Pay-to-Play Politics: Informational lobbying and contribution limits when money buys access

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Abstract

We develop a game-theoretic model of lobbying in which contributions buy access to politicians. The analysis considers the claim that the rich are better off because they have more access to politicians, and that contribution limits reduce the rich-interest advantage, resulting in less-skewed policy. We show that these arguments do not hold when the politician is strategic in granting access. In equilibrium, rich interest groups receive greater access to the politician, but they are also the targets of politician rent seeking. Relatively poor groups tend to be better off in equilibrium. Contribution limits decrease the politician’s ability to extract rents from interest groups, which improves the payoffs of rich interests, and can result in worse policy. Finally, the paper provides a novel (and theoretically justified) argument in favor of contribution limits: they can encourage lobby formation, which results in more evidence disclosure and better policy.

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I really appreciate your additional contribution of $100,000... I hope your meeting with Trent Lott was productive.

Jim Nicholson, then Chairman of the Republican National Committee, in a letter to businessman Phil Anschutz, October 23, 1998

Money doesn’t buy...a position. But it will definitely buy you some access so you can make your case.

Thomas Downey, former US Congressman

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1 Introduction

Special interests often provide political contributions in an effort to secure access to decision makers. Access allows a contributor to present information or arguments in favor of a preferred policy. Contributions are typically not provided in a quid pro quo exchange for policy favors. These statements not only summarize the views of interest groups and policy makers (e.g., Herndon 1982, Schram 1995), they are strongly supported by the empirical evidence (e.g., Langbein 1986, Hall and Wayman 1990, Milyo et al. 2000, Ansolabehere et al. 2002, Clawson et al. 1992, Wright 1990). Even advocates of campaign finance reform argue that the current system of money in politics is unfair because the rich have better access to politicians than the poor (Makinson 2003).

We develop a game theoretic model in which a politician may require interest groups to make political contributions in exchange for access. Access allows a contributor to present verifiable evidence in favor of its preferred policy, which may influence the politician’s beliefs about the best policy. Typically, past models of lobbying assume that interest group evidence is completely unverifiable; that is, interest groups can send costly signals to the politician that may convey information about their private evidence, but directly revealing the evidence conveys nothing to the politician because there is no way to verify its authenticity. In an

1This quote appears in Schram (1995).

2For example, in Herndon (1982, p1000), an anonymous interest group representative stated: “About all you get [in exchange for your contribution] is a chance to talk to them... If you have a good case you can win them over. But you have to be able to talk to them.” In Schram (1995), former US Senator Dennis DeConcini said “What they got out of me for that contribution is access to come in ... and to tell me why ... it’s good ‘for America.’”

3We encourage anyone skeptical of the contributions-for-access story to read through the assortment of letters, memos, and fundraising call sheets that have been made publicly in recent years during court battles over campaign finance reform legislation. A substantial collection of these documents may be found on the News Now on PBS website, http://www.pbs.org/now/politics/cfnemos.html. The first quote above is taken from a letter available on this site.

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effort to make the models more consistent with the realities lobbying, a growing strand of the literature has begun to consider verifiable evidence. With verifiable evidence, the evidence itself (independent of any money attached to it or who conveys it) can influence a politician’s beliefs. The framework in the present paper is similar to other models of verifiable evidence disclosure except for one important distinction: we require that a politician grant an interest group access before the group can disclose its evidence. This allows a politician to ignore an interest group unless, for example, the group provides a political contribution.

We choose the simplest model that captures the important aspects of the current policy debate surrounding campaign finance reform in the US. The politician must choose whether to implement a reform, or keep the status quo policy in place. There is one interest group that benefits from the reform, and one that benefits from the status quo. Each interest group may have private evidence in favor of its preferred policy, and interest groups may differ in terms of their preference intensity or wealth differences. The politician chooses whether to offer access to one or both groups, and chooses the access fee (i.e., the minimum political contribution to get access). The interest groups then decide whether to pay the access fees. We show that rich interest groups have better access to the politician compared with poor interest groups. This does not, however, mean that the rich interest groups are better off. The politician, who is strategic when granting access and choosing policy, sets access fees to extract as much rent as possible from the interest groups. Rich interests, with their deep pockets, are the targets of politician rent seeking efforts. In equilibrium, poor groups, who are typically not targets of politician rent seeking efforts, tend to be better off than their rich counterparts.

The results lead us to dismiss one of the most popular arguments in favor of limiting campaign contributions: we show how standard intuition about rich special interests having a policy and expected payoff advantage does not hold when the politician is strategic in her decisions about awarding access and choosing policy. We then provide an alternative (theoretically supported) argument in favor of contribution limits: limits can encourage lobby formation, which can result in a more informed politician and better policy choices.

Section 3 describes the model in detail, and section 4 solves for game. The formal model is

4Formally, one may think of the evidence as favorable research reports, estimates of job creation, or other information that can be verified. For a more thorough discussion of verifiable evidence, see Bull and Watson (2004, 2007).

5Our results are largely consistent with the evidence presented in Baumgartner et al. (2009). The book provides a detailed account of 98 randomly selected policy issues, and the competing efforts by interest groups and lobbyists to implement reform and support the status quo. The analysis emphasizes the role of access and shows that business groups have much greater access to high-level decision makers than relatively poor citizen groups. However, it also finds little evidence that policy decisions favor the more-wealthy side of an issue.
one of verifiable-information disclosure, where interest groups can truthfully disclose evidence in support of their preferred policies to an uninformed politician. The model differs from other models of verifiable information in that a group can only disclose its evidence if the decision maker (i.e., the politician) grants it access. In this game, the politician sets an access fee (i.e., the contribution an interest group is required to pay in exchange for access), and she grants access to an interest group only if it pays the fee. All else equal, the politician prefers to choose policies with favorable evidence.

In equilibrium, the politician offers access to the interest group she expects will provide the largest political contribution. The politician then implements the policy preferred by the group with access if and only if the group can make a case in its favor. In the standard game with no limits to the size of contributions, the politician prefers to offer access to only one group, as offering access to both interest groups decreases total expected political contributions without increasing the politician’s ability to implement good reforms or avoid bad reforms.\(^6\) In a special case of the model when interest groups are either “rich” or “poor,” the politician only offers access to the rich group, and implements the rich-group preferred policy whenever it discloses favorable evidence. Although this is intuitively appealing,\(^7\) it does not imply that rich special interests are better off than poor special interests, or more generally that those with access are better off compared to those without access.

When offering interest groups access, the politician strategically chooses the access fees. The politician recognizes that wealthier interest groups are able to pay more for access and she sets the required contributions accordingly. In equilibrium, the politician sets access fees that fully offset any expected policy rent earned by an interest group with access. A rich interest group is given the opportunity to buy access; however, the access fee offsets the policy benefit of access. Although the poor group is not offered access, it also avoids making payments to the politician. In equilibrium, poor group expected utility exceeds that of the rich interest group. This highlights a flaw in traditional intuition: those with access (e.g., rich special interests) do not necessarily have the policy advantage or expected-utility advantage over the those without access.

Section 5 allows for various extensions of the model, starting with the introduction of contribution limits into the lobbying framework (section 5.1). A contribution limit constrains the politician’s choice of access fee, thereby constraining her ability to extract rent

\[^6\]The sharp nature of this result comes from the binary nature of the simple evidentiary structure underlying the model. Interest groups either have favorable evidence, or they do not. Under a continuous evidence space, we expect that the flavor of our results will continue to hold. The politician will continue to offer access to only one interest group so long as the informational benefits of granting access to both interest groups is relatively low compared to the financial benefits of limiting access.

\[^7\]It is also consistent with empirical findings. See for example, Herndon (1982), Schram (1995) and Makinson (2003).
from interest groups. A binding limit always increases rich interest group expected utility, and decreases the politician’s expected utility. It’s impact on poor group expected utility depends on the model parameters. Furthermore, a contribution limit never improves (and may decrease) the politician exposure to policy-relevant evidence.

If a contribution limit strictly decreases politician expected utility, then why would politicians ever support limits? To answer this question, section 5.2 incorporates endogenous lobby formation by the interest groups. That is, an interest group must form a lobby presence before engaging in the contributions-for-access game. When there is no contribution limit, the unique equilibrium involves neither interest group lobbying. If a group deviates to form a lobby, that group becomes the target of the politician’s rent-seeking efforts, which decreases the group’s expected payoffs.

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In this setting, a contribution limit constrains the politician’s ability to engage in rent seeking, and can result in lobby formation by the interest groups. Here, a contribution limit results in both increased political contributions and a more-informed politician. When the wealth differences between the interest groups are sufficiently large, the politician prefers to set a limit under which only the rich interest group forms a lobby presence and is offered access; in this case, the limit improves the payoffs for both the politician and the rich interest group, and decreases the payoffs for the poor interest group. Alternatively, when wealth differences are less substantial, the politician prefers to set a limit under which both groups lobby; in this case, the limit improves politician payoffs, but decreases the expected payoffs for both interest groups.

Section 5.3 allows for politician biases in favor of one interest group, and argues that the main results of the paper are unchanged. Section 5.4 discusses the evidentiary structure of the game, and considers what happens when the model allows for more generality. Section 6 concludes the paper with a discussion of the results, policy implications, and potential extensions of the model.

