is no bribery. This will fail to match the state with probability $1-q$. The sincere

candidate's expected payoff for pooling on access is then,

$$\begin{aligned} EU_i(a_i = 1|\tau_i = S, a_{-i}, \pi) &= -\pi\left(\frac{1}{2}(0)+\frac{1}{2}(0)\right) - (1-\pi)\left(\frac{1}{2}(0)+\frac{1}{2}(1-q)\right), \\ &= -\frac{1}{2}(1-\pi)(1-q). \end{aligned}$$

A deviation to banning access leads the sincere candidate to win with certainty regardless of his opponents type, but because he banned access he always implements $x = 0$ which fails to match the state with probability $1-q$. This yields an expected payoff of $EU_i(a_i = 0|\tau_i = S, a_{-i}, \pi) = -(1-q)$. Thus, sincere candidates will always grant access so long as $-\frac{1}{2}(1-\pi)(1-q) > -(1-q)$, which is satisfied for all $q \in \left(\frac{1}{2}, 1\right)$ and $\pi \in (0,1)$. ■

Now suppose that we are in an environment in which candidates play a separating reform equilibrium. The following result characterizes when the interest group benefits from committing ex ante to not bribing corrupt politicians that win office. Lemma 4 implies that in that case the candidates instead play a pooling access equilibrium. Thus, the trade-off for the interest group is between continuing to be able to bribe corrupt candidates but having sincere candidates identify themselves by banning access and self-regulating so they cannot bribe corrupt winners but inducing sincere candidates to grant them lobbying access.

Proposition 7. *Suppose $q \in \left(\frac{2}{3}, 1\right)$ and candidates play symmetric reform equilibrium strategies (i.e., separating) when the interest group can bribe. Then the interest group prefers to self-regulate so it cannot bribe if $\pi((1-q)(1-\alpha_1) - (1-\pi)^2(1-\kappa) \geq 0$, which is satisfied so long as the probability a given candidate is sincere, π, is sufficiently high.*

Proof of Proposition 7. Recall from the proof of Lemma 4 that the group's welfare from self-regulating and inducing access equilibrium candidate behavior is given by,

$$\begin{aligned} W_G(\text{No bribes}|\text{Access}) &= \pi(q(0)+(1-q)(1-\alpha_1))+(1-\pi)(0), \\ &= \pi((1-q)(1-\alpha_1)). \end{aligned}$$

Suppose instead that the interest group were to choose to keep the ability to bribe. In this environment, when bribery is allowed, and sincere candidates ban access, any time a sincere candidate is running the voter learns who is sincere and corrupt and a sincere politician wins office. The only time in a reform equilibrium with bribery aids the interest group is when two corrupt candidates run against one another since this is the only instance in which the voter will elect a corrupt politician. The group's ex ante expected welfare when bribery is allowed and candidates separate with their access decisions, revealing their types, is given by,

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

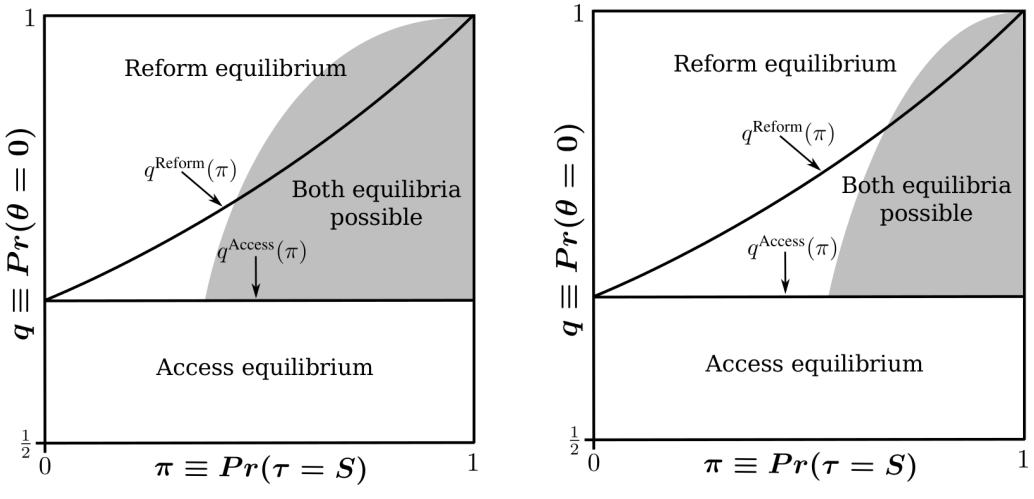
With probability $(\pi^2 + 2(1-\pi)\pi)$ a sincere candidate runs for and wins office, but since that candidate won office by separating and banning access the group cannot lobby and therefore, $x = 0$ always and the group receives zero no matter what. With probability $(1-\pi)^2$ both candidates running are corrupt and therefore the winning politician will be corrupt. In this case the group pays the bribe at cost κ in exchange for implementing $x = 1$, leading to a payoff of $1-\kappa$. Comparing the two welfare expressions in this case yields,

$$W_G(\text{No bribes}|\text{Access}) - W_G(\text{Bribes}|\text{Reform}) = \pi((1-q)(1-\alpha_1)) - (1-\pi)^2(1-\kappa)$$