2 Literature Review

In this paper, contributions are given to secure access to a politician, where access allows an interest group to present verifiable evidence in support of a policy. This is in contrast to the common assumption in the theoretical literature that contributions are given in the quid pro quo exchange for policy favors.

The access motivation for contributing has received far less attention in the literature. The few papers that do consider access differ from our work in the basic assumptions about

8If a group deviates to form a lobby, that group becomes the target of the politician’s rent-seeking efforts, which decreases the group’s expected payoffs.

9For an overview of this literature, see Grossman and Helpman (2002). Such models include awarding a policy favor through an all-pay or winner-pay auction (Che and Gale 1998, Baye et al. 1993), a lottery (Tullock 1980), or a menu auction (Bernheim and Whinston 1986, Grossman and Helpman 1994, 1996).
the verifiability of evidence or mechanism through with the politician awards access. Cotton (2009) presents a model in which a politician decides between selling a policy favor or access through an all-pay auction mechanism. The advantage of using an all-pay auction to model contributions-for-access is that the framework is relatively straightforward to incorporate with a standard model of contributions-for-policy favor (e.g., Gavious et al. (2002)), and it results in sharp predictions about full evidence revelation in equilibrium. The disadvantage is that such a model may not match the realities of the lobbying process; we expect that interest groups do not compete against each other for access as much as they have some expectations about gaining access if they give a certain amount (this is consistent with the evidence presented in Herndon (1982), Schram (1995) and Makinson (2003)).

To our knowledge the only other model of access fees is due to Austen-Smith (1998), in which paying an access fee allows an interest group to conduct an experiment, the results of which are observed by the politician. Interest groups differ in terms of their policy preferences relative to the politician. The politician can only offer access to one of the interest groups, and the analysis focuses on which group is offered access. We take an alternative approach, relying on a more-simple evidentiary structure and fixing interest group policy preferences. This allows us to endogenize the number of groups to receive access, and to more carefully consider the impact of interest group wealth differences. The analysis also focuses more on campaign finance reform policy, specifically the impact of contribution limits.

Other “access” models, including Austen-Smith (1995) and Lohmann (1995), assume that evidence is completely unverifiable. Therefore, the presentation of evidence by itself can have no affect on the politician’s beliefs, and the impact that any piece of information has on the politician depends on who provides it and how much money they attach to the evidence. This paper, as well as Austen-Smith (1998) and Cotton (2009), make the alternative assumption that evidence can have an impact on the politician’s beliefs independent of who provides it, or the size of the contribution attached to it. In other words, interest groups have verifiable evidence.

The political-access framework differs from other models of verifiable evidence in that the decision maker (i.e., politician) controls which agents (i.e., interest groups) can present their evidence. Typically in the verifiable information literature, an agent with private information can disclose its information whenever it chooses to do so (e.g., Milgrom and Roberts 1986, Bennedsen and Feldmann 2002, 2006, Bull and Watson 2004, 2007). In the political-access framework, the politician determines which interest groups receive access, and he is able to grant access based on political contributions. Once an interest group receives access, it behaves as if it is in a more traditional game of verifiable information disclosure, and will always present its evidence. As Milgrom and Roberts (1986) establish, only an interest group
with the worst-possible evidence will refuse to present when given access.

Various papers have considered the role of contribution limits. In Cotton (2009), Prat (2002a,b), and Coate (2004a), contribution limits decrease the incentives politicians have to sell policy favors, and increase the likelihood that a politician chooses the policies preferred by his constituents. In this way, limits can result in better policy decisions. In Austen-Smith (1998) a limit can have a similar affect, causing the politician to grant access to a more-informed interest group rather than a group with a higher willingness to pay for access. Other papers suggest that contribution limits may harm constituent welfare. Wittman (2002) and Coate (2004b) incorporate limits into election models, where contributions fund advertising. In such games, limits may result in lower revenue for the politician, less advertising, and less informed voters. In Riezman and Wilson (1997), a politician may sell additional policy favors in order to compensate for lost revenue due to a limit. Drazen et al. (2007) shows how a contribution limit can result in the formation of more lobbying groups, and worse policy from the perspective of constituents. We also show that a limit can result in the formation of more lobby groups; however, unlike in Drazen et al. (2007), more lobby groups does not imply worse policy. Rather, in our framework, contribution limits can increase the number of special interests that lobby, which can result in more information disclosure, a better-informed politician, and better policy choices.

Finally, it is worth pointing out that the underlying evidentiary framework is related to models of judicial decision making. In the legal framework, two agents (i.e., a plaintiff and defendant) may present a judge evidence in support of or against conviction. In such settings, the burden of proof (e.g., innocent until proven guilty, or guilty until proven innocent) significantly affects the incentives that the different agents have for collecting and presenting evidence (Shin 1994, Hay and Spier 1997, Demougin and Fluet 2008). Sobel (1985) considers burden of proof rules in a game theoretic model of evidence disclosure in which evidence is verifiable (as in this paper), and the costs of evidence production is fixed. In our paper, the politician is the judge, the burden of proof falls on the interest group that is offered access (i.e., if the group with access does not disclose favorable evidence, then the politician chooses the other policy), and the politician chooses the cost of agent evidence production (i.e., the politician chooses the access fee). In Sobel (1985), the judge prefers to assign the burden of proof to one of the agents and the agents prefer for the burden of proof to be assigned to the other agent rather than themselves. Our analysis in section 4 produces similar results: the politician prefers to offer access (i.e., assign the burden of proof) to only one of the interest groups, and the interest groups are better off when it’s the other group.

\[10\] See for example evidentiary models of the legal process, including Cooter and Rubinfeld (1994), Shin (1994) and Posner (1999).
that is offered access.

3 Model

A politician must decide whether to implement a given policy reform, or leave the status quo in place. The politician prefers to implement the reform only if it improves upon the status quo; although the politician is ex ante uncertain of the reform’s type. There are two interest groups: group $o$ is in favor of the status quo, and group $r$ is in favor of reform. If an interest group has “access” to the politician, it can provide verifiable evidence in support of it’s preferred policy.\footnote{Baumgartner et al. (2009) provides extensive evidence that the majority of issues considered by US Congress are defined by two policy alternatives (a status quo and a known reform), and groups of individuals and organizations that work together in support of or against the reform.}

Evidence variable $e_i \in \{0, 1\}$ denotes group $i$’s evidence for $i \in \{o, r\}$. If $e_i = 1$, there exists evidence in favor of $i$’s preferred policy; if $e_i = 0$, then $i$ lacks evidence. The policy reform is good if there exists evidence in favor of the reform but not against in (i.e., $e_r = 1$ and $e_o = 0$). The reform is bad if there is evidence against the reform but not in favor of it (i.e., $e_r = 0$ and $e_o = 1$). The reform is neutral if either there simultaneously exists evidence in favor and against the reform, or if no evidence exists on either side (i.e., $e_r = e_o$). A neutral reform simply means that a fully-informed politician is indifferent between the proposed reform and the status quo. The simple evidentiary structure helps with intuition and tractability during the analysis. Alternatively, we can consider a continuous distribution of evidence. Doing so rules out the possibility of neutral reforms, which makes for a more cumbersome analysis. However, as long as the politician cares enough about collecting contributions, the main results of our analysis will continue to hold under a more general evidentiary structure. We discuss this further in section 5.4.

At the beginning of the game, interest groups realize their own evidence (or lack there of), but not the evidence of the other group. However, the distribution of evidence is common knowledge. Let $s \in \{(o, r), o, r, \emptyset\}$ denote the set of agents that draw evidence in favor of their position, and let $p_s$ represent the ex ante probability of state $s$. For example, $p_{o, r}$ is the probability that both groups simultaneously draw evidence, and $p_r$ is the probability that $e_r = 1$ while $e_o = 0$.

The game takes place as follows

1. The politician sets access fees $c_i$ for each interest group, $i \in \{o, r\}$. If $c_i = \emptyset$, then the politician does not provide access to group $i$. If $c_i \geq 0$, then the politician commits to provide group $i$ access if and only if $i$ pays $c_i$. 
2. Interest groups simultaneously choose whether to pay their respective access fee. If a
group pays its $c$, it then choose whether to reveal its evidence to the politician.

3. The politician chooses whether to implement the reform. Payoffs are realized.

The politician sets a take-it-or-leave-it price for access. That is, the politician has all of
the bargaining power in determining access fees. This assumption results in the sharpest
predictions about the politician’s ability to capture interest group rent. If we relax this
assumption, and assume instead the the access prices are the result of a bargaining process
between an interest group and politician for example, then the politician will no longer
capture all of the policy rent earned by an interest group with access. However, as long
as the resulting access fees are high enough (i.e., so long as the politician retains enough
influence over the fees), then our main results will continue to hold. That is, interest groups
with access will not be better off than interest groups without access, and the conclusions
about contribution limits will not change.\footnote{Similarly, the model assumes that the politician can only sell access and she cannot sell policy choices. If the politician could sell her policy choice directly (as in Cotton (2009)), then auctioning off the policy choice can result in greater expected total contributions than selling access. Therefore, the model implicitly
assumes that either the politician cannot explicitly sell policy (e.g., it is illegal), or that the politician’s utility function puts low-enough weight on contributions relative to policy such that she always prefers selling access rather than selling policy.}

Let $a_i \in \{0, 1\}$ indicate whether group $i$ pays its access price. And let $m \in \{0, 1\}$ indicate
whether the politician implements reform. The function $W(m, s)$ represents the politician’s
policy payoffs, where $W(1, r) = w$, $W(1, o) = -w$, and $W(0, s) = W(1, (o, r)) = W(1, \emptyset) = 0$. 
That is, the politician finds it beneficial to implement a good reform, costly to implement a
bad reform, and is indifferent between a neutral reform and the status quo. The politician’s
total payoff is

$$U_P(m, c_o, c_r) = W(m, s) + (\phi c_o - \tau) a_o + (\phi c_r - \tau) a_r,$$

where $\phi > 0$ represents how much the politician benefits from political contributions, and
$\tau > 0$ represents the costs of providing access. The analysis assumes that a politician who is
indifferent between the two policies chooses each with equal probability (an assumption we
weaken in section 5.3.

Interest group total payoff depends on whether its policy is implemented, and its payment
to the politician. Thus,

$$U_r(a_r) = mv_r - \theta_r c_r a_r \text{ and}$$

$$U_o(a_o) = (1 - m)v_o - \theta_o c_o a_o,$$

where $v_i > 0$ represent a group’s benefit from having its preferred policy implemented, and
\(\theta_i > 0\) represents how much the group cares about money relative to policy outcomes. Both \(v_i\) and \(\theta_i\) are common knowledge.\(^{13}\)

We solve for the Perfect Bayesian Equilibrium (PBE) of the game. The analysis proceeds using backward induction and the elimination of strictly dominate strategies, which produces a unique solution of the game. Formally, a description of a PBE should describe beliefs on and off of the path of play. However, we generally ignore beliefs in our description of equilibrium as, given the unique solution of the game, they are not necessary for keeping strategies on the path of play.

4 Equilibrium

It is worth recognizing that any interest group that is offered access will reveal its favorable evidence. Failure to reveal evidence once a group receives access results in the politician believing that the interest group must have below-average evidence. Therefore, only those with below-average evidence would ever not reveal their evidence. There is “unraveling” and in equilibrium, only those with the lowest possible evidence would ever consider not revealing their evidence after being granted access. This result was first established in Milgrom (1981). The remainder of the paper takes this result as given.

Buying access results in the revelation of one’s evidence (or lack thereof) to the politician. It is costly (whenever \(c_i > 0\)), and provides no benefit to an interest group with \(e_i = 0\). Therefore, not paying for access is a strictly dominate strategy for an interest group without evidence in favor of its policy.

On the other hand, a group with evidence will pay for access if the cost of doing so is not too high. This depends in part on whether the politician also offers access (at a reasonable price) to the other interest group. Here, we derive the maximum access fees when the politician offers access to both interest groups, and when she offers access to only one interest group. First, consider the case when the politician offers access to both interest groups at prices where those with evidence accept. This means that the politician learns any evidence that exists, and chooses policy accordingly. This implies the following individual

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\(^{13}\)By assuming that \(v_i\) and \(\theta_i\) are known, we are able to limit the analysis to a problem with one-dimensional uncertainty. The only thing the politician doesn’t know ex ante is whether interest groups have favorable evidence. If we allow for an additional dimension of uncertainty (e.g., the politician doesn’t know \(v_i\) either), then the politician’s ability to set access fees to extract rent becomes less precise. When she observes that an interest group is unwilling to pay her access fee, for example, she may be uncertain whether this was because the interest group didn’t have any favorable evidence or because the group doesn’t care much about the issue. The politician would still be able to use access fees to extract rent and become better informed about evidence, but they would be less effective than the case with one-dimensional uncertainty.
rationality constraint for group $r$:

$$\frac{p_{o,r}}{p_{o,r} + p_r} v_r + \frac{p_r}{p_{o,r} + p_r} v_r - \theta_r c_r \geq \frac{p_r}{p_{o,r} + p_r} v_r,$$

where the left hand side of the inequality is $r$’s expected utility when it pays $c_r$ and the right hand side is its expected utility when it does not buy access. The expression simplifies to $c_r \leq \frac{v_r}{\theta_r}$. Similarly, it must be that $c_o \leq \frac{v_o}{\theta_o}$. Therefore, for the politician to offer access to both groups, it must be that

$$c_i \leq \frac{v_i}{\theta_i} \text{ for } i \in \{o, r\}. \quad (1)$$

By setting $c_r = \frac{v_r}{\theta_r}$ and $c_o = \frac{v_o}{\theta_o}$, the politician maximizes her revenue for the case when she offers access to both groups. This results in expected politician utility

$$EU_P = p_r w + \left( \phi \frac{v_o}{\theta_o} - \tau \right) (p_{o,r} + p_o) + \left( \phi \frac{v_r}{\theta_r} - \tau \right) (p_{o,r} + p_r). \quad (2)$$

In this case, the politician is fully informed; she always implements the reform when it is good, and never when it is bad. Thus, $EW = p_r w$.

Next, consider the case when the politician only offers access to one interest group. That is, she sets $c_i$ low enough that $i$ contributes when it has evidence, and she sets $c_{-i} = \emptyset$. Suppose that the interest group being offered access is group $r$. In this case, if $r$ buys access then reveals evidence in favor of reform, the politician will implement the reform. If $r$ does not buy access or reveals a lack of evidence, the politician will not implement the reform. For $r$ to be willing to pay $c_r$ when it has evidence, it must be that $v_r - \theta_r c_r \geq 0$. This implies that $c_r \leq \frac{v_r}{\theta_r}$ and $c_o = \emptyset$. Alternatively, the politician could exclusively offered access to group $o$ by setting $c_r = \emptyset$ and $c_o \leq \frac{v_o}{\theta_o}$. Thus, when the politician offers exclusive access to $i$, she must set

$$c_i \leq \frac{v_i}{\theta_i} \text{ and } c_{-i} = \emptyset. \quad (3)$$

In equilibrium, the interest group that is offered access pays the access fee if and only if it has evidence in favor of its policy. This means that the politician becomes fully informed about $i$’s evidence when she offers $i$ access. Therefore, she will choose $i$’s preferred policy if and only if it presents evidence in favor of its policy. If $i$ does not pay the access fee, the politician implements the other policy. This means that the politician implements the reform whenever it is “good,” and does not implement reform whenever it is “bad.” Although the politician remains uninformed about whether the other group has evidence, she is no less likely to implement a good reform or more likely to implement a bad reform than when she offered access to both interest groups. Therefore, $EW = p_r w$ in this case as well. (Clearly,
The discrete evidence structure is playing a significant role in simplifying the analysis; in section 5.4 we discuss how the main results are unchanged if we were to assume a more general evidentiary structure.)

The politician can charge one interest group \( c_i = \frac{v_i}{\theta_i} \) for access, and she earns expected utility

\[
EU_P = p_r w + \left( \phi \frac{v_i}{\theta_i} - \tau \right) (p_{o,r} + p_i). \tag{4}
\]

The politician prefers to offer access to the interest group with the highest value \( (\phi \frac{v_i}{\theta_i} - \tau)(p_{o,r} + p_i) \), which we denote \( i^* \). Formally, \( i^* \equiv \arg \max_i (\phi \frac{v_i}{\theta_i} - \tau)(p_{o,r} + p_i) \). It is straightforward to show that when the politician only offers access to \( i^* \), her expected utility (Eq. 4) is strictly greater than when she offers access to both groups (Eq. 2).

Alternatively, the politician could offer neither interest group access. That is, she may set \( c_o = c_r = \emptyset \). In this case, she does not collect any contributions, but she will also not have to spend time meeting with the groups. Therefore, her expected payoff equals her expected policy payoff: \( EU_P = EW \). If she implements reform, then \( EU_P = (p_r - p_o)w \); if she does not implement reform, then \( EU_P = 0 \). She therefore chooses reform when \( p_r > p_o \), and does not choose reform otherwise.

Proposition 1 summarizes the equilibrium of the game. It follows directly from the above discussion.

**Proposition 1** In equilibrium, each interest group \( i \in \{o, r\} \) plays the following strategy:

- \( a_i = 1 \) if and only if

  \[
c_i \leq \bar{c}_i, \quad \text{where} \quad \bar{c}_i = \begin{cases} \frac{v_i}{2\theta_i} & \text{when } c_{-i} \leq \frac{v_{-i}}{\theta_{-i}} \\ \frac{v_i}{\theta_i} & \text{when either } c_{-i} > \frac{v_{-i}}{\theta_{-i}} \text{ or } c_{-i} = \emptyset \end{cases}
\]

  The politician plays the following strategy:

- If \( p_r > p_o \) and \( p_o w + \left( \phi \frac{v_{i^*}}{\theta_{i^*}} - \tau \right) (p_{o,r} + p_{i^*}) < 0 \), then the politician implements reform without offering access. That is \( c_o = c_r = \emptyset \) and \( m = 1 \).

- If \( p_r \leq p_o \) and \( p_r w + \left( \phi \frac{v_{i^*}}{\theta_{i^*}} - \tau \right) (p_{o,r} + p_{i^*}) < 0 \), then the politician keeps the status quo without offering access. That is \( c_o = c_r = \emptyset \) and \( m = 0 \).