Thus, an interest group would prefer to self-regulate and "tie its own hands" by ex ante committing to no bribery in a separating reform equilibrium environment so long as,

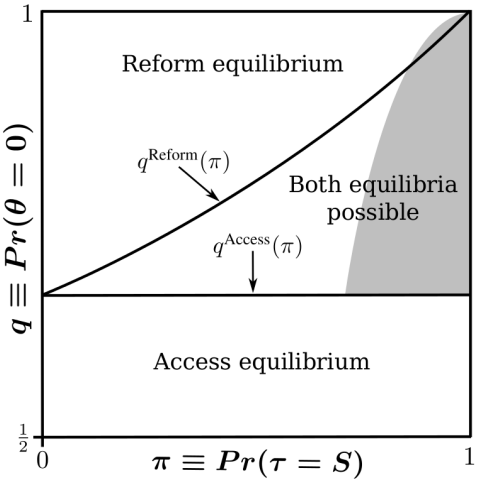
$$\pi((1-q)(1-\alpha_1)) - (1-\pi)^2(1-\kappa) > 0, \tag{5}$$

which is satisfied for all $q \in \left(\frac{2}{3}, 1\right)$ when $\frac{\alpha_1(1-q)+2k+q-3}{2(\kappa-1)} - \frac{1}{2}\sqrt{\frac{(\alpha_1-1)(q-1)(\alpha_1(q-1)-4\kappa-q+5)}{(\kappa-1)^2}} < \pi < 1$. Therefore, an interest group benefits from self-regulation in a reform equilibrium environment so long as π is sufficiently high. ■



(a) $\alpha_1 = \frac{1}{4} < \kappa = \frac{3}{4}$

(b) $\alpha_1 = \kappa = \frac{1}{2}$



(c) $\alpha_1 = \frac{3}{4} > \kappa = \frac{1}{4}$

Figure 3: Examples of when the interest group prefers no bribery in a separating reform equilibrium environment, conditional on the cost of lobbying relative to the cost of bribery.

Note: The gray shaded area represents the region in which the interest group benefits from bribes being banned given a separating reform equilibrium. Figure 3(a) is an example when lobbying is less costly than bribery. Figure 3(b) is an example when both lobbying and bribery are equally costly. Figure 3(c) is an example when lobbying is more costly than bribery.

Figure 3 displays examples of the regions in which the interest group prefers to self-regulate, conditional on the relative costs of lobbying versus bribery. Within the gray shaded region in each example the group would prefer to commit to no bribery given that candidates play separating reform equilibrium strategies. As can be seen visually in the figure, the region in which the

group benefits from this self-regulation grows larger as bribery becomes more costly relative to substantive lobbying.

The result in Proposition 7 only directly applies when candidates play a separating reform equilibrium for sure. Much of the region in which equation 5 is satisfied is also the region in which both the reform and access equilibrium are possible. We also know that in a pooling access environment the interest group *always* benefits from being allowed to bribe (from Lemma 3. Thus, committing to no bribery can be beneficial in a separating equilibrium but it is costly in a pooling access equilibrium. So to fully explore when the interest group benefits from committing to no bribery we must take into account both possibilities. There is no *prima facie* reason to expect one equilibrium is more likely to obtain than the other when both are possible so we take an agnostic view and simply assign complementary probabilities to each one to represent the interest group's beliefs about which equilibrium would be played. The following corollary extends the logic in Proposition 7 to this environment by noting that as long as the interest group believes a separating reform equilibrium is sufficiently likely to be played relative to a pooling access equilibrium it will commit to no bribery.

Corollary 2. *Suppose both the reform equilibrium and access equilibrium are possible. Define* $\beta \equiv Pr(\textit{Reform equilibrium})$ *and* $1-\beta \equiv Pr(\textit{Access equilbrium})$. *Then so long as the reform equilibrium is sufficiently likely relative to the access equilibrium the interest group will self-regulate by committing to not bribing corrupt politicians.*

Proof of Corollary 2. Lemma 3 shows that the interest group never wants to self-regulate when candidates play access equilibrium strategies for sure. Proposition 7 shows that there are conditions in which the interest group would prefer to self-regulate and commit to no bribery when candidates play reform equilibrium strategies for sure. Continuity of the interest group's expected utilities with respect to probabilities, derived in the proof of Proposition 7, implies that if the reform equilibrium is sufficiently likely relative to the access equilibrium – i.e., $\frac{\beta}{1-\beta}$ is sufficiently large – then the interest group will still prefer to self-regulate. ■