- Otherwise, the politician offers access to interest group \( i^* \) and implements reform if and only if \( i^* \) reveals evidence in favor of its policy. That is

  \[
c_{i^*} = \frac{v_{i^*}}{\theta_{i^*}}, \quad c_{-i^*} = \emptyset, \quad \text{and} \quad m = \begin{cases} 1 & \text{if } e_{i^*} = 1 \\ 0 & \text{if } e_{i^*} = 0 \end{cases}
\]
An interesting case of the model is when the two interest groups only differ in terms of their wealth parameters $\theta_o$ and $\theta_r$. Here, $v_o = v_r = v$ and $p_o = p_r$. We refer to the group with the lowest $\theta_i$ as the “rich” group, and the other group as the “poor” group. Arguments in favor of campaign finance reform implicitly assume that rich special interests do not also have an advantage in popular support or the merits of their preferred policies. Our model treats wealth differences in a similar fashion—rich groups differ from poor groups in terms of their wealth parameter alone.\footnote{Therefore, when section 5.1 dismisses the popular argument in favor of contribution limits, it does so without making any additional assumptions about the correlation between interest group wealth and policy merits or popular support.} The politician prefers to offer access to the group with the lowest $\theta_i$. That is, interest group $i^*$ is the rich group. This implies the following corollary.

**Corollary 2** When interest groups only differ in terms of their wealth, in equilibrium the politician offers access to the rich group or neither group; she never offers access to the poor group.

This result is consistent with the arguments from campaign finance reform advocates that the rich have better access to politicians than the poor (e.g., Makinson 2003). However, the result does not directly imply that policy is biased in favor of rich groups, or that rich groups are necessarily better off than poor groups. We consider these aspects of the equilibrium below.

The first question we ask is whether the politician is more likely to choose policy in favor of $i$ when $i$ is the only group offered access. When $i$ is offered access exclusively, the politician will eventually implement its preferred policy only if it reveals favorable evidence, which it does with probability $p_{o,r} + p_i$. Alternatively, $i$’s policy is implemented with probability $\frac{1}{2}(p_{o,r} + p_i) + p_i$ when the politician offers access to both groups, and with probability $p_o + p_i$ when the politician offers access exclusively to the other group, $-i$. Notice that whether the politician offers access to one or both groups, the reform is implemented whenever it is good, and the status quo remains in place whenever reform is bad. Therefore, the identity of the group(s) offered access only affects the probability that a neutral reform favors a certain group. This implies Lemma 3.

**Lemma 3** When the reform is good or bad, offering access exclusively to interest group $i$ (compared to offering access exclusively to $-i$ or to both groups) does not influence the probability that $i$’s preferred policy is implemented. When the reform is neutral, offering access exclusively to interest group $i$ increases the probability of $i$’s preferred policy being implemented if and only if $p_{o,r} > p_o$.\footnote{Therefore, when section 5.1 dismisses the popular argument in favor of contribution limits, it does so without making any additional assumptions about the correlation between interest group wealth and policy merits or popular support.}
The identity of the group with access does not change the politician’s ability to implement good reforms and avoid bad reforms. The identity of group with access can affect the politician’s choice only in the case when she is indifferent between implementing the reform and keeping the status quo.

The second question we ask is whether interest groups are better off when they are offered access, not just in terms of policy utility, but overall. We show that the group which is offered access is in fact worse off, in expectation, compared to the group that is not offered access. This is because the politician sets an access fee that fully extracts the interest group’s rents when it does have evidence in favor of its position. The group that is not offered access, on the other hand, gets a policy decision in its favor (without making a contribution) whenever the other group cannot present evidence.

**Proposition 4** In equilibrium, if group $i$ is offered access, then $U_i = 0$, and $EU_{-i} = (p_i + p_\emptyset) v_{-i} > 0$.

These findings are in contrast to the standard intuition suggesting that groups with access are better off than those without access. We illustrate a flaw in this intuition. When the politician strategically sets access fees, and updates her beliefs about evidence when a group does not present favorable evidence, being offered access is not necessarily beneficial for an interest group.

Consider again the case when interest groups only differ in terms of wealth. When the rich interest group $i^*$ is offered access, it pays the access fee and gains access if it has favorable evidence to disclose. The poor group is never offered access. However, Lemma 3 shows that policy does not necessarily favor the rich group. When one policy is strictly better than the other, from the standpoint of the politician, the identity of the group with access does not affect the policy choice. Even when the policies are neutral from the standpoint of the politician, there is no guarantee that being offered access gives the rich group a policy advantage (it only does so when $p_{o,r} > p_\emptyset$). Not only does a rich interest group not necessarily have a policy advantage, but it is actually made worse off by being rich. The politician sets access fees to extract the policy rents from the interest group that is likely to pay the most. This means that although the rich group can buy access, the price of access offsets any benefit achieved from having its policy implemented. The poor group, on the other hand, is not the target of access fees and benefits whenever the rich group does not reveal favorable evidence. Proposition 4 implies that a poor group is actually better off than a rich group in equilibrium.
5 Refinements

We consider a series of refinements to the model for the case when interest groups only differ in terms of their wealth parameters; that is, \( v_o = v_r = v \) and \( p_o = p_r \). In this section, we assume the independence of evidence, where \( \rho \equiv p_o,r + p_o + p_r, \rho(1 - \rho) \equiv p_o = p_r, \rho^2 \equiv p_o,r, \) and \( (1 - \rho)^2 \equiv p_\emptyset \). Additionally, we assume that the model parameters are such that the benefit of each interest group’s contribution is greater than the politician’s cost of providing access, even when he offers access to both groups. That is,

\[
A_1 \, \tau \leq \phi \frac{w}{2\theta_i} \text{ for } i \in \{o, r\}.
\]

These assumptions focus the analysis on the most interesting cases. For example, by allowing interest groups to only differ in terms of wealth limits the number of discrete cases that the analysis must address. \( A_1 \) guarantees that the politician offers access in the Section 4 analysis. One reason for this assumption is that if the parameters are such that the politician offers no access in the unconstrained game, a contribution limit will never have an impact on behavior. The intuition below carries over to more general examples.

Here again, \( i^* \) is the interest group with the lowest value \( \theta_i \); that is, the rich group.

5.1 Contribution Limit

When there exists a limit, \( c_{\text{max}} \), interest groups cannot pay more than the limit, and the maximum access fee charged by the politician cannot exceed \( c_{\text{max}} \).

Proposition 5 describes the equilibrium of the game under limit \( c_{\text{max}} \).

**Proposition 5** In the unique equilibrium of the game with contribution limit \( c_{\text{max}} \) when interest groups differ only in terms of their wealth, the politician

- offers no access, that is \( c_o = c_r = \emptyset \), when\(^{15}\)

\[
c_{\text{max}} < \frac{\tau}{\phi} - (1 - \rho) \frac{w}{\phi},
\]

- offers access to both interest groups at prices \( c_o = \min\{c_{\text{max}}, \frac{v}{2\theta_o}\} \) and \( c_r = \min\{c_{\text{max}}, \frac{v}{2\theta_r}\} \) when

\[
\frac{\tau}{\phi} \leq c_{\text{max}} < \frac{v}{2\theta_o} + \frac{v}{2\theta_r} - \frac{\tau}{\phi}, \text{ and}
\]

\(^{15}\)Notice that \( \frac{\tau}{\phi} - (1 - \rho) \frac{w}{\phi} \) may be negative, in which case the politician offers access to at least one group in equilibrium.
• offers access to only one interest group at price $c_i = \min\{c_{\text{max}}, \frac{v}{\theta_i}\}$ when either

$$\frac{\tau}{\phi} - (1 - \rho)\frac{w}{\phi} \leq c_{\text{max}} < \frac{\tau}{\phi} \text{ or } \frac{v}{2\theta_e} + \frac{v}{2\theta_r} - \frac{\tau}{\phi} \leq c_{\text{max}},$$

where group $i^*$ is offered access if $c_{\text{max}} > \frac{v}{\theta_{i^*}}$, otherwise each group is offered access with equal probability.

Having established the effect of a contribution limit on the equilibrium strategies, we can now consider the impact that a limit has on politician and interest group utility, and on the politician’s ability to identify good reforms and avoid bad reforms, which is captured by her policy utility measure $EW$.

**Lemma 6** In equilibrium, a contribution limit $c_{\text{max}} < \frac{1}{2\phi}(2\tau - (1 - \rho)w)$ strictly decreases the politician’s expected policy utility $EW$. Any other limit does not change $EW$.

**Proposition 7** In equilibrium, any contribution limit $c_{\text{max}} < \frac{v}{\theta_{i^*}}$

• strictly decreases politician expected utility $EU_P$,

• strictly increases rich interest group expected utility $EU_{i^*}$, and

• may either increase or decrease poor group utility $EU_{-i^*}$ depending on parameters.

A contribution limit makes rich interest groups strictly better off by limiting the politicians ability to extract rent from the interest group through political contributions. Without a limit, the rich interest group expects to earn 0 net payoff in equilibrium, regardless of whether the group has favorable evidence or not. When there is a contribution limit, two aspects of the equilibrium benefit the rich group. First, the rich group is no longer guaranteed of receiving an exclusive access offer. This means that politician does not necessarily learn when the rich group lacks evidence. Second and more interestingly, the politician is no longer able to set prices high enough to capture all of the policy rent earned by a rich group with positive evidence and access. This means that even a rich group with evidence now earns positive expected utility in equilibrium.

The same factors that make the rich group better off also work to make the politician worse off in equilibrium. Under the contribution limit, the politician is limited in her ability to extract rent from interest groups. She therefore expects to collect lower total contributions. At the same time, her ability to implement policy is unchanged so long as the contribution limit is not too low. If the limit is low enough, the politician decides not to offer any access in equilibrium. When this is the case, the limit has an even greater negative impact on
politician utility as it not only decreases contributions, it also results in a less informed policy choice.

Poor groups, on the other hand, may be made either better or worse off by a limit, depending on the model parameters. Consider, for example, the case when \( c_{\text{max}} < \frac{1}{2\varphi}(2\tau - (1 - \rho)w) \). Without a limit, the politician offered the rich group access and the poor group earned expected payoff \((1 - \rho)v\). Here, a limit causes the politician to switch to offering no access to either group, in which case both groups receive expected payoff \( \frac{v}{2} \). The limit makes the poor group better off only if \( \rho > \frac{1}{2} \), that is, if there is a high-enough probability that the rich group presents positive evidence when it is offered access (which it is without a limit). Similarly, when the limit causes the politician to offer access to both groups, the poor group is made better off only if \( c_{\text{max}} < \frac{v}{2\varphi - \iota} \) (see the proof to Proposition 7 in the appendix).

For any limit \( c_{\text{max}} < \frac{v}{2\varphi - \iota} \), the rich interest group is no longer at a policy disadvantage compared to the poor group. The rich group has either the same expected utility as the poor group, or it has strictly higher expected utility (i.e., when either \( \frac{\tau}{\varphi} < c_{\text{max}} < \frac{v}{2\varphi - \iota} \) or \( \frac{1}{2\varphi}(2\tau - (1 - \rho)w) < c_{\text{max}} < \frac{v}{2\varphi - \iota} \)). This is in contrast to the game without a contribution limit in which \( EU_{r^*} < EU_{-r^*} \). However, the rich group utility advantage under a limit is driven by the fact that a rich group experiences less disutility from any given payment \( c_{\text{max}} \), rather than from any differences in the probability of receiving access or differences in the access fees assigned to the rich and poor groups.

5.1.1 Reconsidering the popular argument in favor of limits

A popular argument in favor of contribution limits by campaign finance reform advocates goes as follows. Rich interest groups have better access to policy makers. Therefore policy will be biased in favor of rich interests. Contribution limits can help level the playing field between rich and poor special interests, and will therefore result in better policy.

Our first critique of this argument is that offering access to an interest group does not commit a policy maker to act in favor of the group. In our framework, the policy maker rationally updates her beliefs about the best policy, and then chooses her preferred policy regardless of whether that interest group bought access. In our setting, a contribution limit cannot result in a better informed politician and “better” policy. A low enough limit actually decreases politician information (since she no longer finds it worthwhile to grant access to either group), and thus results in worse policy from the standpoint of the politician. To the extent that a fully-informed politician chooses the policy that maximizes aggregate constituent welfare, this means that a limit may make constituents worse off and may never make them better off.

Our second critique of the standard pro-limit argument involves interest group expected
payoffs. At the heart of the argument is the idea that rich interest groups have an advantage over poor groups, and that contribution limits eliminate this advantage. This reasoning is only partially true. Without a limit, rich groups receive access and poor groups do not, but poor groups have higher expected utility than rich groups because they are not the target of politician rent seeking. Contribution limits offer a greater benefit to rich interest groups.

### 5.2 Endogenous Lobby Formation

The previous section shows how contribution limits benefit interest groups, but make the policy maker worse off. Why then would a politician ever support the implementation of a contribution limit? One possibility is that voters believe the argument put forth by campaign reform advocates and the politician gives in to voter pressure. Or, possibly, the politician herself believes the arguments and chooses the reform in an effort to achieve better policy decisions. This section considers another explanation: endogenous lobby formation.

Consider the game without contribution limit from Section 3. Now, add one additional stage to the beginning of the game where interest groups simultaneously decide whether or not to establish a lobbying presence. The politician can offer a group access only if the group establishes a presence.\(^\text{16}\) We assume that the interest groups decide whether to establish a lobbying presence before they observe their evidence; although similar results can be found if they first observe \(e\).\(^\text{17}\)

First, consider the game with no contribution limit. If no interest group forms, then the politician randomly chooses between the two policy choices. Each group receives \(EU_i = \frac{v}{2}\). If interest group \(i\) forms a lobby while \(-i\) does not, then the politician offers access to the group that forms at price \(c_i = \frac{v}{\theta_i}\). The formed group receives \(EU_i = 0\) while the other receives \(EU_{-i} = (1 - \rho)v\). If both groups establish a lobbying presence, then the rich group is offered access at \(c_i^* = \frac{v}{\theta_i^*}\), and \(EU_i^* = 0\) and \(EU_{-i}^* = (1 - \rho)v\). It is a strictly dominate strategy for the rich group \(i^*\) not to form; and iterative deletion of strictly dominate strategies implies that the poor group will also not form in equilibrium. The unique Nash equilibrium of the game involves neither interest group forming a lobbying presence. If either group forms, the politician will offer that group access at such a price to capture all of its policy rent. The politician would benefit if interest groups lobbied, but they only do so if the politician

---

\(^\text{16}\)In reality, forming a lobby likely requires a monetary cost (in addition to any contribution paid). However, assuming such costs is not necessary for our results. We therefore consider the game without them.

\(^\text{17}\)In this sense, we assume that establishing a lobbying presence is a long-term commitment. The formal advantage of assuming that the formation decision takes place before the realization of \(e\) is that the analysis does not have to consider one’s choice of lobby formation or signals to the politician about one’s type. However, when formation is decided after observing one’s own type, there still exists an equilibrium with no formation.
credibly commits to less rent seeking behavior in the later stages of the game.

By implementing a contribution limit, the politician effectively commits to limiting her rent seeking behavior in the lobbying game. She cannot extract more rent from an interest group that forms a lobbying presence than the contribution limit allows. This can encourage lobby formation, which results increases evidence revelation and political contributions. The proposition below relies on two additional assumptions about parameter values, which work to limit the analysis to the most relevant cases and maximize intuition. Following the proposition, we discuss how the results change when these assumptions are relaxed.

A 2 \( \rho > 1/2 \).

A 3 \( \tau \leq (1 - \rho)w \), and \( \frac{\tau}{\phi} < \frac{v}{\rho \theta} (\rho - \frac{1}{2}) \).

Assumption A.2 implies that interest groups are more likely than not to have favorable evidence. Without the assumption, there is no ex ante advantage of being given the opportunity to present information and interest groups would never form a lobbying presence. Assumption A.3 assures that the politician’s cost of providing access is sufficiently small. Relaxing A.3 will not change the flavor of the results; although it would increase the number of discrete cases that would need to be addressed. For example, if \( \tau > (1 - \rho)w \), then a small-enough contribution limit results in the politician granting no access in equilibrium (i.e., she finds granting access too costly), even when one or both interest groups form lobbies.

Proposition 8 In the game with endogenous lobby formation, given A.1, A.2, and A.3:

- If \( c_{\text{max}} > \frac{v}{\rho \theta i^*} (\rho - \frac{1}{2}) \), then in equilibrium neither interest group lobbies and the payoffs are unchanged from the case without a limit.

- If \( c_{\text{max}} \in \left( \frac{v}{\rho \theta i^*} (\rho - \frac{1}{2}), \frac{v}{\rho \theta i^*} (\rho - \frac{1}{2}) \right) \), then in equilibrium \( i^* \) forms a lobbying presence, \(-i^*\) does not form a lobbying presence, and the politician offers \( i^* \) access at price \( c_{\text{max}} \). In this range for \( c_{\text{max}} \), \( \frac{\partial EW}{\partial c_{\text{max}}} = 0 \), \( \frac{\partial EU_P}{\partial c_{\text{max}}} > 0 \), \( \frac{\partial EU_{i^*}}{\partial c_{\text{max}}} < 0 \), and \( \frac{\partial EU_{-i^*}}{\partial c_{\text{max}}} = 0 \). Compared to the game with endogenous lobby formation and without limits, contribution limit \( c_{\text{max}} \) increases \( EW \), \( EU_P \), and \( EU_{i^*} \), and decreases \( EU_{-i^*} \).

- If \( c_{\text{max}} \in \left[ \frac{\tau}{\phi}, \frac{v}{\rho \theta i^*} (\rho - \frac{1}{2}) \right] \), then in equilibrium both \( i^* \) and \(-i^*\) form lobbying presences, and the politician offers both groups access at price \( c_{\text{max}} \). In this range for \( c_{\text{max}} \), \( \frac{\partial EW}{\partial c_{\text{max}}} = 0 \), \( \frac{\partial EU_P}{\partial c_{\text{max}}} > 0 \), \( \frac{\partial EU_{i^*}}{\partial c_{\text{max}}} < 0 \), and \( \frac{\partial EU_{-i^*}}{\partial c_{\text{max}}} < 0 \). Compared to the game with endogenous lobby formation and without limits, contribution limit \( c_{\text{max}} \) increases \( EW \) and \( EU_P \), and decreases \( EU_{i^*} \) and \( EU_{-i^*} \).
• If $c_{\text{max}} \in [0, \frac{\tau}{\varphi})$, then in equilibrium both $i^*$ and $-i^*$ form lobbying presences, and the politician randomly chooses one group and offers it access at price $c_{\text{max}}$. In this range for $c_{\text{max}}$: $\frac{\partial E_W}{\partial c_{\text{max}}} = 0$, $\frac{\partial E_{U_P}}{\partial c_{\text{max}}} > 0$, $\frac{\partial E_{U_{i^*}}}{\partial c_{\text{max}}} < 0$, and $\frac{\partial E_{U_{-i^*}}}{\partial c_{\text{max}}} < 0$. Compared to the game with endogenous lobby formation and without limits, contribution limit $c_{\text{max}}$ increases $E_W$ and $E_{U_P}$, and decreases $E_{U_{i^*}}$ and $E_{U_{-i^*}}$.

Interest groups will form lobbies only when the politician is sufficiently constrained in her ability to charge access fees. Too high of a contribution limit does not sufficiently constrain the politician’s rent seeking ability, and neither interest group forms a lobby in equilibrium. For intermediate levels of contribution limits, only the rich group finds formation worthwhile. When the contribution limit is low enough, both interest groups form lobbies. The politician finds any limit that results in lobby formation beneficial compared to the case when there is no limit. Even banning contributions (i.e., $c_{\text{max}} = 0$) benefits the politician as it encourages lobby formation and the resulting disclosure of evidence; this in turn results in a more-informed policy choice.

A contribution limit does not necessarily benefit interest groups, compared to the case of no limit. The rich interest group is better off when the limit causes is both sufficiently low to encourage their own lobby formation, and sufficiently high to discourage poor interest group formation. Any effective contribution limit $c_{\text{max}} > 0$ decreases the expected utility of the poor interest group. Any limit that is low enough to entice both groups to form lobbies will also decrease the expected utility of the rich interest group.

The politician’s ideal contribution limit depends on how costly the politician finds granting access, and the wealth differences between the interest groups. Let $c_{\text{max}}$ denote the politician’s ideal contribution limit; that is, $c_{\text{max}} = \arg\max_{c_{\text{max}}} E_{U_P}$. 

**Corollary 9** If $\frac{\tau}{\varphi} > \frac{\tau}{\rho}(\rho - \frac{1}{2}) \frac{2\theta_{i^*} - \theta_{-i^*}}{\theta_{i^*} \theta_{-i^*}}$, then $c_{\text{max}}^* = \frac{v}{\rho \theta_{i^*}}(\rho - \frac{1}{2})$. If $\frac{\tau}{\varphi} \leq \frac{\tau}{\rho}(\rho - \frac{1}{2}) \frac{2\theta_{i^*} - \theta_{-i^*}}{\theta_{i^*} \theta_{-i^*}}$, then $c_{\text{max}}^* = \frac{v}{\rho \theta_{-i^*}}(\rho - \frac{1}{2})$.

When the costs of providing access are sufficiently high, the politician prefers to set the highest contribution limit under which the rich interest group forms. For lower costs of providing access, the politician finds it worthwhile to decrease the contribution limit just enough to entice both interest groups to form. We may also interpret these results in terms of interest group wealth differences. If $2\theta_{i^*} < \theta_{-i^*}$ (that is, if wealth differences are substantial enough), then cutvalue in Corollary 9 is negative and it is always the case that only the rich interest group lobbies and is offered access.

The results are consistent with a situation in which both politicians and rich interests support a given, relatively-high contribution limit, but less wealthy interests push to decrease the limit or ban contributions all together. Such a story is broadly representative of
the situation surrounding the current policy debate. The analysis suggests that decrease contribution limits from their current levels may benefit poor interest groups at the expense of rich interest groups; but the change is unlikely to have a significant effect on policy outcomes for the cases when one policy is clearly better than the alternative.

5.3 Biased Politician

There are a variety of ways to incorporate politician biases into our framework. Here, we briefly discuss three possibilities and argue that none of them will significantly change the main results of the analysis. First, consider a setting in which implementing a bad reform decreases $U_P$ by more than implementing a good reform increases $U_P$. That is, $W(1, r) = w$, $W(1, o) = -\beta w$ where $\beta > 1$. Here, the only aspect of the analysis that changes is interest group expected payoffs when the politician offers both groups access. The politician, however, continues to be better off when she offers access to only one group when there is no limit.

Second, suppose that the politician gets additional utility $\alpha > 0$ whenever the reform is implemented, regardless of evidence. We assume that $\alpha$ isn’t large enough to overcome evidence differences that support the status quo; that is, the politician will still choose the status quo if she sees evidence in favor of the status quo but not in favor of reform, or if she grants access to the group $r$ which does not reveal any favorable evidence. Again, the politician continues to be better off when she offers access to only one group when there is no limit.\textsuperscript{18}

Third, the politician may set higher evidence standards for one of the interest groups. We can incorporate this type of bias in our framework through the probabilities that the groups can produce favorable evidence. Assuming $p_o > p_r$ captures the idea that the politician might require more evidence from the reform group than from a group supporting the status quo. The analysis is fully captured by the analysis in section 3, as it made no assumptions about the relative values of $p_o$ and $p_r$.\textsuperscript{19}

In each of these cases, when there is no contribution limit, the politician will offer access to one of the interest groups. The identity of the interest group that is offered access depends at least in part on their wealth parameters $\theta_o$ and $\theta_r$. The politician continues to set access fees and grant access to extract the greatest amount of policy rent from the interest groups. Therefore, the main results of the analysis are unchanged.\textsuperscript{20}

\textsuperscript{18}However, the group that is offered access is not necessarily the rich group. Instead, $r$ is offered access whenever $\rho \alpha + \frac{\nu}{\nu} \phi \rho \geq (1 - \rho) \alpha + \frac{\nu}{\nu} \phi \phi$. When $\rho > \frac{1}{2}$ [alternatively, $\rho < \frac{1}{2}$] this implies that $r$ is offered access for a larger [smaller] range of $\theta_r$ than in the case of no bias.

\textsuperscript{19}Here, $i^*$ maximizes $(\phi_{\theta} - \gamma)(p_o r + p_i)$.

\textsuperscript{20}The above cases do not allow the politician to be altruistic towards one of the interest groups. If that is the case, the politician may choose not to extract all of the policy rent from an interest group with access.
5.4 Continuous Evidence Space

The primary goal of the paper is to assess the popular claim that the contributions-for-access system favor rich special interests. We show that this claim does not take into account the fact that politicians may be strategic in their access choices. In equilibrium, rich interest groups are often worse off than poor groups. These results are most obvious when we assume a discrete evidence space, where interest groups either have or do not have favorable evidence. The simple structure limits the number of cases that must be considered.

If we instead assume a continuous evidence space, then there are a number of possible equilibria of the game depending on the values of the interest group and politician preference parameters \((v, \theta, \phi, \tau, \text{ and } W)\). This complicates the analysis without adding much to our results. As long as the politician cares enough about collecting contributions \((\phi \text{ is large enough})\), she will still prefer to give access to only one interest group, since doing so maximizes revenue. When interest groups only differ in terms of their evidence realization and wealth, the rich interest group receives access and the poor group does not. Contribution limits still limit politician rent seeking ability, playing the same role as in the discrete evidence game.

Unlike in the discrete evidence game, giving access to one group does not enable the politician to be certain that she avoids bad policy. In the continuous game, even if the group with access reveals a high \(e\), there is always a chance that the group without access has an even higher \(e\). Therefore, there is always the possibility that the politician chooses the worse policy if she only gives access to one of the groups. For low \(\phi\), the politician will choose to give access to both groups, which increases her exposure to evidence at the cost of collecting lower total contributions. Further exploration of these results are left for future analyses.

6 Conclusion

This paper makes two primary contributions. First, it presents an innovative model of money in politics that is both tractable and consistent with the story that political contributions help secure access to politicians. Although the money-for-access assumption is consistent with claims by both politicians and interest groups (e.g., Herndon (1982), Schram (1995) and Makinson (2003)), it has generally been overlooked by theoretical considerations of the political process.

Second, the paper contributes to the debate on campaign finance reform by considering the role of contribution limits in our framework. In doing so, we highlight serious flaws in one of the primary arguments in favor of contribution limits. We then present a novel (and

In such a setting, the impact of a contribution limit may be weaker, as the politician’s rent-seeking efforts may already be self regulated.
theoretically-justified) argument in favor of contribution limits: that limits can encourage interest group formation which can result in more informational lobbying and better policies.

Much of the popular support for contribution limits centers on the idea that rich special interests have better access to decision makers than do poor special interests. Contribution limits, it is said, help eliminate the rich group advantage, which will result in better representation for poor interests, and better policy. Our analysis shows that rich interest groups do tend to have better access to politicians than poor interest groups. However, we also show that this rich group access advantage does not translate into a policy or payoff advantage. What is missing from the popular argument (but not from our analysis) is the recognition that a politician will be strategic when offering access to interest groups and when choosing policy. In the equilibrium of our analysis, the politician offers access to the rich interest group, observes any evidence the rich group presents in favor of its policy, then chooses whichever policy she believes is best. Because the politician is not committed to acting in favor of the interest group with access, the likelihood of implementing a good or bad reform is unaffected by the identity of the group with access. Furthermore, the interest group with access is the target of politician rent seeking, which eliminates any possible advantage the group has from disclosing positive evidence. We show that poor interest groups (who are not offered access, and are thus not the target of politician rent seeking) have higher expected payoffs than their rich counterparts. In the basic framework, contribution limits tend to benefit rich interest groups and make the politician worse off. Too strict of a limit also has the potential to result in worse policy decisions, as the politician no longer finds it worthwhile to grant access and collect information before choosing a policy.

Although the basic model allows for a critical analysis of the popular arguments in favor of contribution limits, we find the setting too simple to put much faith in the conclusion that contribution limits are never beneficial for policy or the politician. To address this concern, we allow for endogenous lobby formation by the interest groups. In this setting, we present a novel argument in favor of contribution limits: that limits can encourage lobby formation, which increases informational lobbying, and results in a more-informed politician and better policy decisions. Specifically, interest groups recognize that if they form a lobbying presence, they may become the target of politician rent seeking. When there is no contribution limit, interest groups do not lobby and the politician collects neither evidence nor contributions. By imposing a contribution limit, the politician effectively constrains her rent seeking ability, resulting in more lobby formation and a better-informed politician.

There are other arguments in favor and against contribution limits that we do not address in the analysis. For example, in an election, contribution limits may make it more difficult for challengers to mount a viable campaign against a sitting incumbent. Limits may also result
in smaller budgets to run campaigns, which may result in fewer informative advertisements, and less-informed voters (e.g., Coate 2004b). Future work may incorporate the access model into an election game, allowing voters to rationally respond to politicians funding campaigns by selling access. Furthermore, our analysis makes the conservative assumption that interest group policy preferences and wealth are independent of the politician’s preferred policy or the preferences of the electorate. Relaxing this assumption, however, may strengthen our results as it becomes more important (from a standpoint of constituent welfare) to limit the politician’s ability to extract rents from the interest groups.

7 Appendix

7.1 Proofs

Proof of Proposition 1. Straightforward, given the analysis in the body of the paper. ■

Proof of Corollary 2. Follows from Proposition 1. ■

Proof of Lemma 3. If the politician offers access exclusively to \( i \), then she chooses policy favorable to \( i \) in states \( s \in \{ i, (o, r) \} \). If she offers access exclusively to \(-i\), then she chooses policy favorable to \( i \) in states \( s \in \{ i, \emptyset \} \). If she offers access to both, then she then chooses policy favorable to \( i \) in state \( s = i \) and half the time in states \( s \in \{ (o, r), \emptyset \} \). Thus, if \( s \in \{ i, -i \} \), then the policy choice is independent of which groups \( (i, -i, \text{or both}) \) are offered access. If \( s \in \{ (o, r), \emptyset \} \), then \( i \)'s favored policy results with probability \( p_{o,r} \) when only \( i \) is offered access, with probability \( p_\emptyset \) when only \(-i\) is offered access, and with probability \( \frac{1}{2} (p_{o,r} + p_\emptyset) \) when both are offered access. The probability of \( i \)'s favored policy is highest for the case when only \( i \) is offered access if and only if \( p_{o,r} > p_\emptyset \). ■

Proof of Proposition 4. When the politician offers \( i^* \) access, \( c_{i^*} = \frac{v_{i^*}}{\theta_{i^*}} \). In equilibrium, if \( i^* \) has positive evidence in favor of its position, it pays \( c_{i^*} \), and the politician chooses a favorable policy. This results in \( U - i^* = v_{i^*} - \theta_{i^*} c_{i^*} = 0 \). Alternatively, if \( i^* \) does not have evidence, it does not pay \( c_{i^*} \), and the politician chooses policy in favor of the other group, again resulting in \( U_{i^*} = 0 \). On the other hand, group \(-i^*\) benefits when the group that is offered access cannot produce evidence. With probability \( p_{-i^*} + p_\emptyset \), the politician chooses policy in favor of \(-i^*\). Thus \( EU_{-i^*} = (p_{-i^*} + p_\emptyset) v_{-i^*} \), which is strictly positive. ■

Proof of Proposition 5. If \( c_o = c_r = \emptyset \), then

\[ EU_P = 0 \] [case I].
If the politician sets optimal prices to offer access to both groups, then

\[ EU_P = \begin{cases} 
\rho (1 - \rho) w + 2 (c_{\text{max}} \phi - \tau ) \rho & \text{when } c_{\text{max}} \leq \frac{v}{2 \theta - \phi} \quad \text{[case IIa]} \\
\rho (1 - \rho) w + (c_{\text{max}} \phi \frac{v}{2 \theta - \phi} - 2 \tau ) \rho & \text{when } \frac{v}{2 \theta - \phi} \leq c_{\text{max}} \leq \frac{v}{2 \theta_2 - \phi} \quad \text{[case IIb]} \\
\rho (1 - \rho) w + (\frac{v}{2 \theta_1 - \phi} \phi - 2 \tau ) \rho & \text{when } \frac{v}{2 \theta_1 - \phi} \leq c_{\text{max}} \quad \text{[case IIc]} 
\end{cases} \]

When the politician offers access to both agents, the access fee for each \( i \) cannot exceed the minimum of \( c_{\text{max}} \) and \( \frac{v}{2 \theta - \phi} \). If the politician sets optimal prices to offer access to only one group, then

\[ EU_P = \begin{cases} 
\rho (1 - \rho) w + (c_{\text{max}} \phi - \tau ) \rho & \text{when } c_{\text{max}} \leq \frac{v}{\theta - \phi} \quad \text{[case IIIa]} \\
\rho (1 - \rho) w + (\frac{v}{\theta_i - \phi} \phi - \tau ) \rho & \text{when } \frac{v}{\theta_i - \phi} \leq c_{\text{max}} \quad \text{[case IIIb]} 
\end{cases} \]

In case IIIa, the politician offers access exclusively to group \( i^* \) if \( \frac{v}{\theta_i - \phi} < c_{\text{max}} \); otherwise, each group \( i^* \) and \( -i^* \) is offered access with equal probability.

It is straightforward to show that \( EU_P[\text{case IIIb}] > EU_P[\text{case IIc}] \) and \( EU_P[\text{case IIIa}] < EU_P[\text{case IIb}] \) always hold, that \( EU_P[\text{case IIIa}] < EU_P[\text{case IIa}] \) iff \( \frac{c}{\theta} < c_{\text{max}} \), and that \( EU_P[\text{case IIIa}] < EU_P[\text{case IIc}] \) iff \( c_{\text{max}} < \frac{v}{\theta_2 - \phi} + \frac{v}{\theta_1 - \phi} - \frac{v}{\theta - \phi} \). This implies that whenever \( \frac{c}{\theta} < c_{\text{max}} < \frac{v}{\theta_2 - \phi} + \frac{v}{\theta_1 - \phi} - \frac{v}{\theta - \phi} \), the politician prefers to offer access to both groups rather than only one group. Otherwise, she prefers to offer access to one group rather than both. When she prefers to offer access to only one group, she is indifferent between the groups unless \( c_{\text{max}} > \frac{v}{\theta - \phi} \), in which case \( i^* \) is willing and able to pay more for access than \( -i^* \).

Additionally, \( EU_P[\text{case I}] < EU_P[\text{case IIb}] \), \( EU_P[\text{case I}] < EU_P[\text{case IIc}] \), and \( EU_P[\text{case I}] > EU_P[\text{case IIIa}] \) iff

\[ c_{\text{max}} < \frac{\tau}{\phi} - (1 - \rho) \frac{w}{\phi} \quad \text{(5)} \]

This implies that the politician prefers to offer neither group access when Eq. 5 holds. Taken together these results give the three inequalities in Proposition 5.

The analysis finds only one solution using backward induction and iterated deletion of strictly dominated strategies, implying uniqueness. \( \blacksquare \)

**Proof of Lemma 6.** \( EW = \rho (1 - \rho) w \) for all \( c_{\text{max}} \geq \frac{1}{2 \phi} (2 \tau - w (1 - \rho)) \); otherwise, \( EW = 0 \). \( \blacksquare \)

**Proof of Proposition 7.** Without the contribution limit, in equilibrium, \( EU_P = \rho (1 - \rho) + (\phi - \frac{v}{\theta_1 - \phi} - \tau) \rho \), \( EU_i^* = 0 \), and \( EU_{-i^*} = (1 - \rho) v \). Note that the game without a limit is equivalent to the game with \( c_{\text{max}} \geq \frac{v}{\theta_1 - \phi} \), which is case IIb from the proof to Proposition 5. \( EU_P[\text{case IIIb}] \) is strictly greater than \( EU_P \) for each of the other cases in the proof to Proposition 5; thus, \( EU_P \) without a limit is also strictly greater than \( EU_P \) when \( c_{\text{max}} \leq \frac{v}{\theta - \phi} \).

Now consider the payoffs for the interest groups under limit \( c_{\text{max}} \). When \( c_{\text{max}} < \frac{1}{2 \phi}(2 \tau - (1 - \rho) w) \), neither group is offered access and

\[ \text{[case I] } EU_i = \frac{v}{2} \text{ for each } i. \quad (6) \]
If \( \frac{v}{\rho} \leq c_{\text{max}} < \frac{v}{2\rho_0} + \frac{v}{2\rho_0} - \frac{\tau}{\rho} \), then the politician offers access to both groups, and for each group

\[
\text{[case II]} \quad EU_i = (v - \theta ic_i)(1 - \rho) + (\frac{\tau}{2} - \theta ic_i)\rho^2 + \frac{v}{2}(1 - \rho)^2
\]

for each \( i \), where \( c_i = \min\{c_{\text{max}}, \frac{v}{2\rho} \} \).

If either \( \frac{1}{2\rho_0}(2\tau - (1 - \rho)w) \leq c_{\text{max}} < \frac{v}{\rho} \) or \( \frac{v}{2\rho_0} + \frac{v}{2\rho_0} - \frac{\tau}{\rho} \leq c_{\text{max}} \leq \frac{v}{2\rho_{-i}^*} \), then the politician offers exclusive access to each group with equal probability. In this case

\[
\text{[case IIIa1]} \quad EU_i = \frac{1}{2}(v - \theta ic_{\text{max}})\rho + \frac{1}{2}v(1 - \rho) \quad \text{for each } i.
\]

If \( \frac{v}{\rho_{-i}^*} < c_{\text{max}} < \frac{v}{\rho_{i}^*} \), then the politician offers exclusive access to the rich group. In this case

\[
\text{[case IIIa2]} \quad EU_{i^*} = (v - \theta ic_{\text{max}})\rho \quad \text{and} \quad EU_{-i^*} = (1 - \rho)v.
\]

Each of the values in Eq. 6 through Eq. 9 is strictly positive. Thus, rich group \( i^* \) (which received \( EU_{i^*} = 0 \) without the limit) is strictly better off under the limit. Poor group \(-i^*\) is just as well off in case IIIa2. In the other cases, whether the impact of the limit on \(-i^*\)'s expected utility is positive or negative depends on the parameter values. In case IIIa1, the limit has a strictly positive impact on \( EU_{-i^*} \) iff \( (v - \theta_{-i^*} c_{\text{max}})\rho > (1 - \rho)v \). In case II, the limit has a strictly positive impact on \( EU_{-i^*} \) iff \( (\frac{\tau}{2} - \theta_{-i^*} c_{\text{max}})\rho > (1 - \rho)^2 \), which simplifies to \( c_{\text{max}} < \frac{v}{2\rho_{-i}^*} \). In case I, the limit has a strictly positive impact on \( EU_{-i^*} \) iff \( \rho > \frac{1}{2} \).

**Proof of Proposition 8.** If neither group forms a lobby, then \( EU_{i^*} = EU_{-i^*} = \frac{v}{2} \), and \( EW = EU_{i^*} = 0 \). If both interest groups form lobbies, behavior in the lobbying subgame is given by Proposition 5. If only one group \( i \) forms a lobby, then \( i \) is offered access at price \( c_i = \min\{w_i, c_{\text{max}}\} \). A.3 assures that the politician will always offer the formed group access; even at the lowest possible contribution limit \( c_{\text{max}} = 0 \) the informational advantage of granting access dominates the cost of access.

Consider the lobby-formation decisions of the interest groups. We divide this into four cases: (i) only \( i^* \) forms a lobby, (ii) only \(-i^*\) forms a lobby, (iii) both groups form lobbies and both are offered access, (iv) both groups form lobbies a only one is offered access.

Case (i) requires \( i^* \)'s expected utility from lobby formation must exceed its expected utility from not forming; that is, \( \frac{v}{2} \leq \rho(v - \theta ic_{\text{max}}) \) which simplifies to \( c_{\text{max}} \leq \frac{v}{\rho_0^*}(\rho - \frac{1}{2}) \). Similarly, \(-i^*\) must prefer not to form, which requires \( c_{\text{max}} \geq \frac{v}{\rho_{-i}^*}(\rho - \frac{1}{2}) \). Case (i) therefore requires

\[
\frac{v}{\rho_0^*}(\rho - \frac{1}{2}) \leq c_{\text{max}} \leq \frac{v}{\rho_{i}^*}(\rho - \frac{1}{2})
\]

This condition also implies that if \( c_{\text{max}} > \frac{v}{\rho_{i}^*}(\rho - \frac{1}{2}) \), then neither interest group will form a lobby.

Case (ii) requires the opposite direction of inequality as Case (i); that is, \( \frac{v}{\rho_{-i}^*}(\rho - \frac{1}{2}) \geq c_{\text{max}} \geq \frac{v}{\rho_{-i}^*}(\rho - \frac{1}{2}) \). Since \( \frac{v}{\rho_{-i}^*}(\rho - \frac{1}{2}) < \frac{v}{\rho_{i}^*}(\rho - \frac{1}{2}) \), this is a contradiction and there cannot exist an

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equilibrium in which only the poor group forms a lobby.

Case (iii) requires both \( i \) to prefer formation when the other group forms. That is, \((1 - \rho)v \leq \frac{\tau}{2} - \rho \theta_i c_{\text{max}}\), which simplifies to \( c_{\text{max}} \leq \frac{\nu}{\rho \theta_i} (\rho - \frac{1}{2}) \). The politician must prefer to offer both interest groups access, which is the case when \( c_{\text{max}} \geq \frac{\tau}{\phi} \) (see Proposition 5). One can show that \( \frac{\nu}{\rho \theta_i} (\rho - \frac{1}{2}) < \frac{\nu}{2 \phi_i} \), which guarantees that interest groups are both willing to pay \( c_{\text{max}} \) when both receive offers of access. A.3 assures that \( \frac{\tau}{\phi} \leq \frac{\nu}{\rho \theta_i} (\rho - \frac{1}{2}) \). Case (iii) therefore requires

\[
\frac{\tau}{\phi} \leq c_{\text{max}} \leq \frac{\nu}{\rho \theta_i} (\rho - \frac{1}{2}).
\]

Case (iv) differs from Case (iii) in that while both interest groups form, only one group is randomly selected and offered access. For group \( i \) to prefer formation, it must be that \((1 - \rho)v \leq \frac{\tau}{2} (1 - \rho)v + \frac{\tau}{2} (\frac{\nu}{2} - \rho \theta_i c_{\text{max}})\), which simplifies to \( c_{\text{max}} \leq 2 \frac{\nu}{\rho \theta_{i^*}} (\rho - \frac{1}{2}) \). Clearly, this condition holds whenever the Case (iii) condition holds. The politician prefers to give access to only one group over this range of potential \( c_{\text{max}} \) iff \( c_{\text{max}} < \frac{\tau}{\phi} \). Therefore, Case (iv) requires \( c_{\text{max}} < \frac{\tau}{\phi} \).

This concludes the derivation of equilibrium. We now consider the effects of the potential limits on player utility and politician information. In Case (i), \( EU_{i^*} = \rho (v - \theta_i c_{\text{max}}) > \frac{\nu}{2} \), \( EU_{-i^*} = (1 - \rho)v < \frac{\nu}{2} \), \( EW = \rho (1 - \rho)w > 0 \), and \( EU_P = \rho (1 - \rho)w + \rho (\phi c_{\text{max}} - \tau) > 0 \). The right hand side of the inequality expressions represents the expected payoffs for the case without a contribution limit. We have already ruled out Case (ii). In Case (iii), \( EU_i = \frac{\nu}{2} - \rho \theta_i c_{\text{max}} < \frac{\nu}{2} \) for both \( i = i^*, -i^* \), \( EW = \rho (1 - \rho)w > 0 \), and \( EU_P = \rho (1 - \rho)w + \rho (\phi c_{\text{max}} - \tau) > 0 \). In Case (iv), \( EU_i = \frac{\nu}{2} - \frac{\nu}{2} \theta_i c_{\text{max}} < \frac{\nu}{2} \) for both \( i = i^*, -i^* \), \( EW = \rho (1 - \rho)w > 0 \), and \( EU_P = \rho (1 - \rho)w + \rho (\phi c_{\text{max}} - \tau) > 0 \) (given A.3). In each of the above cases, it is straightforward to calculate the derivatives of these expected payoffs.

**Proof of Corollary 9.** If only the rich group forms, the politician earns \( EU_P = \rho (1 - \rho)w + \rho (c_{\text{max}} \phi - \tau) \). If both groups form and get access, \( EU_P = \rho (1 - \rho)w + 2\rho (c_{\text{max}} \phi - \tau) \). Both expressions are strictly increasing in \( c_{\text{max}} \). Therefore, the politician’s maximum expected utility in the case with only rich group formation is \( EU_P = \rho (1 - \rho)w + \rho (\frac{\nu}{\rho \theta_i} (\rho - \frac{1}{2}) \phi - \tau) \), and her maximum expected utility in the case of both groups forming and gaining access is \( EU_P = \rho (1 - \rho)w + 2\rho (\frac{\nu}{\rho \theta_i} (\rho - \frac{1}{2}) \phi - \tau) \). It is straightforward to show that these values are greater than the possible expected payoff values when both form and only one gets access, or in which neither forms.

To determine when the politician prefers both groups to form lobby presences, we compare these expected utilities. The politician prefers only the rich group to form when \( \frac{\tau}{\phi} > \frac{\nu}{\rho} (\rho - \frac{1}{2}) \frac{2 \theta_i \phi - \theta_{i^*}}{\theta_1 \phi - \theta_{i^*}} \). Otherwise, she prefers the highest contribution limit under which both groups form lobby presences.

**References**

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